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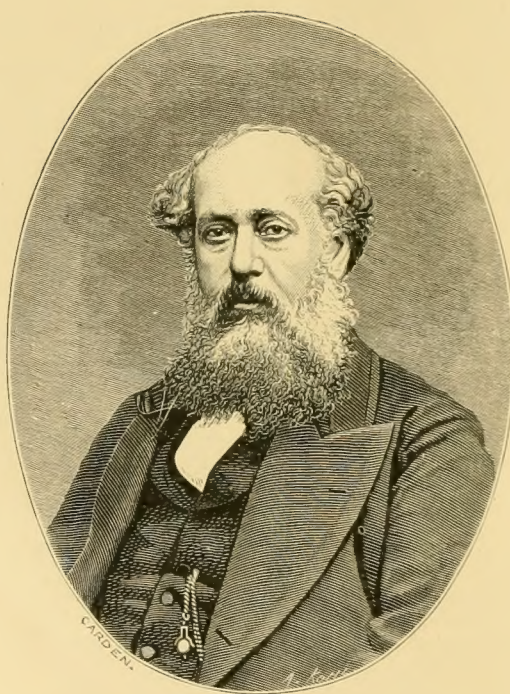
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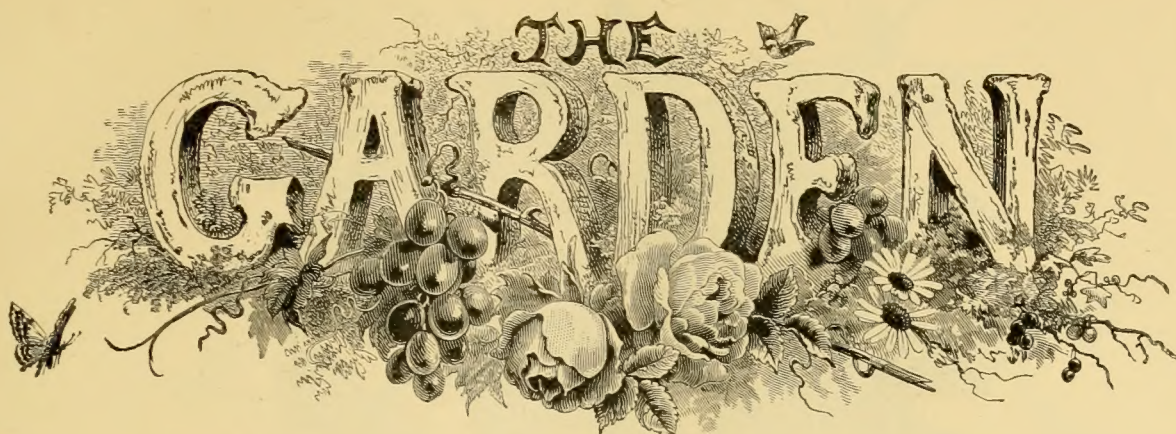


[JULY 3, 1886.]



JOHN ROYSTON PEARSON.

MASSACHUSETTS
AGRICULTURAL
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AN

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OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature: change it rather.
'The art itself is nature'—*Shakespeare.*

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TO THE MEMORY OF

JOHN ROYSTON PEARSON,

OF CHILWELL, NOTTS,

THIS TWENTY-NINTH VOLUME OF "THE GARDEN"

IS RESPECTFULLY DEDICATED.

W. R., July 3, 1886.

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JOHN ROYSTON PEARSON.

THE late Mr. John Royston Pearson was born at Chilwell on January 29, 1819, and died in the house in which he was born on August 14, 1876. He was an enthusiastic horticulturist and full of enterprise, which was only subdued in after-life by the insidious advances of a complaint, which eventually ended in his death. He was a florist of considerable note, and had at one time in his nursery at Chilwell one of the best collections of Tulips in the country. He took great pride in Polyanthus and Picotees, and was the raiser of Pearson's Alexander, a very fine gold-laced Polyanthus, now, it is supposed, extinct. He also raised Pearson's Plate Apple and Pearson's Prolific Nut. He took great interest in fruit culture, and adopted warmly the subject of orchard houses, erecting some very fine ones at Chilwell, and orchard house trees and Vines were well grown by him. In the raising of seedling Grapes he was very successful. His happiest hit in this direction was the crossing of the Royal Muscadine with the American Strawberry Grape, a cross which resulted in the introduction of that charming variety, Ferdinand de Lesseps, which gained, on account of its good flavour, a first-class certificate in 1870. In 1871 he fruited for the first time an excellent black Grape, which he named the Chilwell Alicante, a seedling from the Black Alicante or Tokay. In 1871 he also exhibited and received a first-class certificate for Dr. Hogg, a seedling from the Duchess of Buccleuch. This is described in the "Fruit Manual" as "the finest of the white Frontignan Grapes, equalling Chasselas Musqué in flavour, but much superior to it in size of both bunches and berries." Golden Queen was his next new Grape. It was stated to be the result of a cross between Ferdinand de Lesseps and Black Alicante. Of all his new Grapes this has perhaps become the most popular. It is a bright, golden-coloured Grape, both bunch and berry partaking of the character of the Madresfield Court. A variety named Chilwell White was also raised by him, and awarded a first-class certificate by the Royal Horticultural Society; but this eventually so disappointed him, that he returned the certificate and refused to send the Grape out. As a raiser of zonal Pelargoniums Mr. Pearson achieved a world-wide reputation. Many of the best and most useful varieties in cultivation originated at Chilwell. He commenced raising them just as the zonal Pelargonium was attaining the zenith of its popularity; he sought compactness of habit and quality and profusion of bloom. In each succeeding year new varieties of surprising beauty issued from Chilwell, and this work is continued by his successors to this day with equally favourable results. Mr. Pearson was the author of two useful manuals, entitled, "Vine Culture under Glass" and "Hints on the Construction and Management of Orchard Houses."



THE GARDEN.

VOL. XXIX.

ORNAMENTAL VINES.

ALL Grape Vines are quick growing climbers, and several of them are well worth a place among the best of climbing plants, especially where fine foliage is desired. In this latter respect the first place must be awarded to the different American Vines, such as *Vitis æstivalis*, *vulpina*, and *Labrusca*, all of which grow so rapidly, that they will quickly mount up into the branches of neighbouring trees. The practice of allowing climbing plants to grow in this way, though frequently illustrated in our woods and hedges by the Woodbine or Traveller's Joy (with which trees and bushes are often festooned), is

seldom followed by planters, though many climbers are under such conditions seen to far greater advantage than when stiffly trained to a wall or fence, and restricted as to the space they must occupy. A good illustration of this once came under my observation, in which a large tree of the Austrian Fir (*Pinus austriaca*) was taken possession of by a vigorous specimen of the Virginian Creeper, and in autumn the massive sombre hue of the Fir served as a background to display the vivid tints of the climber, with which a great part of the tree was draped. Another instance of this is in the case of the American Vines at Knap Hill, and the Wistarias at the same place, that disport themselves among the branches of large trees.

Where climbers are artificially planted in close proximity to trees or shrubs, in order that they may support themselves thereon, an examination of the natural examples of this style of grouping will reveal the fact that in most instances the roots of the climber are situated at some little distance from the trunk of the tree, and the plant mounts upward by the aid of supporting branches, and not by the main stem. Of course there are exceptions, in the case of Ivy, for instance, which grows well in the shade, and attaching itself to the bark thus mounts upward in this way. Another exception is when both plants grow up together, as then each takes its share of nourishment, but when artificial planting of climbers is resorted to, if placed against the trunk of a large tree they are simply starved to death. To remedy this, they should, if possible, be planted just outside the radius of branches, selecting a spot where a convenient branch offers ready support. In planting any of the Vines it should be remembered that they are gross feeders, and that a barrow-load of manure will always leave its mark on the ultimate growth. One of the most ornamental of the Vines from a foliage point

of view, omitting those commonly grown for their fruit alone, is

THE FOX GRAPE (*V. Labrusca*) of the United States, a very vigorous climber, with huge heart-shaped leaves, sometimes slightly three-lobed, of a stout leathery texture. In the autumn its decaying foliage assumes a bright crimson hue, certainly not so vivid as the Virginian Creeper, but sufficiently so to be very conspicuous. The other American Vines, viz., *V. æstivalis*, *vulpina*, *cordifolia*, and *riparia*, with the countless garden varieties raised therefrom, are all characterised by vigorous growth and magnificent foliage, but a very strong family likeness runs through the whole of them.

THE COMMON GRAPE VINE (*V. vinifera*) is represented by a couple of distinct varieties, one of which, the Cut-leaved Vine (*apiifolia*) has the foliage deeply slashed and lobed, thus imparting to it a strong distinctive feature. According to Loudon this kind has been in cultivation since 1648. The second variety is *purpurea* (the Claret Vine), whose name during the early part of the season appears somewhat of a misnomer, as the foliage is then only slightly reddish, but towards the end of the summer it becomes of a much deeper hue, and remains in that condition till the fall of the leaf.

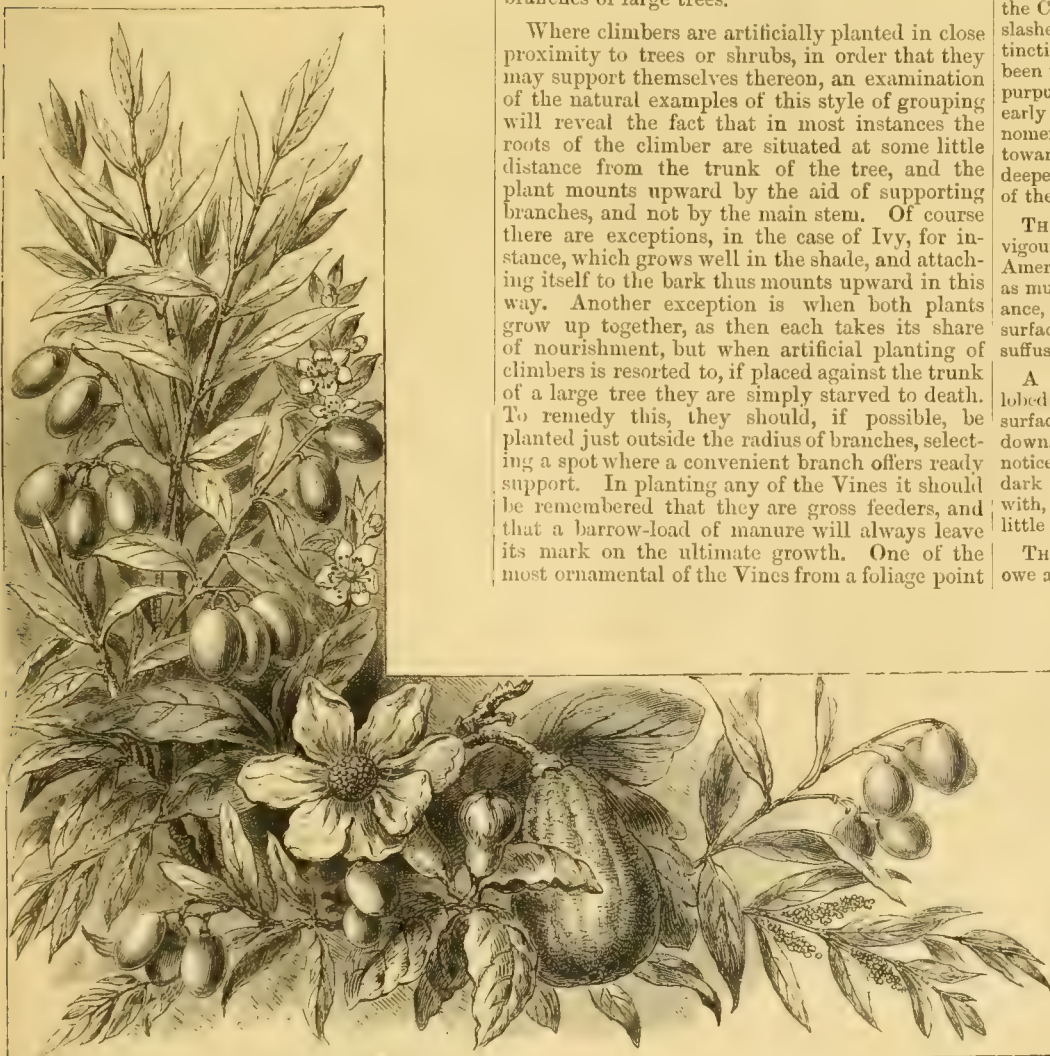
THE AMUR VINE (*V. amurensis*) is a Vine that for vigour and size of the foliage may be likened to the American kinds. The leaves are, on strong specimens, as much as a foot in diameter and massive in appearance, while the veins are very prominent on the under surface. In the autumn the leaves die off brightly suffused with red and yellow.

A JAPANESE VINE (*V. Thunbergi*) has deeply-lobed leaves of a very dark glossy green on the upper surface, and covered on the underside with a rusty down. It is a distinct and handsome Vine, especially noticeable from the deeply divided leaves and their dark shining surface. A form is occasionally met with, under the name of *V. Sieboldi*, that differs but little from the above.

THE HOP-LEAVED VINE (*V. humulifolia*) does not owe any of its prominence to ample foliage, for the leaves are small compared with the others; but the clusters of bright blue berries which ripen towards the end of summer stamp it as very distinct from any other Grape. The individual berries are about the size of large Peas, and are produced in the greatest profusion when the plant occupies a space on a hot, sunny wall.

V. HETEROPHYLLA VARIEGATA, with its red leaf-stalks and prettily variegated foliage, is generally used as a carpet plant for some of the more massive subjects in sub-tropical bedding, and usually regarded as tender; but here (not far from London) it has stood out of doors for several years, and assumed quite a herbaceous character, dying to the ground every year, and pushing away freely in spring from the large prominent buds just at the base of the plant.

Nearly allied to the Vines are the



Ampelopsis, and of them the *Virginian Creeper* (*A. quinquefolia*) is a well known and commonly planted climber, remarkable from the vivid hue of its decaying leaves. There is a variety of this characterised by larger bolder foliage, and usually met with in nurseries under the name of *macrophylla*.

AMPELOPSIS VEITCHI, or *tricuspidata*, is now almost as popular as the *Virginian Creeper*, and for covering walls it possesses the great advantage of adhering closely to the surface thereof, by means of the foot-like appendages with which the tendrils are furnished, while the other requires to be nailed in position. *Veitch's Ampelopsis* is rather slow in growth during its earlier stages, but when once well established it grows away freely. There are two very distinct types of foliage to be found on the same plant in the case of this *Ampelopsis*, viz., large three-lobed leaves that appear to have no character in common with the smaller heart-shaped foliage that adheres so closely to the wall. Large plants can be readily moved without injury provided the operation is carried out in a careful manner, for though the roots are but few and sparsely furnished with fibres, I have moved several with success. The plants were stripped from a wall, and when fixed in their new quarters the main stems were nailed in position, the consequence being that as soon as growth recommenced the young shoots attached themselves to the wall, and before the end of the first season the plants looked as if they had been in the same position for years.

A. BIPINNATA.—The leaves of this kind are bipinnate, which stamp it as widely different from either of the above. It is a native of the United States, but the rate of growth is not nearly so rapid as that of the *Virginian Creeper*, neither is the decaying foliage of so bright a hue.

A. STRIATA differs from all of the above in being evergreen, and when first introduced was regarded as likely to be a most desirable climber, but, generally speaking, it seems at present to have fallen short of the earlier expectations. Its rate of growth is slow, and in many cases the tips of the shoots become clubbed, and growth is thereby arrested. I am not aware that any of the bright red berries with which the plant is said to be thickly studded in its South American home have been produced in this country.

The propagation of these climbers is very easy, for while all may be struck from cuttings a good many can be raised from single eyes. The sort that requires most care is *Veitch's Ampelopsis*, which does best when cuttings of the young shoots are put in a frame during the growing season. In the case of these they had better be kept in the frame till the following spring. A good way to increase this *Ampelopsis* without trouble is, if conveniently situated, to layer some of the young shoots, which will root and form good little plants the first season. H. P.

Gymnogramma Pearcei.—This beautiful *Gymnogramma*, though seldom met with, is by no means a plant of recent introduction. It belongs to the section with quadripinnatifid fronds, and resembles to some extent *G. schizophylla*. It is, however, easily recognised by its triangular fronds and by the crown of its root being dusted over with a flour-like substance. It was discovered by Mr. Pearce in Peru. When potted in a mixture of good loam, peat and sand, it grows freely. We keep our plants of it in a stove, the warm atmosphere of which suits it admirably.—H.

Clematisses.—No *Clematis*, in my opinion, is more worthy of a place against a wall, both for summer and autumn effect, than *C. graveolens*. The only fault to be urged against it is that of its being deciduous; but, where effect is the first consideration, this may be easily remedied by training it through an evergreen, whether a showy flowering one or not. I saw a few weeks ago a rustic arbour covered with common *Jessamine* and *C. graveolens*, and the effect of the feathery fruit peeping out here and there amongst the dark olive-green of the *Jessamine* was really charming, and well worth imitating. Unlike the herbaceous *Clematisses*, this one, instead of requiring to be cut down every year, only needs a little trimming to show the *Jessamine* to better

advantage during the dull months. The flowers, which continue open all through the summer, do not lack beauty, though by no means bright. They are, however, sweetly scented, which fully compensates for want of brilliancy.—K.

TREES AND SHRUBS.

THE SPANISH SILVER FIR.

(*ABIES PINSAPO*.)

M. BOISSIER's description of this tree in 1838 led to its introduction into Britain, and since that time it has, perhaps more as an ornamental and perfectly hardy tree than for its size or the value of its timber, gradually risen in the estimation of planters, until at present no collections of coniferous trees are considered complete without a specimen or two of it. Outside its native haunts England cannot, however, boast of possessing either the oldest or largest trees of this Fir, as of the seeds collected by Boissier in the mountains of Spain in 1839, six were sent to M. Vilmoren, of Paris, who planted them at Ferrières, where two of them, and it is believed the only surviving two, may now be seen. They are remarkably fine specimens, of good proportion, and about 100 feet in height. In this country there are many fine trees, notably those at Blenheim Park, Eastnor Castle, Baronhill, Castle Ashby, as well as on this and one or two of the adjoining Welsh estates.

It is a native of the mountainous districts of Granada, in Spain, such as the upper heights of Sierra Nevada, Sierra Beneja, and the province of Ronda. Delighting in a cool northern exposure, it not unfrequently extends to the highest summit of these mountains, and where the snow lies for nearly half the year. The prickly, short foliage, extreme density and rigidity, combined with its compact growth and unique appearance, at once distinguish this from all other Silver Firs. In favourable circumstances few trees are more ornamental and effective; but to see it in its beauty it must be planted singly or sufficiently far apart from other trees so that the branches may not grow sparse and stunted, but have sufficient room for full development. At no season is it, perhaps, more attractive than during late spring or early summer, for then the young growths contrast finely with the older foliage, the glaucous and remarkably stiff leaves forming a regular compact cone of the finest colour. From 50 feet to 70 feet in height is the average size of this tree, with a straight clean bole, the branches dense, rigid, and usually dividing into innumerable ramifications from the ground upwards. The leaves are placed thickly and regularly disposed around the branches and at right angles thereto, three-eighths of an inch in length, mucronate, and enlarged at the base. They are of a uniform dull or light green, with two rather indistinct silvery lines beneath and an irregular marking of the same on the upper surface. Branchlets remarkably thick in proportion to their length, which thickness is carried out without much diminution in size to their tips or buds. Cones $4\frac{1}{2}$ inches long by fully $1\frac{1}{2}$ inches diameter, oval or oblong, singly or clustered, usually the former, with a short, thick foot-stalk, one-quarter of an inch in length (not sessile, as described by several botanists). Foot-stalk of cone as thick, or thicker, than the branchlet, and thickly covered with leaves. The male catkins, which in the trees here are borne in great abundance, even on the lower branches, are about three-quarters of an inch in length, erect, greenish-brown, and generally produced on the upper side of the terminal branches.

At Penrhyn this tree thrives fairly well on soils of very opposite quality, on different sites, and at various elevations. At Brynmeirig, near the Penrhyn slate quarry, and growing on shallow peaty soil, or more correctly what is composed of decayed vegetable refuse and resting on shaly rock, is by far the finest specimen on this estate—finer, indeed, than such as we would consider far more favourably situated, both as regards soil and aspect. This tree is now 50 feet in height, with a stem girth at 3 feet of 4 feet 4 inches, and spread of branches covering 21 feet in diameter. As regards symmetry, it is in every way perfect, having been allowed ample room for the full development of both root and branch. Another fine tree, but inferior both in stature and ornamental appearance to the latter, is growing near the front entrance to Penrhyn Castle on rather stiff loam, resting at no great depth on broken rock, and at less than 100 feet above sea level. Although growing under what would be considered favourable circumstances unless for the shade of several encroaching trees, yet this tree cannot be spoken of as in first rate health, which the sparse foliage and somewhat meagre appearance but too plainly show. Several others planted out as general forest trees over the estate, although producing good clear stems, yet point out to us that to attain its best proportions and a well-branched stem, the *Pinsapo Fir* requires a high airy situation, and where it is not hemmed in or encroached upon by neighbouring trees.

In its younger stages of growth this tree is usually well covered with branches from base to apex, the diameter of their spread being equal to the tree's height. This is well exemplified in the case of several specimen trees planted for ornament on the lawn here, the regularly branched stems and symmetrical appearance being the admiration of all beholders. It stands pruning equally well, if not indeed better than most of its tribe, and from my own experience, as well as what I have been informed by others, I would certainly recommend the removing of straggling branches or contending leaders, as an operation not to be dreaded where necessity demands its being performed. Starting late into growth, this tree never suffers from unseasonable spring frosts, which cannot perhaps be said of any other species, not even excepting the common Silver Fir, *A. pectinata*. Regarding the quality of timber produced in this country, I can say but little, other than that it closely resembles, both in colour and texture, that of the Silver Fir; but the examples which come under our hands were not sufficiently matured for a decided statement to be given. *Abies Pinsapo* has, in not a few collections, been confounded with *A. cephalonica*, but for what reasons it would be difficult to say, as, in our opinion, no two species are distinct either in habit or general appearance. The leaves of *cephalonica* are longer, thinner, and far less crowded than in the other species and twisted at the base, cones at once distinguished by their larger size and by the bracts of the scales being exerted, the reverse of this being the case in *A. Pinsapo*. A. D. WEBSTER.

Select Hollies.—It would be difficult to name any small-growing evergreen tree that can be used in so many ways by those engaged in planting either for use or ornament. In the mixed shrubbery, or in groups, or standing alone in the form of single specimens, it is one of the most effective trees we have. For a hedge combining close impervious growth with a good appearance and an ability to last it stands unequalled. To form a screen, either for shelter or other purposes, it is alike adapted. The ability which Holly has to thrive in almost any kind of soil where not too wet is much in its favour. The c m-

mon *I. Aquifolium* may be set down as not surpassed for general usefulness, but for decorative purposes there are one or two other green-leaved sorts that surpass it. *I. Hodginsi*, a very large-leaved variety, is a good grower and one of the best; *I. ferox*, the green-leaved Hedgehog, is a distinct sort. The Golden Queen and Silver Queen are both beautiful varieties; the gold and the silver forms of *I. ferox* are also both desirable plants. *I. handsworthensis*, a silver-leaved variety, is a fine kind. Waterer's Golden Holly is remarkable for its dense bushy growth. The Milkmaid is an old free growing variety, distinct in appearance. Amongst weeping Hollies there is the common green, the new golden-leaved, the Weeping Milkmaid, and Perry's Weeping; all these are desirable kinds. Many more might be named, but these comprise most of the best varieties.—T. BAINES.

MANAGEMENT OF CONIFERS.

SOME remarks made by a writer some time ago upon the way in which trees of this class should be pruned when as much as possible is required to be made of them where space is limited appear to be so rational, that they deserve reproduction. The plan, of course, it would be unreasonable to suppose could ever be put into practice in plantations where large numbers of trees would have to be dealt with, and if it could the advantage would be doubtful. In cases, however, similar to the one spoken of the idea would be of value, and should be tested. The writer says:—

My space being limited, I cannot allow my Conifers to grow as they like, to develop according to their own sweet will, so I have been pruning many of them for years. I find that they bear pruning like Willows or Hollies, only the pruning must not be carried into the old wood. The foliage of most Conifers is peripheric, confined to the extremities of the branches, and it is here that the pruning must take place. The plan is to begin early, when the tree is young, and merely to take off the extremity of the shoot. The tree becomes very bushy and runs up. I have a Deodar and a *Cedrus atlantica* on the lawn thus treated that were planted twenty years ago. They have run up to a height of 50 feet, with a bush diameter of 10 feet only, and are decidedly ornamental. They are side by side, and show very little difference in habit. Some Conifers, Spruce Firs principally, were cut back into the old wood during my absence, made no new growth, became unsightly from the naked branches, and had to be eradicated. What first gave me the idea that Conifers might be run up like Poplars by pruning was the sight of Spruce Firs in Switzerland, in exposed mountain situations, 60 feet or more high, clothed from base to summit with branches only 3 feet or 4 feet long—whether the result of cold and wind, or of pruning for the sake of the leaves for fodder, I know not.

Plane tree "buttons."—I never remember the Plane trees as heavily laden with fruit as they are this season, some specimens being completely covered with the drooping clusters of globular fruits. When in this condition a Plane tree stands out conspicuously from most of its deciduous associates, not only from the peculiar appearance of the bark, but from the profusion of its fruits, which will remain on throughout the greater part of the winter.—T.

Bronze-tinted Conifers.—The various Conifers that change more or less to a reddish or brownish tint during the winter appear this season to have that colouring unusually pronounced, and owing to this some specimens among the *Biotas*, *Thujas*, and *Retinosporas* are extremely attractive in their winter garb. The most conspicuous in this respect is *Biota elegantissima*, which is an upright habited variety of the Chinese *Arbor-vitæ*, with foliage of a golden yellow during the summer, but changing in the winter to a brownish hue. A couple of specimens in our garden are now of a beautiful rich reddish bronze tint, which is still further intensified when

the sun shines. This is by far the deepest tinted among the *Biotas*, unless it be the little-known *B. meldensis*, a kind which, though attaining a good size, has only developed the juvenile foliage, and is wanting in the scale-like leaves peculiar to the type. This variety has been by various authorities relegated to *Thuja*, *Retinospora*, and *Juniperus*, as well as *Biota*, but it now seems definitely settled as belonging to the *Biotas*. It is only worth consideration as a curiosity, for it is a loose, unattractive plant, except just now, when it is of a bright reddish-brown colour. Equally conspicuous with *B. elegantissima*, but of a different hue, is *Cryptomeria elegans*, bright, bronzy crimson in tint, suffused, when viewed from some standpoints, with just a suspicion of purple. It is easily propagated, and quickly attains a good size, though, after reaching a height of 10 feet to 12 feet, it usually becomes top-heavy, and is not then so effective as when smaller. From the distinct hue of this *Cryptomeria*, it is well worthy of consideration where medium-growing lawn trees are desired. Another Conifer that forms, with *Biota elegantissima* and *Cryptomeria elegans*, the brightest of winter effects is *Thuja Vervaeana*, a dense pyramid of a deep, bronzy orange hue, quite distinct from any of the others. It is a variety of the American *Arbor-vitæ*, and, like the type, is perfectly hardy. The little dense-growing *Retinospora ericoides* is now of a purplish brown colour, as also is the nearly allied *R. dubia*. The Red Cedar (*Juniperus virginiana*) is in some individuals tinged with red, while others are but little altered. The above by no means exhaust the list of Conifers that assume a brownish tinge during winter, but I have simply indicated a few of the most prominent.—ALPHA.

INDOOR GARDEN.

NOTES ON NYMPHÆAS.

MR. FRANK MILES' notes on *Nymphæas* are full of interest and useful information, and as one who has for some time taken much interest in the Water Lily family I hope shortly to make a few observations on some points raised in his paper. For the present I wish only to correct an impression that may probably arise from what he says respecting the storing of the seeds of *Nymphæa*. Prof. Caspary is, I suppose, the greatest of living authorities on plants of this family, and his views on any point concerning their cultivation command respect. I can only account for his advice to never allow *Nymphæa* seeds to get dry by suggesting that long practice in always preserving them in water has led him to believe that method to be the only safe one. Mr. Baxter, curator of the Oxford Botanic Gardens, and a many years' admirer and grower of Water Lilies, adopts Prof. Caspary's plan for keeping *Nymphæa* seeds in winter, but I fancy he once told me he sometimes kept them dry. Now at Kew the seeds of these plants are taken off in their capsules as soon as ripe, placed on a shelf in a warm room to dry, and then put into packets and stored in a drawer till wanted for sowing. We have now seeds of most of the kinds grown in the tank here last summer, and certainly we expect to find them as capable of germination as we have hitherto. *Nymphæa amazonica* and *N. ampla* were raised from seeds received in a packet from Demerara last year; the plants of *N. pygmaea* (tetragona) which flowered all last summer in the tank here were raised from seed also received in a packet by post from Hong-Kong. *N. gigantea* was raised only a few weeks ago from seeds sent dry from Australia. On the other hand, a collection of *Nymphæas* has been established in the Demerara Botanic Gardens from seeds supplied by Kew, and these, I know, were all sent in an ordinary seed packet. I could give other proofs of the safety of the dry method, but the above are, no doubt, sufficient. We keep *Euryale* dry; indeed, if kept

in water the seeds of this plant germinate at once. *Nelumbiums* and *Trapas* are quite safe, as Mr. Miles knows, when kept dry, and I am this year keeping a number of the seeds of *Victoria regia* in total dryness with a view to testing their vital powers after being thus treated. I am not aware that this point in connection with *Victoria* seeds has ever been tested, and yet there seems to be no reason why they should not retain their vitality when kept dry as well as the *Nelumbiums*, *Euryale*, and the *Nymphæas*. A word respecting *N. alba* var. *rubra*, sometimes called *N. sphærocarpa* and *N. Caspary*; Mr. Miles is wrong in his belief that the Kew plants died in their infancy, as the plant which is figured in the *Botanical Magazine*, t. 6736, was in fine health and flowered freely last summer in the tank for hardy aquatics, and this is the plant which was first flowered at Kew in 1878, as noted under the above figure by Sir Joseph Hooker. This plant will not thrive in warm water—at least such has been the result of an attempt to grow it along with the tropical kinds here, and where *N. odorata* and *N. candidissima* grow and bloom most satisfactorily. W. WATSON.

Kew.

NELUMBIMUM LUTEUM.

IN his interesting account of his work among the Water Lilies (p. 652, 1885), Mr. Miles is unfortunately mistaken in supposing that the plants which I flowered were his seedlings. Those were originally received as tubers from the Oxford Botanic Garden. I should have been delighted if I had flowered his seedlings, because I have never yet known seedlings to live over the first year, though I have raised young plants many times, as others have done, with the same result. The seeds are very easily raised, and the young plants grow well, but the tubers, without which the plants cannot exist in winter, are not formed. The plants in autumn cease to grow, and the parts which perish naturally of course die, but when this has taken place there is nothing left. The difficulty is no doubt this, that we have not a summer long enough or a summer with days affording light enough to enable the plants to perform their functions so well as to make tubers. Why we cannot grow this *Nelumbium* out of doors is easily stated. It is because we have not that hot bright summer of America, which alone can enable it to grow satisfactorily and to prepare for winter. That indeed might be a great deal colder than it is with us, and the plant would still be perfectly happy. *Nelumbium* seeds, it may be worth remarking, germinate in a few days if the testa—impervious to moisture in a dry state—is cut through. Without this attention the seeds, having not fallen at once into mud or water, and having therefore become unnaturally dry, will lie indefinitely without growing. This is only an extreme case of what happens with many other seeds. When seeds would not grow, I have often got them to start immediately by cutting a tiny piece out of the testa. A number of hard-seeded Leguminosæ that lie long in the soil will grow very often directly they are cut. But to return to *Nelumbiums*, I should like to say, as the Cambridge flowers have been referred to as not large, or as pale or poor in colour, that the proper size and colour of these flowers have not been seen away from Cambridge. I have been able only to exhibit flowers that were too young to be fully coloured, or have otherwise not been as one could have wished. At the same time, of course, the best flowers have not been nearly so large or so deep in colour as they are described to be in a wild state. *Nelumbium* seeds, I have been told, I believe by Mr. Baxter, of Oxford, are perfectly

good even when forty years old, and have been grown after having been kept for that length of time.

R. IRWIN LYNCH.

The white Nelumbium.—Fearing that Mr. Hovey's supposition (vide *THE GARDEN*, page 615) about my double white *Nelumbium* at Wemyss Castle may mislead lovers of this genus as to where the one in question came from, I write to tell you that it was sent to me straight from a temple in Japan as a great rarity. I cannot at this moment lay my hands on the correspondence concerning it, but will look up the notes and communicate them to you in full in a short time, with further particulars about it.—DOROTHY E. WEMYSS.

GARDEN IN THE HOUSE.

DINNER-TABLE DECORATION.

AN important item in household arrangements just now is the effective decoration of the dinner-table—for decoration there must be, and that in many instances on a rather extensive scale. What form these decorations shall take must, as a rule, depend largely upon the kind of materials available; if the following suggestions cannot be fully acted upon, they may yet afford some sort of a guide to the inexperienced in such matters. Ladies frequently display great taste in floral arrangements, but there is too much labour incidental to table decoration on a large scale for them to carry it out, and it is usually left to other hands. Sometimes instructions are given as to how the table is to be treated, but oftener the decorator must rely on his own resources. March stands, or whatever they may be termed that win prizes at flower shows, rarely now find their way to a dinner-table, especially at this time of year, for the simple reason that they are much too tall to be effective. It must be remembered that there are very few gas-lighted dining-rooms, lamps being used in some cases, but oftener candles, those on the table being placed in branching candlesticks, with a tiny coloured shade over each to throw a subdued light on to the cloth and its decorations, anything approaching a glare of light being thus carefully avoided. It follows that neither tall plants nor tall vases would be effective, these being either in a line with or above the shades, and therefore lost. It is also equally undesirable to place either heavy vases of flowers or plants on the table, these serving to obstruct the view and prevent the flow of cheerful conversation that ought to accompany every festive occasion. It is the comparatively modern innovation of decorating "on the cloth" that finds most favour, and I propose now to discuss this as fully as space will permit.

AUTUMN LEAVES and berries when grouped in baskets or vases are singularly beautiful, and for small tables they can be effectively employed, the colours lighting up very prettily; but when we decorate a large table, laid, say, for twenty guests, we prefer a combination of coloured leaves and bright flowers. We consider a good supply of fresh Moss indispensable, this being dried sufficiently to admit of the soil being well beaten out of it. With this we form a groundwork or bed for the leaves and flowers, thus giving them a more imposing appearance than when they are laid flat on the cloth. What form the design or style adopted shall take with us usually depends upon the number of candlesticks and the number of dessert dishes, as well as their form; but in most instances one or more central plants are employed, these being sometimes placed in silver cups, but more often not, and disposed midway between the candlesticks. For this purpose the preference is given to elegant plants in 5-inch pots of *Pandanus Veitchii*, probably the best

table plant that can be mentioned; *Dracaenas*, such as *Frederica*, *Bausei*, *vivicans*, *igneas*, *terminalis*, *Cooperi*, *aurantiaca*, and *Princess Margaret*; small Palms, including *Geonoma gracilis* and *intermedia*; *Cocos Weddelliana* and *Areca Verschaffelti* and the *Kentias*; *Croton angustifolium*, *interruptum*, *aureum*, *Johannis*, *Weismanni*, *picturatum*, and *nobile*, and *Aralia Veitchii* and *gracillima*. We have occasionally used Ferns, as well as *Begonias*, double *Primulas*, and other flowering plants; but, as a rule, they are too formal and heavy to be pleasing, and when we have plenty of suitable fine-foliaged plants, they now invariably receive the preference. Pairs are much preferred to odd plants, unless it be for the centre, and if any are in pots larger than the 5-inch size, these have to be turned out, or they stand too high for our purpose. Before they are placed on the table, either a circular piece of brown paper about 12 inches in diameter, or a flat, shallow zinc circular trough is placed on the cloth, in order to keep this clean. The next proceeding is to mound over the ball of soil and roots with Moss, this, if not quite green, being faced over with sprays of *Cupressus*, a thin surfacing of flowers and a wide elegant fringe of *Cupressus* sprays completing the bank. If green-foliaged plants are used, the flowers best suited to these are double and single *Primulas*, *Christmas Roses*, *Azaleas*, *Pelargoniums*, *Chrysanthemums*, and other white flowers, with a ring of coloured flowers to divide them from the cloth. Yellow flowers, including *Chrysanthemums* and *Jasminum nudiflorum*, are most effective in contrast with brightly-coloured *Dracaenas*; while with the *Crotons*, pink, crimson, and scarlet double and single zonal *Pelargoniums*, *Julie Lagravère*, *Henri Jacotot*, *Salteri*, and other richly-coloured *Chrysanthemums*, *Poinsettias*, red *Primulas*, and a great variety of hybrid and other *Rhododendrons* may be effectively employed. As these banks of flowers present in most cases a rather too neat appearance, this may easily be obviated by having a few fronds of *Maiden-hair Fern* lightly draped over them. No joints being carved on the table allows plenty of room for decoration other than on the middle, and we always endeavour to have a good number of dessert dishes on the table, which serve to brighten it up and harmonise well with the design. Sometimes tiny plants, either of *Coleus*, *Croton*, *Gesnera*, *Dracena*—and, failing these, tops of such plants cut and placed in small "fish-globes" filled with water—are set between each dish, the pots in this case also being mounded over with Moss, greenery, and flowers, these and the central plants being found ample decoration for the night—and rarely failing to please; in fact, it is surprising how fresh the cut flowers are sometimes found in the morning, and they not unfrequently remain on the table till after luncheon time, when they are placed in water, and are available for another night or more in the week.

SOMETHING FRESH has frequently to be attempted every night, but, by giving a turn to the kaleidoscope, as it were, quite a novel effect may be created with nearly the same materials. For instance, the plants may be placed in silver cups or china vases, but preferably the former, only the surface of the soil and the part exposed to view being covered with green Moss or *Selaginella*. Round the base of each cup, as well as the candlesticks, a ring of Moss can be placed, next a facing of *Cupressus*, if necessary, and on this is disposed a number of either *Coleus* or *Iresine* tops, richly coloured leaves of *Mahonia* or *Berberis*, sprays of variegated *Holly*, *Euonymus*, *Cineraria maritima*, *Panicum variegatum*, and any other showy foliage. This alone would not be bright enough, and all will be greatly improved by having a thin

facing of showy flowers, though not in mixture; and for this purpose the small trusses of bloom freely produced by the bedding zonal *Pelargoniums* are very effective, as also are small *Chrysanthemum* blooms, sprays of *Cinerarias*, *Primulas*, *Snowdrops*, *Jasminum nudiflorum*, and other flowers of which there may be an abundance. Sprays of berried plants, including *Holly*, may also be used, especially at this time of year. On one occasion we had a plentiful supply of *Iresine Herbsti* and *Mesembryanthemum cordifolium variegatum* tops, and these neatly intermingled had a most pleasing effect. So also have the richly coloured *Mahonia* leaves, with a spray of *Jasminum nudiflorum* laid in each. If it is necessary to mix the flowers, not more than two colours should be used, either pink and yellow, red and white, or red and yellow, the latter, usually appearing nearly white by candlelight, being allowable. A fringe of Fern fronds, such as *Gymnogrammas*, *Adiantums*, or *Cupressus*, points outwards, say about 5 inches wide, should surround these circles, or they will present a somewhat formal appearance. Then, supposing there are ten dishes of dessert on the table, one at each end and four at each side, the same number of small glasses—nothing surpassing the tiny glass globes or fish bowls—may be employed, one on each side of the end dishes and the remainder singly midway between the side dishes. In each of these glasses may be placed either specimen *Chrysanthemum* blooms, giving the preference to the Japanese varieties, or heads of *Poinsettias*, large *Primula* trusses, *Camellia* blooms, forced *Rhododendrons*, large trusses of either single or double zonal *Pelargoniums*, *Allamanda* blooms, which are frequently available till after Christmas, and strong sprays of *Bouvardias*. These should be properly balanced, each having a frond of *Maiden-hair Fern* or spray of *Cupressus* placed under it, so as to face outwards. Then, as there is usually plenty of space between the dishes and that required for the comfort of the guests, it will still further add to the beauty of the table if the whole of the glasses of flowers are connected by a thin band of Moss, foliage and flowers, the whole of the table being festooned, as it were. Another night, instead of this narrow band being made to encircle the front of the dessert dishes or connected with the glasses, it may be formed perfectly straight, the corners being made to correspond with the shape of the table. These straight lines may be varied by the introduction, at rather wide intervals, of *Camellia* blooms, trusses of *Primulas*, *Rhododendrons*, and other flowers, or else prettily variegated tops of *Crotons* or *Coleus* may be substituted, these either being placed in tiny glasses of water or bound up in wet Moss. The latter will keep fresh for hours, and may be struck, if need be, afterwards. We have also used a quantity of tiny hardy wall Ferns, of which there are abundance hereabouts, but they are scarcely bright enough to meet the taste of many who have seen our tables.

A COMPLETE CHANGE from the foregoing is necessary, especially when a large table has to be decorated for many consecutive nights. At this time of the year it is an easy matter in many places to find a quantity of prettily variegated or coloured wild Ivy, and this may be very effectively and quickly distributed all over the vacant spaces on the table, a few vases of flowers or plants, with or without a vase of flowers, being added, in order to brighten what would otherwise be a dull arrangement. We find that the *Smilax* or *Myrsiphyllum asparagoides*, which is largely employed in decorating dining tables in America, gives great satisfaction here, and we cultivate a number of plants specially to afford a good supply of twining growths. These are cut

to their full length, carefully untwined, and then neatly spread all over the table. It should be added that this plant forms long wiry growths, with small glossy green leaves, which are very effective on the white table-cloth, or also when draped over vases or banks of flowers. With this we have sometimes used a quantity of *Calanthe Veitchi* spikes, these being carelessly laid on the *Smilax*, or on Fern fronds. Various other combinations will doubtless suggest themselves to the table decorator.—*Field*.

NOTES ON RECENT NUMBERS.

CHRISTMAS FLOWERS (p. 646).—When one hears that a single grower cut in one week the number of flowers enumerated one cannot altogether wonder where the armfuls one sees in the shop windows come from. There are often as many flowers in one single London street as would shame the production of a fair-sized country garden, and at the present rate of things we may expect before long that the country will derive its supply from the metropolis, just as the seaside towns do their fish. The worst of it is that one's cockney cousins do not altogether realise the changed state of things, and seem to look upon one's store as being nearly as interminable as that of the basket of a "flower brigade girl." The Londoner who writes to his friends abroad to send him the blooms of the sunny south does not seem to know that he can get exactly the same just outside his street-door, and, in fact, he pays about 30 per cent. less for them than his friends would have to do in the Riviera. The decorations for churches at Christmas time have not yet taken an economical turn, and a good deal of expense is often incurred in order to procure them. Whether the money thus spent would not be better applied in furthering the true work of the church must seem to some people a question which may justly be raised.

THE MULBERRY (p. 646).—I suppose the reason that people seem to think so little of this fruit is that they so seldom get the chance of eating it in perfection; but many a one who came across Mulberries on a hot, thirsty day, such as there really was more than once last summer, must have been glad of the opportunity of showing that he did not altogether despise them. A "mash" of really ripe fruit with sugar and cream is about as good and refreshing as an unripe Mulberry is nasty and disappointing. The happy possessors of well-bearing trees are often envied their treasures; but the envious often seem to forget that they can plant trees for themselves, which, with ordinary good luck, will give some return before the world gets into the next century. We will hope the days are past when the gardener could be capable, as he once was, of cutting down a Mulberry tree because it overshadowed the Cabbages, or of digging up its little Grass carpet in order to make room for Brussels Sprouts!

ORANGES (p. 647).—At one time the "orangery" was part and parcel of all the largest gardens, and though it may still exist in some places, in others it has gone through a sort of dissolving view arrangement, and has turned into something else. Could we get a race of hardy Oranges in England we should not regret the change, and the favour with which such a stock would be sure to be received ought to do something for *Citrus trifoliata*. A small Orange, well deserving cultivation, is *myrtifolia*, but why the varieties usually grown should not be edible ones is one of those curious phenomena for which no one seems accountable. When an Orange tree gets to a certain size it has the amiable peculiarity of never seeming to get any bigger; but it does

not follow, as some people seem to think, that it never requires any fresh soil to grow in. Those who are anxious for *Citrus trifoliata* (or triptera) may be glad to know that it appears in Van Houtte's catalogue, and I daresay may be obtained from many places in this country as well.

Susser.

IMPORTED FRUITS.

AROUND the Monument there is centred what is termed the "green" fruit trade. In Monument Buildings a joint sale room, unexampled, says the *Telegraph*, for its conveniences, has been erected, and here every morning auctions are held, the several fruit brokers having the right to occupy the rostrum for two hours each in turn. The buyers are many and various. Pudding Lane concerns itself with imported fresh fruits, as distinct from dried, which, in the main, consist of Oranges, Lemons, Spanish and Portuguese Grapes, American Apples, Pines, and all kinds of Nuts. Oranges are classified as "sweet," to which the old term "China" is still applied, and "sour," which is the technical word for bitter. Sweet Oranges are for table, and sour are used in the manufacture of marmalade. Last season there were brought to London 805,000 cases of eating Oranges, and in the year before the number was even larger. To this total St. Michael, in the Azores, contributed 80,000; Spain, 626,000; Portugal, 58,000; and Sicily and other parts, 41,000. Portugal and Sicily were much below their average. The Orange which is approved above all others is undoubtedly the St. Michael, but the island on which it is produced appears to be doomed to the same ruin which has destroyed Orange cultivation in St. Mary's and other islands of the same group. Spain, on the other hand, is developing the industry. Other Oranges besides St. Michael's now in the market are Lisbon and Seville, Malaga, and Denia, the last mentioned comprising a large district. The largest importations are, however, from Valencia, and these are of very fine quality. The Sicily Oranges come from Palermo and Messina. Last year a new trade was opened up, which promises to be a very large one, in Jaffa Oranges from the district of Jerusalem. These are transhipped either at Marseilles or Port Said, very few coming direct. They are pale in colour, egg-shaped, large, sweet, and of excellent flavour. Boxes of Oranges range in weight from three-quarters cwt. to 1½ cwt., and their sizes differ according to the country from which they are derived. An ordinary Valencia case will contain 714 Oranges, whereas the flat box from Jaffa has but 68. From Malta are obtained blood Oranges, egg Oranges, and Mandarins, which are in Spain called Tangierines, for there is no real difference between these small scented fruits. None comes from Tangiers. Some few reach us from Florida and the West Indies, but the fruit grown on the Northern African coast is so very delicate, that it never arrives in the London market in good condition. Large quantities of Lemons are also used in this country, particularly in the manufacture of candied peel.

Grapes, packed in ground cork, and of the kind retailed in the streets at 6d. per pound, are known as Almerias, taking their name from the port of consignment. In twenty years the trade has grown from 20,000 barrels to 160,000, in addition to immense supplies from Denia and Malaga and from Lisbon. An attempt to place Australian Grapes on the market in fair condition has so far been unsuccessful. Melons in great numbers are imported. The best—usually to be had in September—are from San Lucar, in the Cadiz

district, and are of a rich golden olive, but the varieties in season just now are the green or white, shipped from Denia and Valencia. Pines, excellent and cheap, grown under glass at St. Michael, have been freely imported, to the almost entire displacement of English Pines. Quite two-thirds of the American Apple trade is done in Pudding Lane, and the varieties are many, a highly-recommended kind being the Spitzbergen, a red-cooking Apple. To well-known sorts are given singular and unrecognisable names, such as "Seeks"—a contraction of "Seek-no-Further"—and "Northern Spy," the latter a cooking Apple, red in colour and somewhat striped. Of Nuts the consumption is enormous. No fewer than ten millions of Cocoa-nuts are disposed of in one year. Spanish Nuts which come to hand at this season are conveyed loose in the holds of small vessels from the north-west coast of Spain, the cargoes ranging from 1800 to 6000 bushels. Chestnuts in bags from the north of France and Bordeaux district. Walnuts from France, and Barcelonas shipped from Tarragona, go to make up the Nut trade; and the imports from Brazil, a trade almost wholly done in Liverpool, must be added to the general consumption; also the Black Sea Nuts from Trebizonde, transhipped at Marseilles.

Altogether distinct from Pudding Lane, and dealing principally with the "softer" fruits, is Covent Garden Market. In summer business commences at about four a.m., and the wholesale trade is over by nine o'clock, after which hour and during the rest of the day the arcades are open to retail customers. To the salesmen large quantities of Apples, Pears, Grapes, &c., are consigned by home growers and French exporters. Fruit from France is despatched, per Grande Vitesse, three times a week. There is just now a feeling of depression in Covent Garden, for, although supplies have been plentiful and prices low, there has not been a corresponding increase of consumption. There is an abundant choice of dessert fruit here on sale. Against foreign competitors English Apples hold their own, commanding top prices. The Ribston and Cox's Orange Pippin are considered best for eating. Perhaps the most popular winter cooking Apple is the Wellington. For Blenheim's Oxfordshire is especially noted. Amongst other English counties Cambridgeshire and Worcestershire chiefly contribute to the metropolitan supply. Boston, Nova Scotia, and Canada augment the Covent Garden supplies by forwarding in the best condition neatly-coopered three-bushel barrels of yellow Newtown Pippins, or of ruddy Baldwins, and of other distinct sorts of Apples, which, however, all go under the general name of "American." Pears consumed at this time of the year come from France, the great bulk of them having been bought up by dealers in Paris, who store them in caves specially constructed until the market here is ready to receive them, when a daily despatch of cases and hampers takes place to London, where they are put up to auction. The importations of French Pears are very extensive, and it frequently happens that 10,000 cases may be disposed of in one day at Covent Garden. The number of Pears contained in each case varies with their size, and ranges from twelve to forty-eight. A day or two ago a couple of giant Belle Angevine were sold for 18s. wholesale, and the outlay was only justified by the value of the fruit as exhibition specimens, for they were perfectly uneatable. Fine Chaumontels come from the Channel Islands. For stewing, Catillac Pears are recommended. Bananas come from Madeira, Walnuts from Naples (dried) and from Grenoble, Cob-nuts from Kent, and Forbidden Fruit and Custard Apples are also now fairly plentiful.

BOSTON HOUSE, BRENTFORD.

ONE would scarcely expect to find such an important and beautiful place as this is so near Brentford, which now extends close to it, though a mile distant from the main street. But, as in the case of Syon House on the opposite side of Brentford, Boston House existed when the town was of less extent. It is one of the oldest places in Middlesex, for it appears to have been a monastery so long ago as Edward the Sixth's time. It has, as a matter of course, passed through many successive hands, among them being the Earl of Leicester and Sir Thomas Gresham, when, finally, in 1670, it was purchased by one of Sir Christopher Clitherow's sons, in whose family it has remained to this day. The present house was built partly in 1622 and the rest in 1671. These two dates may be seen on the lead water pipes in the front of the house. The latter is a solid-looking square building, with gables at the principal facade. It consists of red brick, but this has been so weather-stained, that the colour harmonises beautifully with the surrounding foliage. In summer the walls are clothed with tall plants of scarlet Pelargoniums, which have a gay appearance no doubt, but these old brick houses gain much when their walls are permanently adorned with evergreen climbers, of which we have now so many. It stands high, and the ground falls away towards the south, and within a hundred yards of the house the old river Brent winds its sluggish course and joins the busy canal some distance down. Where the Brent forms the boundary of the garden the ground falls so abruptly that from the house the water is quite hidden; its presence in the grounds, therefore, comes as a surprise.

The grounds afford one of the best examples of pure English landscape gardening that could be seen anywhere about London, and they contain fewer blemishes than may be seen in many places. Their beauty lies mainly in their simplicity, for they are entirely devoid of those costly attempts at embellishment which so seldom are satisfactory. The magnificent trees which one sees everywhere about the place show that each generation of the Clitherow family must have recognised the importance of tree planting, for one may here see trees ranging from two hundred years of age down to saplings planted quite recently. It is this magnificent tree growth that gives the place so much grandeur, and particularly Lebanon Cedars, which are unsurpassed by any in the neighbourhood of London. Some of the largest are close to the house (as may be seen in the annexed engraving), and their great spreading branches and towering heads harmonise beautifully with the old brick house. The finest Cedars are on the front lawn, and one of these has a ponderous trunk which measures over 24 feet in girth breast high. At a few feet up it begins to send out huge branches, which sweep the turf in all directions. From this Cedar some seedlings were raised about a dozen years ago, and these are now from 8 feet to 10 feet high, and promise by their vigorous and rapid growth to be worthy successors to their parent.

Amongst other trees the finest consist of Oak, Elm, and Scotch Fir. Of Elms there are some grand avenues; one skirting the lake is shown in the engraving, and another is in the valley nearer Brentford. The park is studded with trees, chiefly Oak, some of which are ancient, but the majority are only about two hundred years old. The planting of modern trees has not been neglected, for they are in every part, and the steep declivity running from the broad front lawn down to the river is densely clothed with deciduous and evergreen trees of varied kinds, and a more

thriving plantation is not often seen. The soil is good, and as the slope lies to the south and is sheltered to windward by tall Elms, the young trees grow vigorously, and more particularly Conifers. There are fine symmetrical trees of such as Abies Nordmanniana, cephalonica, Pinsapo, the Cedars, and several Pines, intermixed with deciduous trees, and in some cases hemmed in too closely by them. This is indeed a beautiful sloping plantation, and as one can overlook it from the walk that runs along the crest of the slope, the beauty of the trees can be seen. Further down the slope, by the riverside, is a charming woodland walk beneath tall, big Elms and Oaks, which rise out of a covert-like growth of Rhododendrons. Besides that, the place swarms with wild flowers, Bluebells and the like, so its charms in early summer may be imagined.

On the main lawn, where the great Cedars are, there are specimens of modern Conifers, the Wellingtonia being one of them; but it could be wished that, instead of these, young Lebanon Cedars had been planted, so that in future, when the present giants have succumbed to time, their grandeur would be represented by young trees. This is the more desirable in such a place as this, because trees like the Cedar and the Yew are in harmony with the old house. It is extremely doubtful if the Wellingtonias, the Cryptomerias, the Araucarias, and others which have been lauded as trees of the future will not end their existence before even the venerable Cedars, which have long since reached maturity.

The Yew is the prevailing feature of this place, that is, it meets one at every turn about the vicinity of the house. Some great trees of it effectually hide the offices from the lawn and the garden from the main road, while on the lawn itself is probably one of the most remarkable Yews in the country. It is a huge spreading mass of rounded outline at the base, formed, it seems, by the branches from the main stem being pegged down and rooted. Through it a vista has been cut, so as to obtain a view from the dining-room window through the tree to the garden and park beyond.

The lake, oddly enough, occupies the highest ground, and as the Brent is considerably below, its position is the more noticeable. It is fed by springs, and though small is extremely pretty, for in summer its surface is crowded with Water Lilies, and a natural growth of Rushes and other water plants has been allowed to fringe the margin, so that there is a natural look about it. A stately row of Pampas Grasses adds to the beauty of the lake margin, besides a thick growth of noble trees and Evergreens.

The flower garden, consisting of a group of beds of simple outline, is not placed, as is usually the case, directly in front of the main windows of the house, but occupies a recess-like portion of the lawn, open to the south, but snugly sheltered from the north and east, so that while the gay parterre is near the house it is not continually thrust under the eye, destroying the repose of the lawn and trees and marring the enjoyment of the prospect beyond. In and about the flower garden are several grand old Apple trees of goodly shape and of good size—the remnants of an orchard. These old trees have quite a distinct appearance among the other trees, and now that they have plenty of room on all sides, they spread out their branches in a handsome symmetrical head. How beautiful they must look in May! It is a pity that Apples, Pears, Medlars, and Quinces are not more often planted as lawn trees. Because they bear fruit some think that the orchard is the place for them.

Roses receive much attention. There is a "Rose

walk" with dwarfs on one side, standards on the other, and on the lawn may be seen some imposing, huge-headed standards of Souvenir de la Malmaison Rose planted in formal rows and looking like a company of infantry. Such an array of this Rose is an uncommon sight. Not being one of the hardiest sorts, they are protected during hard weather.

There is the usual accompaniment of a large place—numerous fruit and plant houses and a capital kitchen garden, one of the old-fashioned type with a great extent of high walls all covered with fruit trees. Mr. Jefferies, the gardener, recognises the importance of a reserve border for affording cut flowers, and in addition to these there is a good extent devoted to the best hardy perennials.

W. G.

FRUIT GARDEN.

PEACH TREES ON OPEN WALLS.

A WRITER upon Peach walls recently deprecated the building of very high walls on the ground that ere trees planted at the base could reach the top their bottoms were becoming thin and decaying. This writer seems to have overlooked the fact that standard and half-standard trees, commonly called "riders," are grown specially to meet such contingencies, and that by employing these alternately with dwarf trees a wall 14 feet in height may be covered as quickly as one 8 feet in height planted with base trees only. But is it not rather unusual to find walls so high as that which has been mentioned? As a rule 10 feet is the accepted height—sometimes a foot less sometimes a foot higher, but in no case can it be said that 10 feet presents an undue height where walls are erected to afford shelter, security, and desirable aspects for fruit tree culture. With a wall 10 feet in height I have seen half-standard trees used with the best results. At the Duchess of Buccleuch's place, Ditton Park, Slough, Mr. Lindsay can show a Peach wall covered with trees, and invariably in the proper season with fruit, such as cannot be excelled elsewhere in the kingdom. It is by no means a common occurrence to see 75 yards' run of 10-foot wall covered with fine robust trees so admirably and, moreover, so literally, that hardly room can be found to place the hand upon the wall in any part without touching growth. In a year or two some Pears on the other part of the wall will be grubbed out and replanted with Peach, Nectarine, and Apricot trees; a 100 yards' length of wall will then be filled from end to end, and a better demonstration of the possibility of growing tender stone fruits on out-door walls in this country will hardly be found elsewhere. Mr. Lindsay favours the employment of half-standard trees in planting a wall of this height because he is thereby enabled to distribute the growth over a wider area. Thus the bottom branches can be turned downwards and induced thereby to fill the void below whilst the vertical branches are doing good work above. The diversion of much of the sap in the tree from lateral or vertical growths serves to check coarse, soft growth. Perhaps something is due, too, at Ditton to cultivation, for great care is taken in planting to give ample drainage, although the soil is far from being naturally moist. The border in front of the trees is cropped as usual with the exception of some 4 feet in width next the wall, which space is in summer protected by a mulching of long manure. These trees range from five to twenty years old and are all in the fullest health. I have seen them in the autumn for several years and have always found on them heavy crops of fine fruit. In spring but little protection is given to the bloom.

A. D.

HARDY FRUITS.

THE APRICOT.—Amongst hardy fruits this, in many gardens, is decidedly the most difficult to successfully cultivate, and as a consequence its culture has been discontinued by many who would have been glad to grow it, if only with partial success. As a dessert fruit many prefer the Apricot to any other kind of stone fruit, while Apricot preserves rank among the best made. Apricots seldom succeed under the same conditions as Plums, Pears, and even Peaches. This in many instances is simply owing to their being planted in too strong soil, or in heavy soil insufficiently drained. In my case I have to deal with a strong clayey loam, resting on an almost solid clay subsoil, and without extra pains in preparing sites for Apricot trees they would not thrive, or at any rate would not be profitable. As it is, thanks to the skill of my predecessor, we have

drained, but in spite of this it has been found necessary to remove 6 inches of the clayey subsoil of the border intended for Apricots and Peaches, and replace it with a good layer of rough stones. The border formed on the top of this consists of equal portions of garden soil and fresh turfy loam, the depth at the back is about 2 feet, and there is a fall of 6 inches to the front. This brings it well above the ordinary level and insures a comparatively dry and warm root-run. About twenty years ago this was done and the trees have done well ever since. Whenever a tree has to be replaced, and this we have had to do owing to failures with trees of Moorpark, a liberal addition of turfy loam and a little short manure is added to the border in order to give the fresh trees a good start. These raised borders, again, are apt to become rather too dry, especially where glass copings are fixed over a portion of

merely have resulted in several strong breaks on the upper portions, while much of the remainder would have been blind, perhaps, for the rest of the tree's life. On the other hand, by leaving the shoots full length, short fruiting spurs naturally form at many of the joints, and by summer pinching any of the others not required for furnishing the tree, this may also lead to the formation of more fruiting spurs. This treatment of young shoots, if persisted in till such time as the wall space is occupied, tends to materially check undue grossness, but when the points of fairly long shoots are weakly, the leading break is also sure to be weakly; and in preference to winter pruning, in order to secure a stronger break, I prefer to disbud the upper portions, thereby securing a stronger back growth, which can be laid in as a leader. Very weakly shoots, or those under the size of a slate pencil, are best cut back freely, and



Boston House, Brentford. View of house looking across the lake.

some of the finest trees in the country, and they rarely fail to produce good crops. Several fine old trees occupy a wall-space of 24 feet by 12 feet, and others that I planted in the spring of 1881 are 12 high and 15 feet wide. By far the best crops are obtained from trees planted against a wall facing south-south-east, while another wall with a south-west aspect, and wholly occupied with Apricot trees, is far from being so remunerative as it ought to be. Nor is the fruit of the best quality from this wall, and it is all preserved. I have two good explanations to offer for this partial failure, and in all probability the same reasons may be given for innumerable failures in various parts of the country. The south-west wall is situated in a low-lying portion of the garden, where the trees get more moisture at the roots than is good for them, and on account of the site naturally hindering them from getting so much sunshine as they require the wood does not ripen properly, and rarely flowers satisfactorily. All the trees, old and young alike in this position, grow strongly—too strongly, in fact; but although we checked this by lifting and replanting some and partially lifting and root-pruning others, this does not induce them to be so floriferous as we could wish, and I am now convinced that we must either replant on a much raised border or completely cover them with a glass coping. At Wilton, where the low-lying position of the garden is very unfavourable to fruit culture generally, Mr. Challis yet manages to successfully cultivate Apricots; but, if I remember rightly, he finds it necessary to throw off the rains from the borders nearly or quite all the year round with shutters constructed for that purpose. The upper portion of the garden under my charge is naturally well

them, and to prevent this we mulch heavily early in May with short farmyard manure, covering it with a light surfacing of soil. Since this has been done the older trees especially have perfected much better fruit, and are not injured by overcropping, as heretofore.

TREATMENT OF YOUNG TREES.—I have never tried what could be done with what are called maidens, having always dealt with trained trees, and these invariably grow quite as strong, as is desirable. All the sound well-ripened, shoots on these are laid in full length, and this is the first step towards checking grossness as well as inducing early bearing; trees thus treated endeavour to form growths at nearly every joint throughout the whole length of the unpruned shoots. To take out the points of the shoots when first planted, as my wall man always insisted was the proper thing to do, would

this will generally be followed by one of stronger growth. Any very gross shoots are best removed directly they are observed; but if they cannot be spared, they may be materially checked by an early removal of many of the leaves. The principal main branches being already formed before the trees have left the nursery, and these being trained in the direction originally given them, it becomes a simple matter to lay in other permanent branches according as the continuing spread gives more intervening space requiring to be furnished. Young wood laid in in the same manner as Peach wood will frequently fruit the following season, this being especially the case with well-ripened growth of the Moorpark variety; but, as a rule, it is advisable to fruit them on the short-spur system, or in the same manner as Plums, young shoots only being laid in to replace any that have been prematurely lost by gumming or to

furnish blank spaces. As a rule, young shoots are constantly being thrown up from the base of healthy trees, and a few of these that are well placed should be laid in occasionally, in order to keep the tree well furnished with healthy growth in preference to much that is nearly or quite useless. Too often long, ugly spurs are encouraged on Apricot trees, and these never produce fine fruit. At the summer pinching, which should be done early with the finger and thumb, it is necessary to leave rather long spurs, say about 3 inches in length, in order to prevent strong wood growths instead of fruiting spurs forming at the base; but at the winter pruning all these should be shortened to within four joints of their starting point. This being done annually, no long, ugly spurs will form, and better crops of fruit ought to result. Nor should the spurs be crowded, and this is best obviated by the complete removal of many of the badly placed or crowded lateral growths early in the summer.

STANDARD APRICOTS.—Several writers, including Mr. McIntosh, recommend two or three varieties as being suitable for forming standards, but I have not met with anyone who has seen a standard Apricot tree that was ever known to perfect a good crop of fruit. I have had the management of large standards, all fine healthy trees, in Kent, Sussex, and Essex, but they were altogether unprofitable. What fruits they ever produced were not fit for eating, and made preserve much inferior to that made from almost any sort of Plum. There may be districts in which standard Apricot trees are successfully grown, notably in the Isle of Wight, but I think I may safely advise the majority of the readers of *THE GARDEN* not to attempt this method of culture, unless it be in a large span-roofed orchard house.

PROTECTING THE TREES WHEN IN BLOOM is an important matter as regards the successful culture of Apricots, as, owing to their habit of blooming early, the very delicate blossoms are much injured, if not totally destroyed, by even a moderately severe spring frost. There are various methods of affording protection, such as wide stone wall copings, wide board copings, and either two or three thicknesses of fish netting or some kind of closer protecting material suspended over the trees at a safe distance from the wall. A quantity of Fir branches thinly and securely fastened to a framework of light poles also frequently preserves the blossom, but none of these contrivances are so effective as glass copings and blinds. We find these to be of the greatest service, not only in protecting the trees from spring frosts, but also in insuring an earlier supply of fruit, as well as a better ripening of the wood. Our coping, which consists of a light iron framework, to which large thick squares of glass can be fastened and removed expeditiously, extends about 30 inches from the wall, and immediately under this, or say to a distance of 4 feet from the top of the wall, the trees flower more freely, ripen fruit earlier than elsewhere, and the growth also matures earlier. In addition to the coping we have blinds about 9 feet long and 2 feet wide, and these have rings at the top for running on rods under the coping, while the lower ends are also attached with the aid of tape loops to loose rings running on wire strained to stout posts. An arrangement of sash cords admits of the blinds being simultaneously opened or closed, and in this manner we can protect when necessary without unduly shading, and thereby weakening, as well as unduly forwarding the blossom. These blinds are also extended when easterly winds prevail, and, as may be imagined, do good service. The glass is usually removed after the crops are gathered, some-

times before if red spider threatens to be troublesome, and we do not find it necessary to again screw it on till near flowering time. In some districts I would not remove it, and should not do so here if the border was not liable to become too dry. The blinds are best formed of cotton yarn, unless frigi domo can be afforded, the latter, being formed of horse-hair and wool, being the most effective; canvas blinds on rollers, and also light canvas-covered screens or shutters, are adopted in some gardens with very good results. It frequently happens that these protective measures result in an extra good set, and in this case severe thinning out must be resorted to, or the fruit may all be small and comparatively worthless. Besides, over-cropping is most injurious, and it is better to be contented with moderately heavy crops every favourable season than an extra heavy one, followed by a complete failure.

VARIETIES OF APRICOTS are but few, and yet amongst them are several very poor sorts. Moorpark is by far the best sort in cultivation, none, in my opinion, equalling it in point of quality, and it is also of large size. Unfortunately, it is most addicted to gumming, whole limbs on presumably most healthy trees suddenly collapsing. There is no known remedy for this, and not many authorities are agreed as to the true cause of the disease. Quite young trees are liable to be disfigured in this way as are older ones; but as we cannot afford to dispense with the variety, young trees are always grown on another wall to take the place of any that may fail under the coping. Early Moorpark possesses both the good and bad qualities of Moorpark, and it differs only in that it is about a fortnight earlier. Large Early is a reliable early sort of fairly good quality. Hemskerk forms a good succession to this, and ripens before the Moorpark. It is a vigorous variety, fairly prolific with us, and the fruits are large and of good quality. Of the smaller sorts I find the best are Shipley's, somewhat early and cropping freely, and Turkey, the latter a very distinct sort, ripening fairly well on the upper portion of our south-west wall.

W. I. M.

Peach forcing. I see that "J. G. K." (p. 619) introduces the inevitable "rabbit's tail" at the flowering season of Peaches in order to set the fruits. How long will such antiquated practices exist? If one wished to actually realise how the tender organs of a Peach flower felt when subjected to a scrubbing with a rabbit's tail, he would have to try and imagine himself in the position of the hen-pecked husband when his wife "combed his hair with the legs of a stool." If anyone doubts the ill effects of such usage, let him examine a Peach shoot in full flower after the tail has been vigorously whisked over the branches. The flowers which set on such occasions are not those fertilised by the brush, but those which escape destruction by it. For the last three years on our two earliest Peach trees which fill one division we have had an average of eighty dozen fruit each year, and for a number of years before that from thirty dozen to fifty dozen without a break, and the setting of the fruit on all these occasions has depended on three things—first, the ripening of the wood; second, keeping the temperature up in the daytime to from 60° to 75° all the time the trees were in flower—not minding the night temperature so long as the thermometer did not indicate freezing; and, third, to syringing the trees freely at least three times a week, regardless of the weather, to scatter the pollen in clouds everywhere and quicken the vitality of the flowers at that critical period.—J. S. W.

Wrongly pruned Peach trees.—I noticed "E. B. L.'s" remarks (p. 625) on this subject, and I should like you to allow me to say that I think the system of pruning which I advocated is not practised so extensively as he seems to think. I must remind "E. B. L." that I said nothing about the form of tree

which I recommended not lasting more than fourteen years. What I did say was that the Peach tree generally could not be depended upon to last longer than that in good condition, and I hold to that opinion still. The system adopted by our forefathers was sound enough in its day, when the trees could be depended upon to last for fifty years, but it does not answer now, when they only last a very much shorter time. If "E. B. L." happens to have the care of Peach trees that are in good condition and fifty years old, all that I can say is that he is more fortunate than the majority of cultivators. "E. B. L." may, I think, rest satisfied that so many cool Peach houses would not have been built if the trees had lived so long now as they did when the system of severe pruning was in vogue. It must, however, be understood that I do not condemn the system of pruning; that has nothing to do with matters connected with short-lived trees. Climatic conditions or something else has changed, and what I maintain is that cultivators should adapt their practice to the exigencies of the case, and there is no better way of doing so than to get the trees into bearing in a short period of time on the lines which I suggested in the article referred to. If "E. B. L." can suggest a better, by all means let him do so. If he cannot do that, perhaps he will tell us how to make our Peach trees live for fifty years and remain healthy and fruitful at the same time.—S.

GARDEN FLORA.

PLATE 525.

FREMONTIA CALIFORNICA.*

This beautiful Californian shrub was first introduced to this country more than thirty years ago. A single plant was raised in the gardens of the Horticultural Society from seed sent by Mr. Robert Wrench; this flowered for the first time in April, 1854. For several years this specimen remained unique, as all attempts to propagate it failed. According to the *Revue Horticole*, it was sold to Mr. Henderson for £40. Afterwards seeds were sent to Messrs. Veitch by their collector, Mr. William Lobb, to whom English gardeners owe a debt of gratitude for introducing a host of beautiful garden plants. *Fremontia* belongs to the Natural Order Sterculiaceae, a family which contributes a large number of highly ornamental genera and species for indoor decoration, but perhaps none—except the subject of these notes—which can fairly be called hardy. *Fremontia californica*, the only species, is a native of dry hills from Pit River to San Diego, and is most abundant in the foothills of the Southern Sierra Nevada. It is a branching deciduous shrub from 10 feet to 20 feet in height, with a trunk sometimes as much as a foot in diameter at the base. The wood is hard and the bark dark coloured; the thick leaves—usually clothed with reddish-brown stellate hairs, especially on the under surface—are broadly heart-shaped or ovate in outline, generally three-lobed, rarely entire (as in the accompanying plate) or five to seven-lobed. The handsome yellow flowers vary in size from 1 inch to 3 inches across. As a rule this beautiful shrub is grown against walls in this country, and in such positions it flowers freely and ripens seed, from which young plants are readily raised. In dry soils in sheltered spots it, however, does well in the open as a bush.

Tender plants (p. 654).—Mr. Wood suggests, as many others have done, that tender plants may in time become so acclimatised as to be hardy. I may claim to have experimented with tender plants more than many have done, and I have no doubt whatever that it is impossible so to change the nature of a really tender species as to make it hardy. Many plants reputed tender have been proved to be hardy,

* Drawn in Mr. Anthony Waterer's nursery, Knapp Hill, Woking, in June.



FREMONTIA CALIFORNICA.

but that is a very different thing, and of course it is possible, by crossing a tender species with a hardier, to introduce a hardier constitution, but that at the same time alters the original species. And as by bad treatment a plant may be weakened, so by good treatment it may be strengthened, but the individual plant only will be affected. From such a plant you might get more flourishing and vigorous seedlings, but I am sure their hardiness or tenderness will remain the same.—HENRY N. ELLACOMBE, *Bitton Viarage*.

ORCHIDS.

WINTER FLOWERING ORCHIDS.

THE importance of the auction sales of Orchids in London as a means of bringing the beautiful plants of this family within the reach of the majority of cultivators is seen by the prices which plants thus sold fetch as compared with what one had to pay when Orchid dealers were fewer and held something like a monopoly of the trade in these plants. Where two or three years ago the price of a moderate sized plant of, for instance, *Odontoglossum crispum* could not be bought for less than 10s. 6d. or 15s. we can now buy strong, healthy plants newly imported at about half-a-crown apiece. This is as it should be. Of course there are yet Orchids that command fancy prices at auction sales, as elsewhere, but these are only exceptional, and owe their value oftener to some peculiarity of form or colour than to superior beauty. In addition to the sales of newly imported Orchids we have now, sometimes twice a week, collections of plants in flower offered for sale in the London auction rooms, and to these sales are often sent many choice and rare kinds as well as numerous popular sorts. A sale of Orchids in flower a few days before Christmas therefore held out promise of being valuable as affording some idea as to what sorts could be got to flower at such a time. Orchids or, indeed, any plants of beauty that blossom at Christmas time have an exceptional value, and the following are therefore noted for the guidance of those who have to supply a great many flowers, but find a difficulty in obtaining any variety in December.

The sale to which we now refer was held in Messrs. Protheroe and Morris's rooms in Cheap-side on December 22. The most striking group was that of a number of plants of *Odontoglossum Rossi* in various forms, all of them beautiful, and some of the plants bearing as many as half a dozen spikes of bloom. A specimen with over a hundred flowers open was especially beautiful. The value of this little, easily-grown Orchid was never more clearly shown than by this collection of well-flowered plants. Of course *O. crispum* was represented by numerous plants in flower, not so plentifully, however, as one might have expected. A yellow-tinted variety, viz., *O. crispum flaveolum*, was represented by a fine plant with a twenty-flowered spike; it was bought for nineteen guineas. *O. Pescatorei*, *O. Insleayi* and the variety *leopardinum*, *O. grande*, *O. odoratum*, *O. Phalenopsis*, and several small-flowered kinds were also among the flowering plants offered.

Lælias were represented by a very delicately coloured variety of *L. anceps*, bearing ten spikes each with two or three flowers, the petals and sepals broad, and coloured a pale pink; this realised nineteen and a half guineas. Other plants of the same species were sold—these, of course, for as many shillings as the preceding one fetched guineas. *L. albidia* with its pretty ivory-petalled flowers, *L. autumnalis atropurpurea*, one of the very best of *Lælias*, were in good flowering condition. The *Cattleyas* were weak

in numbers, the time being too early by about a month for the first big group of this genus. *C. Walkeriana*, *C. dolosa*, and a sheath bearing plant of *C. Lawrencei* were the only species offered. *Dendrobiums* were present in the shape of *D. Wardianum*, *D. nobile*, *D. endocharis*, *D. luteolum*, and *D. aureum*. *Calanthes* were well to the fore, some exceptionally deep-coloured forms of *C. Veitchii* being among them. *Oncidium Jonesianum*, *O. Forbesi*, *O. Rogersi*, *Cypripedium insigne*, *C. niveum*, *C. Godefroyi*, *C. Lowi*, *C. Harrisianum* and *C. venustum*, *Zygopetalum Mackayi*, *Sophranitis grandiflora*, *Miltonia Clowesi*, *Pilumna nobilis* and the curious *Aganisia cærulea*; these, as well as others of less attractiveness, were offered in large or well-flowered specimens. The effect of the whole collection was very pleasing in the dark December days, and it is worth noting that, with only one or two exceptions, the plants were such as may be obtained for a few shillings each.

B. W.

The white Masdevallia.—After seeing *Masdevallia tovarensis* this season, I think it is an Orchid that is not grown nearly as much as it deserves to be. We have now some twelve or eighteen plants of it in bloom. Some of them have as many as eighteen and twenty spikes, each bearing three and four flowers. These, with *Sophranitis grandiflora* and its varieties mixed, make one of the most pleasing sights one would wish to see during these dull winter months. One thing, moreover, that makes them more valuable to growers near London is the fact that the fogs which are so fatal to the opening of most Orchid flowers do not seem to affect these in the least.—H. SIMPKINS, *Cambridge Lodge, Camberwell*.

Watering Calanthes.—How true it is that in the cultivation of many plants no hard and fast lines can be laid down, and watering *Calanthes* forms no exception to the rule. In THE GARDEN (p. 228) Mr. Douglas's instructions are to withhold water when they have grown to their full size, so that by the time the flower-spikes begin to rise the roots should be dust-dry. This is contrary to my practice and that of many others by whom satisfactory results are obtained. In the cases in question water is regularly supplied from the time they start into growth in spring until the flowers fade. Which plan is best I do not know; I just refer to it here to show that both systems are practised by different growers with about apparently the same results. Not in many places are *Calanthes* better grown than at Belmont, Taunton. I have seen them there retaining their leaves until the first flowers were open, and that they could not do under the drying-off process. There appears to be about as much diversity regarding resting *Calanthes* as in watering them. One cultivator will rest them in a shed just secure from frost, while others bake them in a stove temperature. Surely *Calanthes* are a patient and long-suffering class of plants. Is there no one conversant with the conditions under which they grow naturally who can explain how they can withstand such diverse treatment, and yet give no cause for complaint?—J. C. C.

Lælia anceps Hilliana.—Herewith I send you a bloom of the true *Lælia anceps Hilliana* which, in the face of *L. anceps Dawsoni* having bloomed from the 1885 importations of the white ancepts, may, perhaps, make me ask, "Why has *Dawsoni* not bloomed before then if this is now coming out at the same time?" But this plant came out of the 1881 imports. With its pure white sepals and petals and faint rose-tinted lobes to the lip, and deep yellow keels, and faint purple nerves on the throat, I think it a most chaste variety. I hope that now the new imports of the white ancepts have commenced to bloom, that all who possess flowers will send them to you to be noted, so that those who are away from the centres of attraction can see what they may expect, and if the various growers will state the conditions of growth, they will confer a favour on some whom I have heard say they found these new ancepts to require a different treatment from what they were giving the old forms. Our experience at Rosefield has been this,

that the dozen or so plants of it which we were sure of blooming now have not done so, and I have heaps of plants not blooming that were expected to do so. (Has Mr. Douglas got any spikes?) We always grow *L. anceps* in the *Cattleya* house exactly over the spot where the pipes enter the house; better and finer growth no one can want (we have had five flowers on a two-years established plant with bulbs double the size of its imported ones), but the new white ancepts, though it has done well there, has not done as the old dark ones do. We intend trying them in other places for next season. Mr. Measures once published some remarks in reference to these plants; would he kindly do so again, and also any one else?—DE B. CRAWSHAY.

NOTES ON EPIDENDRUMS.

AN inspection of some of the different collections of Orchids now cultivated elicits the fact that one or two genera are favourites and monopolise most of house room, while others, perhaps not so showy, but in their way equally beautiful and interesting, are excluded. In this, as in many other things, fashion is everything. *Cattleyas* and *Odontoglossums* are in at present, and *Epidendrums* are out. The price of a rare *Cattleya* or a beautiful form of *Odontoglossum crispum* may be reckoned at hundreds of guineas; while few Orchid fanciers would care to give more than five or ten shillings for a beautiful *Epidendrum*. I have heard of some who grow thousands of *O. crispum*, hundreds of *Cattleya Mossiae* or *C. Trianae*, and perhaps not six species of *Epidendrum*. Take away from such a collection the *Odontoglossums* and *Cattleyas* and the houses would indeed have a woebegone appearance. I am aware that some species of *Epidendrum* are not quite so easily managed as one could wish, but others are not difficult to grow, but to obtain *Epidendrums* now-a-days is no easy matter. Only this morning I received the catalogue of one of our largest Orchid importers and growers, and one of the oldest also, and it contains but four species of *Epidendrum*; the few species I would like to see well and extensively grown are

E. CNEPIDOPHORUM, an elegant and remarkable plant when well grown; its stems are very tall, and the plant is not adapted for small houses, but many can find space for a plant 5 feet high. Its drooping panicles of flowers are very striking. Twenty years ago, or more, the late Mr. Skinner introduced from Guatemala a number of fine specimens of it, and the first to flower it was the late Sir Philip Egerton. As it is found at an elevation of 7000 feet, it does not require a high temperature. The Mexican house suits it best. Mr. Bateman, writing about this plant, which obtained a first-class certificate on May 7, 1867, says: "At Oulton it receives little more than ordinary greenhouse treatment, and with me it succeeds perfectly in the Mexican house. Patience, however, will have to be exercised, for even in Guatemala it takes nearly seven years to grow a really fine plant of it, but this, when once obtained, will remain a sort of heirloom for generations. It requires plenty of pot room, and the usual compost of turfy peat, Sphagnum and potsherds to keep it open."

E. PRISMATOCARPUM, a distinct and handsome species, first flowered in England with Messrs. Low, of Clapton, in July, 1862. It is valuable, inasmuch as it flowers in July and continues into August. It is an easily cultivated plant, and succeeds well at the warmest end of the *Cattleya* house. It is grown well in Mr. Philbrick's collection at Bickley. Perhaps the best plant of it ever exhibited was sent from that collection to one of the exhibitions of the Royal Botanic Society a year or two ago. It is a Central American species, and was discovered by Warszewicz.

E. STAMFORDIANUM is not often seen in collections, though handsome and distinct in character from all others. The flower-stalks are thrown up from the bases of the last-formed pseudo-bulbs, and bear large racemes of yellow fragrant flowers shaded with green and spotted with dark red. This is one of Mr. Skinner's Guatemalan discoveries.

E. DICHROMUM is an exceedingly beautiful species which has been well cultivated in many gardens, both public and private. When well grown it throws up a branched spike of pale rose-coloured flowers with a crimson lip. Messrs. Low imported it twenty years ago from Bahia, where it was found growing near the margin of water on low bushes from which the roots run down into the sand. I have tried to grow these *Epidendrums* in peat in the usual way, but they do not seem to take so kindly to it as one would wish. They can be established in the first place on blocks or teak rafts. Messrs. Veitch, of Chelsea, and Messrs. Backhouse, of York, flowered it very successfully a few years ago.

E. PANICULATUM is now scarce. Messrs. Veitch, I think, flowered fine specimens of it some fifteen years ago, but though their nursery is full to overflowing with *Cattleyas*, *Odontoglossums*, &c., one has to hunt about for a few specimens of this *Epidendrum*. It is figured in the *Botanical Magazine*, tab. 5731, from a specimen which flowered in 1868. Its long branched spikes, thickly furnished with delicate rosy-lilac tinted flowers, spring from the apex of 3 feet long pseudo-bulbs, and are gracefully arching. It was discovered by Sehlm at an elevation of 7000 feet or 8000 feet in New Granada, and is consequently a cool house species. It flowers in spring.

E. BRASSAVOLÆ.—This is another of the late Mr. Skinner's discoveries in Guatemala, and I think Mr. Bateman was one of the first who flowered it. The blossoms are large in size, and have narrow lance-shaped sepals and petals of a yellow colour; the lip is mauve or purplish lilac and creamy white at the base. The whole plant reminds one of a vigorous specimen of *E. prismatocarpum*, and it may be cultivated in the same way along with *Cattleyas*. When first introduced it grew freely, and it was predicted that it would be a popular favourite, which it ought to be.

E. COOPERIANUM is also quite distinct from any other species, and well worth cultivating if it can be obtained. I have a vivid recollection of seeing a large, handsome, well-grown specimen of it in the collection of the late Mr. Dawson, at Meadow Bank. It was first exhibited by Mr. Cooper, of the Old Kent Road, and subsequently by Mr. Anderson, gardener at Meadow Bank. The specimen in question was potted in the same way as *Cattleyas* are, and grew well along with them. The flowers are closely placed on a drooping spike which springs from a tuft of leaves at the apex of a stoutish stem; the sepals and petals are greenish-yellow, with a brown tinge; the lip is bright rose and very conspicuous.

E. NEMORALE is a lovely species, which will be seen in flower during the next few years, as it was freely sold last season in good masses and in capital condition. There is a good figure of it in the *Botanical Register* for October, 1844, where it is described by Lindley under the name of *E. verrucosum*. Cultivators are recommended to grow it in "turfy heath mould with a few pieces of potsherds." It is found, we are told, growing on rocks and trees, and I fancy block culture is best for it. I have tried it potted the same as we

pot our *Cattleyas*, but it does not seem to take kindly to that treatment. It was exhibited from the collection of Sir T. Lawrence a few years ago in grand form. It bore about a dozen panicles of flowers on stems a yard long. The plant itself is dwarf and compact in habit.

I would mention one more species, but it is probably not common. It is *E. eburneum*,

ing feature in some houses now filled with the less graceful *Cattleyas*. J. DOUGLAS.

"Mums."—Meeting with this word lately in an advertisement, I was considerably mystified by it. I knew that the term "mum" was formerly applied to a kind of ale or beer brewed from wheat, and also that it was once a common word for "silence" but neither of these meanings was applicable to anything of which there could be "thousands of rooted cuttings ready for potting." When I at last discovered the drift of the word in its new application, I could not sufficiently admire the novel and ingenious method of dealing with sesquipedalian Latin names of plants, which, by simply docking them of all but their caudal extremities, renders their pronunciation easy, if it does not enable one to recognise them quite as certainly as the "taken" brush indicates the fox, or the undevoured tails were proof conclusive of the identity of the principals in the memorable fight of the Kilkenny cats. I do not know whether it is intended to apply the method to all botanical jaw-breakers or not, but at any rate it is evident that, in the case of the name "*Chrysanthemum*," some people have made up their minds that, for the future, "mum's the word."—W. M.

YUCCA GLORIOSA.

FLOWERING plants of the common Adam's Needle, as *Yucca gloriosa* is generally called, were unusually plentiful during the past summer, a fact which may probably be attributed to the warm dry weather which prevailed for so long a period last year. Several photographs have been sent to us lately of flowering *Yuccas*, and one of the best is that of which the annexed engraving is a reproduction. This was sent to us by Mr. J. Brown, of Southview, Salisbury. The plant was 12 feet in height from the ground to the tip of the spike, and, as may be imagined, presented an imposing appearance. *Yuccas* are effective in gardens at all seasons, but the positions in which they are placed are not always well chosen. Usually they are dotted about singly, but they never look well so treated. They are most striking when grown in the form of irregular groups consisting of plants of different sizes, that is, having a large tall-stemmed plant in the centre, and others of various ages and heights arranged around it, so as to look as if they had sprung from suckers or seedlings from the centre plant. Thus planted, a group affords a succession of flowering plants, and does not need disturbing for generations.



Yucca gloriosa in flower in Mr. J. Brown's garden, Salisbury.

flowered at Isleworth, in the garden of Mr. Thomas R. Tuffnell, in the winter of 1866, and described by Reichenbach. It forms a handsome plant, producing erect spikes of flowers, which remind one of *Angræcum* flowers without the caudal appendage. The sepals and petals are greenish-yellow, the lip broad and ivory white. All the above *Epidendrums* should be grown in the most select collections of Orchids, and would form an interest-

Christmas Roses at Bath.—"Would you like to see my Hellebores before the chief cutting?" was a question put to me by Mr. Thos. Kitley, of the Oldfield Nursery, Bath. Accordingly, on the 21st ult. I went thither, and found that he had erected a most useful, inexpensive house in which to bloom his Hellebores, and, later in the season, other plants. The house is 60 feet long and double span-roofed, running east and west and about 14 feet wide, 6 feet 6 inches in the centre, with a central path running between two borders about 5 feet 6 inches, and filled to the depth of about 3 feet 6 inches with the ordinary soil of the garden, a yellow, heavy oolitic clay, mixed with burnt ashes. The whole was erected and put together by the ordinary men, assisted by a carpenter. It consists of three-fourth-inch unplanned deal, with 3 inch unplanned rafters, carrying old Cucumber lights. The glazing and painting were carried out by the ordinary gardeners. A hot-water stove, with 3-inch flow and return, had just been fixed in case of severe weather. In the borders of this house the plants, freed of leaves, were planted as thickly as they could be. The effect on entering this house was striking; the whole was one white carpet, in which no other colour was visible. None were over-blown; and on

the 21st four men were told off to pick and pack some ten thousand blooms ready for the market. Another smaller house was also filled with Hellebores, so that in the early days of Christmas week upwards of fifteen thousand blooms were sent by Mr. Kitley all over Britain—as he said, from Bodmin to Rochester, and from Southend to Glasgow. Besides those under glass, thousands of blooms were to be seen in his small place, but he never sends away those gathered from the open ground. Two years ago I saw thousands of seedlings in his frames, but these are not to be relied on, so he trusts entirely to subdivision of the roots. After blooming, the plants are planted in the open for two years before being brought again into the house—treated, indeed, as are Rhubarb plants. The special character of the soil has much to do with the successful cultivation of this so-called Bath variety of the *Helleborus niger*. Mr. Cooling, three years ago, had some hundreds of wild-grown roots from Hungary, but they have not attained the excellence of his own home-grown sorts.—J. S. B., Bath.

FLOWER GARDEN.

FORGET-ME-NOTS.

FORGET-ME-NOTS have long been popular in gardens, and perhaps as much on account of their pretty English name as for floral beauty. All cottagers who take a pride in their gardens employ the commoner kinds, either as edgings or intermixed with other old English flowers, and, indeed, few hardy plants within the reach of everyone yield more satisfactory results from early summer till late autumn than the wood or marsh Forget-me-nots. Some of the species, too, are extensively used for bedding purposes. Unfortunately, however, for some of the improved varieties, and notably Weirleigh Surprise, the peculiarity ascribed to it is not constant in certain localities. I received a dozen plants of Weirleigh Surprise, which was, indeed, a surprise the first season, both on account of its floriferous character and also the peculiar markings or bars that run across the handsome blue flowers. The second year these markings were less distinct, and in the third year they had entirely disappeared. It has been suggested that soil and not climate was the direct cause of this defect; had the soil been over rich, this might have been the case, but that was not so, inasmuch as it was only of medium richness and rather stiff. The plants kept healthy and still flowered profusely, but their surprise character was lost. Not far from the plant under notice, and under exactly the same conditions, *M. dissitiflora splendens* and *elegantissima* kept true to character and succeeded extremely well; the former has much larger and better coloured flowers than the type, and the leaf markings of the latter leave nothing more to be desired in the way of variegation. *M. alpestris* (*M. rupicola* of Continental catalogues) is a pretty little alpine species, distinct enough from all others to deserve its separate specific name, though some are inclined to tack it on to *M. sylvatica*. It is one of our native plant rarities, but more plentiful in Arctic and Alpine Europe, as well as in North Asia and America, than here. It grows readily on rockwork, on which it forms dense little cushions entirely covered during early May and June with extremely pretty deep blue flowers. It may be increased either by division or seed, the former being much the quickest way of raising a stock of flowering plants. *M. azorica*, another alpine species of a more robust habit of growth than *alpestris*, is an almost indispensable plant in large collections. Where American plants will grow this will be found to thrive admirably; it seems to prefer a semi-damp shady border to a dry exposed one; it forms large heads of pretty blue flowers that last a considerable time in full beauty; it is readily increased

by cuttings, which, if put under a bell-glass in a cool frame, strike in about a fortnight or so. The variety *Impératrice Elizabeth* is said to be a vast improvement on this, though I fail to think it so, plants received from several sources being nothing more than forms of *M. azorica*, with little if any advancement as regards increased size. *M. sylvatica* and *palustris* are very useful in semi-aquatic places; they should, however, be allowed plenty of room, and should not be planted near any rare or weakly growing plant which would be in danger of being smothered. Among others useful to cultivators may be named *M. semperflorens*. K.

Plants for covering arches.—We have here an archway covered with Clematises of the Jackmanni type, and in summer it has a very pretty effect, spanning a walk leading to a fernery. I have seen arches covered with Golden Chain (*Laburnum*) which had a very pleasant appearance in summer. For covering arches for winter effect, the *Pyraeantha* and several of the *Cotoneasters* look bright and cheerful. All the Honeysuckles seem to require some such support to show them off to the best advantage. Climbing Roses of all kinds are excellent for this work, as are also the Jasmines. In the fruit garden the Apple, Pear, Cherry, Plum, and Gooseberry may be profitably grown on some kind of arch or trellis spanning the walks. The arches may be composed of a single iron rod, or may extend for several feet, or, indeed, a whole walk may be covered in. This is a question for each cultivator to consider. The flowering Almonds and *Forsythia viridissima* are pretty so trained in spring. *Berberis Darwini* and *B. stenophylla* are also pretty subjects for this work. It is possible, of course, to overdo it, as it is everything else, but there is a very wide margin between legitimate use and the overloading which would become monotonous and offend good taste.—E. HOBDAV.

MILLA BIFLORA AND FREESIAS.

I WAS surprised on reading the article about *Brodiaeas*, Millas, &c. (p. 588), to find no mention made of *Milla biflora* beyond the mere statement that it was the only true *Milla* now left. I should have been glad to see some good practical hints as to its management, for in spite of what is written it is one of those bulbs which very few can treat with any chance of inducing it to bloom; while, as far as my own knowledge extends, it is without exception the most beautiful of the genus. It is also becoming moderately cheap, for though set down in catalogues at 5s. 6d. per dozen, I bought 250 for 12s., but have not had fifty blooms from the lot, though the bulbs themselves were perfectly good, and many of them large. I fancy we cannot in this country properly ripen the corms of many of these beautiful things. The "wasting" process so often advised does not altogether seem to suit them, or is unlike the natural process they undergo in their native habitats. Some time ago I strongly recommended it, but *Calochorti* and some others seem to suffer if they get too much dried up. With regard to *Freesia refracta* (another of these bulbs, to which I gave the name of "refractory") about which "Delta" writes (p. 614), it seems to me to be not only "refractory," but "capricious," as sometimes, though under the same treatment, I bloom it without trouble, and at other times nothing seems to induce it to move. I have had it bloom in December from seeds sown in February, while again, as last year, seeds of my own saving sown at the same time did not vegetate at all till September. By far the best bloom I have had has been, during the past summer, from bulbs planted in a warm pit last year, about December, and both *F. Leichtlini* and *F. refracta* have done well. "Delta" does not mention *F. aurea*, which is a very fine variety. I hope

we shall yet master these "refractory" species, for the flowers are beautiful. A. R.

Windermere.

NOTES ON HARDY PLANTS.

SEED RAISING.—Who can say raising hardy plants from seed by forcing with other than sun heat is not prejudicial to the constitution of the plants, especially such as we sometimes speak of as "scarcely hardy?" Or, who can say that seeds raised in the natural soil, and under other natural conditions as to moisture, air, and light, which are likely to produce more seasonable germination, are not subsequently harder than forced seeds? That it is more convenient, and in many ways easier, to get a crop of seedlings by artificial means, is not the question; neither is it doubted that forced seed raising of most hardy plants is sufficiently reliable for all practical purposes. But what I fancy I have proved is, that perfectly hardy plants are not only better grown, but more capable of withstanding their winter trials the first season than nursed seedlings, though the latter may have been "hardened" as well as being older plants by a month or two. In the case of plants of doubtful hardiness, I have always had least trouble with the naturally grown seedlings. It seems reasonable that the difference there must be in the earlier tissue formations in stoved and open-air seedlings is likely in some, perhaps many, plants to alter the tone of their constitution for life; if it is so, the fact is an important one. It may seem a crotchety view, but it is entirely suggested by practice and observation.

PINKS, and especially the alpine sorts, are apt to dwindle away in winter in some gardens. That they like lime is generally understood, but because we can have many of them in capital form without lime we somewhat overlook what it would be better should always be done, and that is, give a little lime to all. I find that the natural limestone broken small and applied as a top dressing in the autumn is a great help, the best proof being that the foliage soon assumes a better and brighter colour. Nothing in the Pink family gives more trouble here than *D. neglectus*; but the lime given to a batch a month ago has certainly improved their appearance, though, in the ordinary course of things, they might have been worse from the advanced season. These desirable alpine seem to require more "bone," and perhaps a more liberal use of limestone "nuts" mixed with the soil might serve to supply it, coupled with good drainage and plenty of sunshine.

RANUNCULUS SPECIOSUS or TUBEROSUS in the double form is, perhaps, one of the first yellow flowers we have in early summer or, for that matter, all summer long, as it is a continuous bloomer; it closely resembles the double Marsh Marigold in the flower, but it is larger and more evenly developed in the way of the French *Ranunculuses*. How such a desirable variety and vigorous grower could have become lost to some districts, as this evidently had, is puzzling. It certainly ought to be in all flower gardens, for it has none of the creeping or bounding habit peculiar to the varieties of *acris* or *repens*, though belonging to the same section. It is vastly improved by generous culture; this consists merely in timely root-divisions and immediate replanting of the woody tubers; these are of rapid increase, and in three years or so they become wedged together and deteriorate; the tough roots serve also to hold them compacted. The present is a good time to operate on clumps; the thumb-shaped tubers may be set singly with all the roots intact, and they will flower much

better than when clustered together. A little shade from the powerful midday summer sun is enjoyed by it, and it likes a moist situation, or rather retentive loam.

ERINUS.—It is a singular thing that this pretty dwarf herb will not live here. Seed germinates and looks promising for a few weeks, and then dies. I have had both young plants and sods sent me from friends' gardens, where it flourishes like a weed, but whether planted on rock or in the raised bed it dies. This has gone on for many years. Two well grown plants sent me recently are now turning black. This is very odd, but it serves to prove that in the diversity of conditions, existing and non-existing, which in some way or other have to do with the growth of plants there is yet much to learn. Were this fact exemplified (and it very likely may be) in plants of a reputed fickle character, we should feel content that it was owing to such fickleness. But who can call the *Erinus* fickle?

Woodville, Kirkstall.

J. WOOD.

Daffodil Sir Watkin.—In answer to "Lex" (p. 608, Vol. XXVIII.), on thinking over a little more carefully the appearance of Sir Watkin, I do not see any signs of Leeders' handiwork in its form or construction, but of simply a large pseudo-*Narcissus* crossed with a large *Nonpareil* (*incomparabilis*). This cross I find Herbert did make. We have just been told so. I was anxious to trace it back to Herbert and his friends at Manchester. It may have come from Herbert when he lived and did his hybridising at Mitcham, in Surrey. Does he not complain of the way in which people stole his rare plants? Have not I suffered, too? I lost once a potful of seedling *Clematis* Jackmanni, the male parent being *Vitalba*.—FRANK MILES, *Sunnyhill, Shirehampton, Bristol*.

Giant red Mignonette.—This is, in my opinion, the finest of all the red *Mignonettes*. It is well named the Giant, because it is a robust grower, and the individual flowers and spikes are very fine, and of a distinct red colour. The new German variety—*Machet*—is a red variety also; it has a good dwarf and robust habit of growth, but neither the flowers nor the spikes are so large as those of the Giant. Cloth of Gold is a very distinct *Mignonette*; the flowers have a distinct yellow or golden tinge, and it is very good. Sutton's Improved Red *Mignonette* is rather deeper in colour than the *Machet*, but not so good in the habit of growth. Improved White is one of the best of the white-flowered varieties. Growers of *Mignonette* sow their seeds too thickly, and thus do not allow of room for development. To do full justice to *Mignonette* the seeds should be sown thinly in good soil, and the plants thinned out to 6 inches apart; then they have room to develop themselves and bear fine trusses of flower.—D. R.

Gaultheria nummularioides.—With the exception of berryed plants, few of a trailing habit are so becoming on the rockery at the present time as this *Gaultheria*. It was introduced many years ago, and, as it came from the Himalayas, it was thought that it would need the protection of a greenhouse. After almost disappearing from cultivation, it was taken in hand at the York Nurseries a few years ago. There its hardiness was established beyond a doubt, and its excellent qualities for the decoration of rock-work well illustrated. Like its near and better-known ally, *G. procumbens*, it produces berries, but unfortunately at such rare intervals that I have only seen them once, although our plants have flowered freely, and, to all appearance, are strong enough to fruit. Without the berries, however, this plant is well worth attention. It grows best, apparently, in shady places amongst Ferns, and may be easily increased by means of cuttings, which will often be found rooted where the stems touch the ground.—B.

Saxifraga flagellaris.—This is one of the best of plants during the summer months. The old crowns send out numerous stolons, which take root if the surrounding soil be congenial, forming plants of their

own accord; and as the old plants are but short-lived these young ones should be carefully looked after, as they form the flowering plants of the succeeding year. A fair proportion may be had in mild seasons by allowing them to remain where they have taken root, but I find it safer to lift them, pot them in 2½-inch pots, winter them in cold frames, and plant them out again in spring. Where American plants succeed, these will also be found to grow luxuriantly; and a prettier sight than a large patch of their golden flowers can hardly, I think, be imagined. A new variety called *mucronata* has lately been introduced from India, the rosettes of which are larger, the leaves more pointed, and the flowers larger and more in a head, and deeper in colour than those of the type. It is freer, too, as regards growth and seems to establish.—Q.

KITCHEN GARDEN.

WINTER GREENS.

"A. D." may be right in his estimate (p. 663) of the value of Chou de Burghley for market purposes, and next season I hope to be able to go beyond mere conjecture in the matter, as a grower with whom I am acquainted has decided to plant several acres with it specially for the London markets in mid-winter. Personally, I have but little faith in success attending the experiment, being of opinion that it is only in times of great scarcity, as at present, that it will realise remunerative prices. It requires a long season of growth, or quite as long as Broccoli, nearly as much room, and will not sell when Broccoli is abundant. Nor, in my estimation, will it compete successfully with Savoy. At any rate, we can grow more of the latter on a given space, and while they can be had, Chou de Burghley is never asked for. We have six long rows of it scarcely interfered with. Savoy do occasionally find their way into the dining-room, but the Chou de Burghley is rigorously excluded, yet it is as well grown, I imagine, as any which "A. D." has yet seen. At the same time I cannot describe mine as "heads of snowy whiteness," as that is overdoing it altogether. Greenish whiteness would be nearer the truth. Nor does it appear that Chou de Burghley is so wonderfully delicious if Savoy are preferred to it. "A. D." writes disparagingly of "coarse white Cabbages, Drumhead Savoy, and indifferent Coleworts," and I should imagine Chou de Burghley might be preferable to these; but all Cabbages are not necessarily coarse; Drumhead Savoy when eaten later on will be excellent, while Rosette Coleworts, properly cooked, are much appreciated by many people. So much, in every case, depends upon the cooking; a good cook can convert almost any greens into a delicious dish. For instance, on Christmas Day I tasted what I thought was very good Spinach; but it proved to be merely green Savoy, prepared exactly the same as Spinach. The latter was spoilt in cooking by the carelessness of the girl in charge, and a substitute had to be quickly provided. This substitute passed muster in the dining-room, and fairly deceived me. What we supply in the way of winter greens are Brussels Sprouts, small, close, and good; Dwarf Elm and Green Curled Savoy, not large but, since the frosts, most tender and delicious; and Rosette Coleworts, this being certainly the least tempting of the three, though yet preferred to Chou de Burghley. The latter is certainly harder than I expected it would be, but it grows much too large. W. I. M.

Mushrooms in sheds.—Mr. Neild (p. 660) refers to a very exceptional winter, and one which, as a rule, no one would take into account in any calculation, but I am of opinion that thirteen weeks of frost, or even 36° of it, would do no harm to

Mushrooms in sheds; if they were under shed treatment at such a time, we would merely cover them up more securely. Now their surface is always covered with meadow hay to the depth of 6 inches or so, and if very severe weather set in this would be increased accordingly. I have had some experience in keeping up a certain heat in a Mushroom house with a fire in very cold weather, and, to say the least of it, I found it to be very troublesome; I therefore look upon shed culture as a decided gain. No cold weather, or anticipation of it, would ever frighten me into making beds in a heated place, and I know from past experience that extra covering will safely tide over any fall that may occur in the way of temperature. Since my last notes on this matter appeared I have received a letter from Mr. J. F. Barter, the well-known Mushroom grower for the London markets, and he "quite agrees" with my practice and recommendations as to shed culture.—J. MUIR, *Margam, S. Wales*.

NOTES ON VEGETABLES.

LEEKS.—1, Prizetaker, very large and a robust grower, pure white, and mild in flavour; 2, The Lyon, another large Leek, useful for show purposes, but not so hardy as some; 3, Ayton Castle Giant, moderate in size, very hardy, and extremely useful; 4, Musselburgh, one of the best, large, hardy, and excellent in flavour, stands well until far into the summer, a favourite main crop kind; 5, London Flag, early, but not particularly good; 6, Henry's Prize, so like Ayton Castle that it is unnecessary to have both; 7, Carentan, received a good name at first, but proved to be inferior to almost every kind which we have tried; 8, Yellow Poiteau, smaller than white sorts, and inferior to them in flavour; 9, Champion, from the west of Scotland, very compact in growth, excellent in flavour, and hardy; 10, Holborn Model, new, very large, stems thick, flavour delicate, hardy, and alike good either for show or kitchen use.

CABBAGE LETTUCES.—1, Golden Ball, very dwarf and compact, golden in colour, very crisp and fine in summer, but useless in winter; 2, Perfect Gem, the prettiest Lettuce grown, wonderfully compact, dark green in colour, rather strong in flavour, excellent for exhibition; 3, Summerhill, the largest of this section, weighing sometimes 9 pounds, excellent in summer, but too tender for winter; 4, Marvel, very bright, almost like Beet leaves in colour, grows closely, stands long, somewhat strong in flavour, but good; 5, Gem, not equal to the preceding; 6, Commodore Nut, early, but very small; 7, All the Year Round, a most useful variety; 8, Drumhead or Malta, a standard old kind, and one which still retains its place; 9, Early Paris Market, only useful early in spring, it forces well and grows rapidly, the best first sort; 10, Tom Thumb, very small, but solid; 11, Hardy Hammersmith, the best for winter use, very hardy and good; 12, American Curled, tall and pretty to look at, but useless; 13, American Fringed, dwarf and spreading, does not heart well; 14, White Dutch, only good for winter, hardy, crisp, and very useful; 15, Stanstead Park, another winter Lettuce, hardy and good.

COS LETTUCES.—1, Paris Green, an old sort, very good, and a free grower; 2, Paris White, like the preceding, but paler; 3, Moorpark, large green, very hardy, excellent for winter; 4, Bath or Brown, the best in its class for winter, leaves large, brown, and extremely hardy; 5, Hick's Hardy White, large and crisp, and stands long, good in winter; 6, Kingsholm, very large, crisp, and delicate in flavour, a good summer Lettuce; 7, Northern King, does not fold in well, useless; 8, Reading Mammoth, the largest of all, and one which takes a long time to grow, excellent both

for exhibition and general use, a grand summer Lettuce.

ONIONS.—1, Bedfordshire Champion, not over large, very sound, keeps well, always grown for winter and spring use; 2, Blood Red, medium sized, strong in flavour and keeps well; 3, Giant Zittau, very handsome, large, straw coloured, does not keep well, but good for exhibition in summer and autumn; 4, Rousham Park Hero, very like the preceding, fine in form and quick in growth, tender and mild; 5, James' Keeping, medium sized, firm, and hardy, the best for long keeping, a very useful Onion; 6, Reading, good in shape, large, and excellent for autumn use; 7, Silver Skinned, only good for pickling; 8, Trebons, a grand showy Onion, conical, very large, and keeps well, one of the best; 9, Oporto, much like Trebons, but better in colour, a fine Onion, but scarce; 10, Excelsior, almost too much like Trebons to be distinct; 11, The Queen, white, very quick in growth, the best for a first crop, mild; 12, White Spanish, quick in growth, large and useful in autumn; 13, Strasburg Yellow, hardy and useful; 14, Giant Rocca, good for autumn sowing, and useful in May, June, and July—its only fault is that it grows so flat as to be liable to split; 15, White Naples, mild, quick in growth; 16, Tripoli Globe, good in shape and very useful; 17, Elephant, very large, but deficient in quality, and apt to split prematurely; 18, Leviathan, of the Elephant type; 19, Improved Banbury, one of the best for main crops, a fast grower, large and handsome; 20, Sanday's Prize, well selected, true and handsome; 21, Walker's Exhibition, too much like the Rowsham; 22, Tennis Ball, small, but a size often in request, hardy and a good keeper; 23, Golden Queen, a little model, about 2 inches across, fine in shape, and hardy, keeps well, the best amongst miniature Onions; 24, Naseby Mammoth, a well selected form of the white Spanish type, quick in growth, handsome and mild.

PARSNIPS.—1, The Student, medium sized, excellent in quality, and the best for main crops; 2, Hollow Crown, large, deep rooting, and therefore must have a deep soil, good; 3, Maltese, large, excellent in quality, fine in form, and good for exhibition; 4, Elcomb's Improved, not distinct from last named; 5, Turnip-rooted, shaped like a Turnip, the best for shallow soils, and good in flavour; 6, Improved Jersey, another name for the hollow crowned variety. J. MUIR.

Margum.

JENSEN'S POTATO CULTURE.

THE following summary of results of experiments made at Chiswick in 1884 and 1885, for the purpose of testing the efficacy of the system of "earthing-up" advocated by Mr. Jensen, was read by Dr. Masters, on behalf of the sub-committee appointed to carry out the experiments, at the last meeting of the scientific committee of the Royal Horticultural Society on the 8th December:—

The experiments made at Chiswick for the purpose of testing the value of the Jensenian plan of moulding Potatoes as a preventive of the Potato disease were carried out in the present year in essentially the same manner as in the preceding year. A few slight modifications were adopted to facilitate the making of the record, and the tubers were placed at rather wider distances, the rows being now 4 feet apart, but these changes did not in any way interfere with the fair comparison of the results of the two years, the number of plants in each row being the same. The chief difference in 1885 consisted in the longer time the Potatoes were left in the ground. Thus in 1885 the longest duration of

moulding was 118 days on section i. of each row, as contrasted with 83 days in 1884. The shortest moulding period in 1885 on section v. was 62 days as compared with 27 days in 1884. The Potatoes were examined on March 31 by the committee previous to planting, and all diseased and "suspicious" tubers eliminated. During growth they were inspected at stated intervals, and their condition noted. The season was for the most part warm and unusually dry, and no appearance of disease was noticed at any time on the haulms. On the 10th of October, the weather for some days previously having been wet, the tubers were lifted and carefully examined by Mr. Shirley Hibberd, Dr. Masters, and Mr. Barron. Two unmistakably diseased tubers were noted during the uplifting on row 3 (Adirondack), and three on row 2 (Recorder). Others that appeared suspicious were sent to Mr. George Murray, who, after adopting appropriate methods of cultivating the fungus, reports that only one was really diseased. It should be remarked that the peculiar red spots in the substance of some of the tubers noted the previous year were not observed at all, though carefully looked for.

As the immediate object of the experiments has again failed in its fulfilment, owing to the slight development of the fungus, a detailed report seems unnecessary, though the documents are at hand for preparing it if thought desirable. A few general remarks, based on the results of the two years taken together, may be of interest.

1. The amount of produce under the varied conditions of the experiment.
2. The effects of long or short periods of earthing-up, and of not earthing-up at all.
3. The consequences of bending the haulms in the manner recommended by Mr. Jensen.
4. The results obtained from planting whole tubers and cut sets.

1. THE AGGREGATE PRODUCE from all the rows of Recorder in 1884 was 257 lb.; in 1885, 254 lb. 8 oz.; showing a decrease of 2 lb. 8 oz. in 1885, and a total amount for the two years of 512 lb. 8 oz. The corresponding figures in the case of Adirondack are 455 lb. 9 oz. in 1884, 434 lb. 12 oz. in 1885, showing a decrease of 20 lb. 13 oz. in 1885, and a total amount for the two years of 890 lb. 5 oz. Thus the actual produce of all the rows of each variety was so nearly alike in the two years as to be all but practically identical. On the whole, there was a decrease in 1885, in spite of the tubers having been allowed to remain longer in the ground than in 1884. This decrease may, perhaps, be accounted for by the prolonged drought, but the close approximation in the amounts of produce in the two years respectively seems to afford an indication of the success of the method employed in carrying out the experiments.

2. EFFECT OF EARTHING-UP ON THE AMOUNT OF PRODUCE.—When the results of the two years are combined it comes out clearly (in the case of Recorder), under all conditions of growth, that the greatest weight of produce (irrespective of quality) was obtained from those sections which were earthen-up for the shortest time. Some of the largest tubers were met with in these sections, but mixed with a large number of smaller tubers, while their general quality was uneven and relatively bad.

The same general remarks do not, however, apply to Adirondack, which shows more variation in this respect, and in which the largest, as well as the best and most even, tubers were frequently found in those sections which had been earthen-up for the longest time. It may be suggested that the results obtained show the probability that the

process of earthing-up differs in its effects materially in the case of different varieties of different habit of growth, texture, &c. At any rate, it may be useful to call attention to this subject with a view to future experiments, the more so as little or nothing is known of the relative effect of earthing-up on different varieties.

POTATOES GROWN WITHOUT EARTHING-UP.—In both years four "control rows" were planted, two of each variety, the object being to afford a comparison between the Jensenian system of moulding and the natural condition of growth, in which no "moulding" at all occurs.*

The total produce, for the two years, on row 5 (Recorder, whole), amounted to 100 lb. 4 oz., an amount considerably in excess of the yield from any of the moulded rows of this variety (row 2, 48 lb. 6 oz.; row 8, 91 lb. 13 oz.). On row 11, where cut tubers were planted, the yield for the corresponding period was 87 lb.—also somewhat in excess of the crops on the corresponding two rows subjected to moulding (row 1, 68 lb. 1 oz., and row 7 80 lb.). The tubers on row 5 and row 11 were noted as much mixed in size, some of those on row 5 being much coarser and larger than on the other rows of the same variety, while many others found lying on the surface were green and small. They had also been the subject of insect attack and injury by slugs and millipedes to a much greater extent than the tubers in the other rows.

Of Adirondack left to itself the total produce of the whole tubers (row 6) for the two years was 186 lb.—an amount greatly above the quantity on the corresponding moulded rows (row 4, 129 lb.; row 10, 150 lb. 14 oz.). In the case of the cut sets (row 12), the total amount (for the two years) was about the same, viz., 182 lb. 14 oz., and also largely in excess of the corresponding moulded rows (row 3, 113 lb. 5 oz.; and row 9, 128 lb. 6 oz.). The same remarks as to quality apply to the unmoulded rows of Adirondack as to those of Recorder.

It is clear, then, that under all circumstances, the actual produce was greater in the unmoulded rows, but that, while some excellent tubers may be grown in this way, the general bulk is much mixed, comprising numerous tubers unfit for consumption, but which might possibly have some advantage (so far as the plant is concerned) in point of physical health over those moulded-up. The small green tubers, for instance (if not affected by disease), might furnish stronger plants than those grown beneath the surface, while their noxious flavour might repel rather than attract predatory insects, &c.

3. THE EFFECT OF BENDING THE HAULMS OR OTHERWISE.—In each year two rows of each variety were allowed to grow without interference, while in other two rows of each variety the haulms were at regular intervals of time bent downwards. There was no opportunity afforded in either year of testing the value of this practice as a preventive of disease, but the average amount of produce in the two years from the erect and the bent tops respectively shows the effect of the check to growth occasioned by the bending. The average produce of the two years on rows 7 and 8 (Recorder, erect tops) was 81 lb. 6 oz., on rows 1 and 2 (bent tops) 76 lb. 2 oz.

The corresponding figures in the case of Adirondack are 139 lb. 10 oz. for the unbent

* It may here be noted that no special rows of Recorder or Adirondack were set apart and moulded in the ordinary way, because, for the immediate object of these experiments such a course was unnecessary, the experimental rows being contiguous to a large area devoted to the cultivation of numerous kinds of Potatoes in the usual way, so that had the disease appeared, ample means of testing the effects of the ordinary, as compared to the Jensenian, system would have been afforded.

haulms (rows 9 and 10), and 126 lb. 1 oz. for the produce of the bent tops (rows 3 and 4).

4. THE EFFECT OF THE EMPLOYMENT OF WHOLE TUBERS OR OF CUT SETS.—In the control rows, as before stated, the greatest weight of produce of Recorder in both years was obtained from the whole tubers, the totals being 100 lb. 4 oz. on row 5 (whole), and 87 lb. on row 11 (cut).

In the case of Adirondack, the total produce in the case of the whole tubers (row 6), = 186 lb., shows only a slight excess over the yield from the cut tubers (row 12), = 182 lb. 14 oz. In 1884 the produce from the cut tubers (95 lb. 10 oz.) was slightly in excess of that from the whole tubers (91 lb. 4 oz.); in 1885, however, the balance is much in favour of the whole tubers, *i.e.*, 94 lb. 12 oz. as against 87 lb. 4 oz.

The whole tubers of Recorder subjected to moulding in various degrees yielded in the two years a total crop of 176 lb. 3 oz., *i.e.*, 91 lb. 13 oz. from erect, and 84 lb. 6 oz. from bent tops.

The cut tubers of the same variety for the same period supplied 148 lb. 1 oz., = 80 lb. from the erect, and 68 lb. 1 oz. from the bent tops.

The whole tubers of Adirondack produced a yield of 279 lb. in the two years, of which 150 lb. 14 oz. were yielded by the erect, and 129 lb. by the bent haulms.

The cut tubers of the same variety yielded during two years a total of 241 lb. 9 oz., *viz.*, 128 lb. 6 oz. from erect, and 113 lb. 3 oz. from bent haulms.

In general terms it may be stated, as a result of these experiments, that (1) earthing up produces a crop of more uniform and of superior quality, though less in actual quantity. (2) That bending the haulms occasions a diminished yield. (3) That a larger aggregate produce is derived from planting whole tubers than from the employment of cut sets.

BROAD BEANS.

I OBSERVE in the long list of Broad Beans which Mr. Muir includes in his "Notes on Vegetables" he seems to admit, or rather assume, that those long-podded kinds, Leviathan, Aquadulce, and Neville Long Pod, are distinct. Having grown them all two successive seasons, I must say that I find absolutely no difference in them either in height, character of plant, length of pod, or productiveness. Were it not that the kind produces such long pods, it would never be esteemed prolific, as, when compared with some other kinds, the proportion of pods produced is remarkably few. Thus, I found a good stock of Johnson's Wonderful to produce more than double the number of pods, and being shorter were far more saleable; in fact, those long pods which the Spanish forms produce are more fancied for exhibition than they merit, whilst they are far less marketable than are shorter ones. Probably many gardeners who grow Broad Beans for house consumption find the latter preferred in the kitchen. In some good families the Windsor Broad Bean is preferred to any other, and gathered only when the eyes of the Beans are black. The Beans when shelled and cooked are peeled, or rather have the husks of the Beans removed before being served up. When so dished these Broad Beans are very good, and if thus oftener treated would no doubt be oftener consumed on private tables, where at present there is some prejudice against these Beans because their husks are so objectionable, and stain so freely. I very much doubt whether gardeners who put up these Giant Long Pods in their exhibition collections of vegetables grow any considerable quantity of them for domestic consumption.

I find Peas, dwarf Beans, and Runners greatly preferred. Perhaps if the method of serving Broad Beans up, to which I have referred, were more generally adopted, their culture would be greater. We are very much dependent upon cooks after all for the popularity or otherwise of many vegetables. A. D.

WORK DONE IN WEEK ENDING DEC. 29.

DECEMBER 23.

A slight frost, but not sufficient to hinder our work of walk-renovation, such as cutting of verges and turning of gravel in discoloured places; also continued shrub planting. We have so much of this work on hand, that we cannot afford to be over-nice about the character of the weather in which to do it, so long as it is not actually freezing; we shall continue at the work and cover the roots thickly with long litter or Bracken soon as the plants are in. Nailing Plums and Cherries, and soon as that work is done the walls as well as trees will have a thorough drenching with soap-suds, this insect-destroying agency being made the more destructive by dissolving a couple of pounds weight of Gishurst compound in every thirty gallons of soap-suds. Peach trees have been unnailed from the walls, and the branches bunched together that the walls may be cleaned and repointed. Looked over Pines; in respect of watering, none of them require much now, as all are best kept on the dry side till the days, or rather daylight, is longer. The maximum temperature now ought not to exceed 66°. In very cold weather, when hard firing is a necessity, we sprinkle the leaves of the plunging beds, and close to the pipes where the leaves get driest we give them a real watering once a week. Such a procedure is also requisite with Gardenias that are growing, as ours are, in a plunging bed of leaves, and these we syringe overhead once a day except in sharp frosty weather. The plants are full of bud, and we are able to cut a few flowers on most days. We renew a few of our plants by propagation every year, as young plants always flower the best and none are ever kept longer than three years.

DECEMBER 24.

Another slight frost, but otherwise fine for outdoor work, and the same jobs as yesterday were continued to-day to the extent that the extra work of church decoration allotted to us would admit of. Very fortunately we are so situate in respect of materials—Evergreens, Holly, and Moss—that work of this kind has no terrors. The window-ledges we have wreathed with Holly, and the sloping part of sills have a groundwork of Moss, on which simple designs are worked out in flowers, Christmas Roses, red and white Camellias, and the sulphur-coloured Chrysanthemum, Meg Merrilies, being the flowers used. Plants, Palms principally, are used at the east end, small plants for the windows, and larger for the floor and steps leading from nave to chancel, and the pillars are wreathed with very thin wreaths of Holly Ivy, and Yew. As a rule, such decoration is overdone, every nook, ledge, chandelier or gas standard being covered, as if bulkiness meant effectiveness, whilst in reality it is the very opposite. In this, as in most other decorative arts, simplicity is the truest form of beauty. Preparing for a commencement of propagation by cleaning out the propagating pit, washing glass and woodwork, and lime-washing walls; the tiles over the hot-water tank have also been renewed and the drainage put in good order. Potted off Tomatoes and placed on shelves close to glass in Pine stove. Melons we sow in pots, singly, and the first batch have had small bits of turf placed against the stems to keep them upright, and in which—the turf being kept moist—roots will soon form. Sowed Cucumbers, Telegraph, Chervil, Mustard and Cress, and Radishes between the rows of Potatoes in frames.

DECEMBER 26.

With the exception of a little fog, this has been a grand day for open-air work. Planting Rhododendrons, trenching for shrub planting, grubbing up Hazel stems, and walk renovation still constitute the bulk of our labours, and is likely to do for some time to come. We shall, however, occasionally steal

away to the garden proper—as we did to-day—to sow Peas on a south border and a row of Broad Beans next a new plantation of Raspberries, the ground for which was extra well done, together with the contiguous plot, which is intended for the earliest spring planting of Cauliflowers and Cabbage. We have several fine clumps of Christmas Roses full of flower in the open borders, and have put handlights over them to keep them from injury by frost; a few hybrid Primroses we served the same, and if we had lights to spare Violets would be done the same, as every little bit of flower from the open air is so much saved to the houses, and this will be scanty enough now that the Chrysanthemum season is nearly over. Turned over leaf bed on floor in early vinery, and put on it a few more Spiræas and Deutzias to start them into growth. Other plants that were thus started have been moved into the early Peach house for flowering, and so have Marguerites and Abutilons that were lifted from the flower garden, potted, and placed in strong heat, and which are now flowering well, and are most useful as cut flowers. That fine new white Pink, Mrs. Sinkins, forces as well as does the old common white; but as we have not stock enough of the former, plants of both varieties have to-day been put in a heated pit for forcing. Marie Louise Violet and Mrs. Sinkins Pink being two of the most highly prized flowers we grow, we therefore strive to get them early and in quantity. Thoroughly cleaned up all the houses, making the most of every bit of flower by placing the flowering plants in the most conspicuous positions.

DECEMBER 28.

The present is a winter of sudden changes; to-day the lowest reading of the thermometer was 43°, and yesterday the highest was 35°. There has been an attempt at raining, but not sufficient to interfere with the work arranged for the day, which has been nearly the counterpart of Saturday's. Rolled walks and roads with horse-roller; after frost this is necessary if the roads are required to be kept in firm condition. Nailing and dressing walls and fruit trees with soap-suds and Gishurst, and began to prune Currants; the red and white kinds we spur quite in, much in the same way as are Apples and Pears. Any extra strong young shoots that spring from near the base of the plants are preserved, to take the place of old branches with gnarled or long spurs, these being cut clean away, and thus the branches of the trees are gradually renewed. Black Currants we prune in a different manner; all the new well-ripened growth that there is space for is left, the tops being shortened; and it is on shoots of this description that the finest fruit is produced, though the largest quantity of fruit is produced by the small spurs of last year. The fruit from spurs of a greater age than two years is so small as to be almost worthless, and, therefore, what I term the long-shoot style of pruning is best for Black Currants. Put in a few more cuttings of Chrysanthemums; we strike them under handlights in a cool house. Of course they are longer in rooting than if they were in warmth, but by this manner of striking a sturdy growth of plant is assured from the commencement, a condition that is worth waiting for. Cleaned glass and washed woodwork of late Muscat vinery, and began to free the Vines of loose bark and paint them with insect preventive solution. The Grapes which were cut and put in Grape room some time ago keep far better than they did on the Vines, and, indeed, better than we ever kept Muscats in Grape room before, and I know of no reason why they should keep better unless it be that they were dead ripe and had begun to shrivel. The berries are more plump since they have been in the bottles.

DECEMBER 29.

Another sudden change to sharp frost, which is the best of weather for our trenching, grubbing, and gravel digging operations that we have been at to-day; also wheeling manure and leaf soil to some few Conifers that are to be top-dressed at first opportunity. I note such a difference in the vigour of trees that have been thus helped and those that have not, as to cause the regret that time and materials will not admit of all being served alike, and, what is still more unfair, the trees that are doing best get best served, an idea that it is almost useless to strive

against, for, however one-sided it may seem, and indeed is, one always feels most disposed to favour trees that have well repaid previous assistance. *Picea Pinsapo*, *Pinus insignis*, *Picea nobilis*, *Abies cephalonica*, *A. Douglasi*, *A. lasiocarpa*, *A. grandis*, and *Cryptomeria viridis* are a few of the better kinds of Conifers that deserve all the help in the way of surface dressings of fresh soil that can be afforded. Cleaned late Muscat vineyard and watered inside border, covering it with a little straw litter on which to arrange bedding *Pelargoniums* that are still in store pots and boxes, and that have now to be removed from another vineyard that has been closed for forcing. Our first lot of Strawberries—which are on shelves in earliest vineyard—are fast coming into flower and syringing of them is now discontinued. The variety is *Vicomtesse Héricart de Thury*, a sure setter, but to make certain of a good set at this dull time of year we go over the flowers lightly with a camel's-hair pencil each day when the air of the house is driest. Got in soil for earliest lot of Melons; moderately stiff turf, a small percentage of pieces of charcoal, and a few handfuls of crushed bones constitute our mixture, and which is beaten down rather firmly.

HANTS.

HARDY FRUITS.

Once more we are on the threshold of another year, and a few weeks hence the swelling of the buds on many of our early fruit trees will remind us that the season for cleansing, dressing, and painting with strong insecticides can no longer be carried on with safety. So far, the season has been favourable for out-door work; we have not had any snow, and the frost has been barely sufficient to admit of getting the annual dressing of manure wheeled out upon the quarters; and yet the shortest day has passed and we are looking forward to brighter and busier times. Let those who are still behind with their work look well into the matter, and try their very best to do full justice to every neglected tree during the coming month, by not putting off till to-morrow what there is a possibility of getting through to-day. If Plums, Cherries, and Pears have been pruned, nailed, and well washed with a cheap and efficacious insecticide, and good soapsuds are still to be had for fetching from the laundry, no harm will be done by a repetition of the dressing. Green and black fly were unusually troublesome last season, and many trees were seriously injured by the loss of young wood and foliage. The winter, so far, is favourable to these insects, on old walls especially; a mild early spring will husband their strength, while the checks which may be expected from late frosts will once more place the trees at their mercy. Soapsuds, which in many places finds its into the drains, is not only a good and safe insecticide, but is also an excellent manure. When used it should be driven with great force against the trees and walls, which it will cleanse and free from the larvæ of insects, while its manurial properties will stimulate the roots on its way downwards through the borders.

APRICOTS.

The earliest and perhaps the most disappointing trees we have to deal with will also well repay a good washing, provided the engine or syringe can be brought to bear upon them before the buds begin to swell. If pruning and nailing is finished, a thorough examination of the borders should at once be made, not merely on the surface, but quite down to the drainage, before the mulching is applied, and if the least symptom of dryness is discovered, no time should be lost in applying the manure and laying on the hose until every part of the border is properly moistened. If the borders are rich enough and manure is not needed, the surface soil should be well loosened with a fork and drawn into ridges before the water is applied, and when the lowest roots have been reached it may be levelled down again, made firm, and well top-dressed with old lime rubble. When old Apricot trees have stood undisturbed for a great number of years, and the roots have become deeply imbedded in the dry subsoil, mildew often becomes troublesome, many of the flower-buds drop shortly after they begin to swell, and those left do not set and swell kindly. Sulphur, the usual antidote, is applied, and it checks

the mildew for a time; but the crop is a partial or complete failure, and the loss of fruit and foliage is generally set down to ungenial weather. The trees, already weakened by disease and drought, are in due course attacked by the grub, paralysis of the branches follows, and many fine trees become unsightly and practically useless. Repeated applications of water to the roots very often correct or prevent this unsatisfactory condition; but the proper mode of treatment, as I have often pointed out, is root-lifting and relaying in fresh compost.

PEACHES.

As nothing can be gained by allowing the branches and young shoots to remain tied or nailed to the walls, advantage should be taken of favourable weather for having them detached and tied out to supports where the buds will be safe from the forcing influence of the sun during the months of January and February. Although scale and spider may have been kept in check by good management, all cuts imperfectly made at the autumn pruning should now be smoothed off, and every bit of wood carefully washed with soap and water as the trees are liberated. Some Peach growers paint their trees with insecticides before they are tied in, and I used to adopt this practice; but by washing the branches and young growths twice over with soap and water scale never makes headway, and we avoid the risk of injury to the buds by using the dressing too strong or applying it after they have commenced swelling. Pruning and washing having been finished by the middle of January, our walls being old and full of nail holes, they are well syringed with soap-suds as a preliminary to the annual painting with the usual mixture of quicklime, sulphur, and linseed oil. These are mixed together in an old iron furnace or copper, soot and venetian red being added to tone it down to an old brick-red colour when dry. A fine dry day is selected for applying it to the walls with a half worn whitewash brush, care being taken that it is well dabbed into the faulty joints and nail holes, and the trees are left to take care of themselves until the advancing state of the flowers renders it necessary to commence nailing and protecting. As many fortunate owners of good sound brick walls may object to the use of a wash that will discolour the bricks, the thorough application of soap-suds to which a few handfuls of sulphur may be added will effectually destroy the larvæ of insects and those destructive pests, woodlice, which do so much mischief when the fruit is ripening.

RASPBERRIES.

If the staking and tying of these is still in arrears they should be taken in hand forthwith. It is a mistake to leave a great number of canes to one stool, as the young fruit-bearing laterals are apt to become too much crowded, and those retained should be divided as much as possible, either by tying out singly to the wire trellis or by placing three stout stakes to each stool. Shortening back is best left until the buds begin to push in the spring, for the twofold purpose of keeping the lower buds dormant as late as possible and preventing wet and severe frost from getting into the pith during winter. When the canes are tied in, the plantations should be cleared of weeds and refuse and heavily mulched with good rotten manure where the ground is light and warm, with leaf mould and burnt earth if it is cold and heavy. Digging with forks or spades must not be tolerated from the time the plantations are made until they are broken up.

MORELLO CHERRIES.

Why Morellos are invariably grown on north walls and their pruning and training is generally put off until all other fruit trees are finished, are two questions which it is difficult to answer. Such, however, is the fact, and it is to be regretted that the ordinary season of this really valuable fruit is not considerably prolonged by devoting other aspects to their culture. A south aspect, even if it could be spared, might not be the best, as it is more than probable their great enemy—black fly—would cripple them; but a few trees planted against a west wall would give a crop of fine early fruit that would pay quite as well as ordinary Plums or September Pears, which can be grown equally well, if not better, on pyramids or

bushes fully exposed to the sun on the open quarters. Morellos on north walls in many places have not done well of late years, and we are very apt to blame the seasons, which have not been good, but there may be other causes of failure: the walls and borders may be Cherry-sick and infested with insects, which nothing short of complete renovation can remove. When this is the case the young foliage turns yellow, the points of the shoots begin to die back, and the old branches are attacked by the disease too well known as "gumming," and die off wholesale like our Apricots. If the question were put to the oldest inhabitant, he would most likely say, the north wall in the fruit garden was furnished with Morellos when he was a boy, and that gaps had been filled up from time to time as the old trees died off; but no attempt had ever been made to clear out the borders and make a fresh start with good drainage and fresh compost. This, however, is the remedy really wanted, and the sooner it is set about the better for the grower and the owner. Let trees that are worth the trouble be lifted, well drained, and replanted in fresh compost, consisting of calcareous loam and old lime rubble, burnt earth or road scrapings. Avoid the use of manure, and raise the roots well up above the surrounding level. Prune and wash the trees, scour and point the walls, or scrub them with soap-suds, to which a few handfuls of salt have been added. In fact, give them the attention usually devoted to Peaches and Nectarines on the opposite side of the wall, and the result will well repay the trouble. If the trees or a portion of them are past recovery, clear them out, make new borders, and replant with young ones.

Pruning and training.—Morellos are sometimes spurred in, but the best fruit is obtained from the young wood, which is laid in at full length, like that of Peaches, or, quantity being the object, an even spread of young growths may be allowed to extend from the walls upon the principle practised by growers for market. When grown in this way the foliage gets the benefit of summer rain; the trees luxuriate under this abandoned kind of training; the fruit is bright and clean, and keeps well under a good covering of leaves in the autumn. Private gardeners who have to keep their fruit well into November generally prune Peach fashion, and nail the wood in close to the walls, for the threefold object of securing neatness, quality of fruit, and protection from birds and wet. When this method is adopted, the trees should have plenty of wall room to allow for extension, and they should be sufficiently thinned at the winter pruning to make room for laying in young wood for succession.

In cold gardens where sweet Cherries are subject to "gumming" and resent spur-pruning, many of the strong growing varieties succeed well under extension training on the fan principle, and the annual laying in of young growths from the base of each bearing shoot. By the judicious summer pinching of all the superfluous shoots and allowing the main branches plenty of room, they soon become thickly studded with spurs, and the trees require very little pruning in winter.

GOOSEBERRIES.

These, in bird-infested districts, are not generally pruned until the spring, but this allowing them to stand over is an unnecessary inconvenience, as it keeps the garden in an untidy state, when a dressing of soot and lime applied as a wash effectually checks the birds and acts as an excellent stimulant and insecticide. When the trees are pruned the ground should be well mulched and lightly forked over to destroy weeds and sweeten the soil, then, without delay, the mixture, consisting of say one peck of lime, a small quantity of soot to tone down the colour when dry, and a pint of linseed oil reduced to the consistency of thin paint by the addition of hot water, may be applied to the shoots with an old syringe. When the lime is thoroughly slaked and the soot has been added, it should be passed and washed through a very fine sieve with the hot water, to facilitate its application with the syringe, and a fine day should be selected for the operation, as the secret of success depends upon the young shoots becoming dry before rain falls upon them. Many people apply lime in a dry state when the bushes are damp, but this only affords temporary protection, while the mixture answers once for

all. Gooseberries, like Currants, submit to spur pruning and produce quantities of fruit, but the finest is always obtained from vigorous young trees that are plentifully furnished with well ripened shoots of the preceding year. These, then, should be well thinned to let in light and air and to admit the hand when the time arrives for gathering; but they need not be shortened back unless the points are imperfectly ripened or there is a prospect of their touching the ground when weighed down by the crop of fruit. When Gooseberries are grown on open quarters, the different varieties should be planted together, and pendulous sorts should be trained on extra tall stems to keep the fruit borne by the drooping shoots clear of the soil and free from grit. If cuttings have not been put in, a few well ripened shoots of each kind should be taken off with heels and inserted two-thirds of their length in light, rich soil. Every cutting should be carefully divested of its lower buds to prevent the production of underground suckers.

W. COLEMAN.

NOTES OF THE WEEK.

Royal Botanic Society.—The following are the dates on which the exhibitions of this society are to be held during the ensuing year: Spring exhibitions, March 24 and April 14. Summer exhibitions, May 19 and June 9. Evening fête, June 30.

Dendrobium Wardianum.—I send you a flower of this Orchid taken from a plant which is carrying 272 fully expanded blooms, an exceptional number for one plant to produce. There are as many as forty blooms on one bulb. I shall be glad to know if any reader of THE GARDEN has seen a finer specimen.—J. COLLIER, *Manningham, Thorpe*.

A new Cattleya is now flowering at The Woodlands, Streatham. In habit of growth it reminds one of an intermediate form between *Cattleya Doremanniana* and *bicolor*. The flowers are beautiful, the sepals and petals being of a deep chocolate, while the lip is of a rich crimson on the lower half and white above. This being the first time in which the plant has flowered, better results may be looked for after making another season's growth. It cropped up from an importation.

Galeandra nivalis.—Of this rare and pretty Orchid a cluster of flowers has been sent to us by Mr. B. D. Knox, Caversham, Reading. It is distinct from the commoner *G. Devoniana*, the flowers being smaller and less attractive. They have reflexed sepals of a greenish brown, while the funnel-shaped lip is white, with a long projecting spur of olive-green, and the lip is tipped with a plum-purple blotch. Mr. Knox also sends a flower of an uncommonly fine form of *Sophranitis grandiflora* which measures fully 2½ inches across. The colour is brilliant orange-scarlet. The difference between good and bad varieties of this Orchid is great, but whether owing to cultivation or not is not quite clear.

Kennedya Marryattiae.—This greenhouse climber is with us proving of quite exceptional merit as a winter-flowering and easily grown plant. It has bloomed profusely without cessation for the last twelve months, and now in midwinter, with an atmosphere often thick with fog than otherwise it is a gorgeous picture. The handsome silky foliage clothing the numerous pendent branches are in themselves sufficiently distinct and attractive to deserve notice; but when accompanied with hundreds of axillary racemes of bright scarlet Pea-like blossoms, the effect is, as we have said, exceptional. Trained along a rafter or against the side of a cool greenhouse, the growth made by this plant soon covers a large space. Planted out in a loamy soil, with plenty of sand and supplied with water frequently during summer, no fear need be entertained as to the growth and flowering in a short time. Such a specimen as is here described may now be seen in the greenhouse at Kew, where the display made by its flowers has been for more than a year one of the principal attractions of the house. As a summer-flowering plant this *Kennedya* deserves a first place amongst greenhouse climbers, but it is its usefulness in winter to which attention is specially called here.

Oxalises in winter.—The genus *Oxalis* is rich in the number of really pretty-flowered species it contains, and many of these are rendered exceptionally valuable in a garden sense by their habit of flowering in winter and early spring. We have in our recollection the pretty display made by a collection of these plants at Kew in the Cape house last spring, where from January to June their many-hued Primrose-like flowers were to be seen in plenty whenever the sun was shining strong enough to make the blossoms of these plants expand. When the weather is dull then the Sorrels close their flowers, and it is not unusual for buds to decay without having once been wooed by a little sunlight to unfold. Equally interesting is the habit in these plants of folding their leaves during the night, a habit general to the whole family. Darwin devoted many hours of patient watching to the sleep-movements of the *Oxalises*, as may be gathered from what he says of them in "Movements of Plants." The variety of foliage is remarkable too, some of the species having comb-like, others pedate leaves, others again six, eight, or ten leaflets. The flowers are often large, in a few cases larger even than Primroses (*P. vulgaris*), and in colour they vary from yellow to white, red, pink, purple, and violet. A collection of *Oxalises* if properly made would comprise some of the prettiest of small-flowering plants, and, as has been shown, in addition to the attractiveness of the flowers there are many other points of interest in the plants of this genus.

Aerides Sanderianum.—This new species has just flowered beautifully in the Duke of Marlborough's collection of Orchids at Blenheim. One plant has produced a spike carrying no fewer than thirty flowers, which for charming colour and loveliness are unsurpassed by any in the genus, and equalled only by *A. Lawrencei*, which is the nearest relative to *Sanderianum*. Both these species fall into the odoratum group, but in the case of both the growth is more vigorous, and the flowers twice or thrice the size, while the colour is not comparable with that of any odoratum. Each flower of *Sanderianum* is about 1½ inches in length; the sepals are of wax-like texture, pure white, and heavily tipped with the richest carmine-magenta. The lip is of a lemon-yellow tinge, while the recurving spur is green. Apart from the structural difference between *Lawrencei* and *Sanderianum* they may be distinguished at a glance by the lip of the first being pure white, while that of the latter is invariably yellow. Both possess the delightful fragrance that characterises most of the *Aerides*, and they may be regarded as being among the most valuable additions that have been made to that genus of late years. *A. Lawrencei* is also in full flower in the St. Albans Nurseries, so that the two may be seen in bloom side by side in quantities, among them being numerous distinct forms.

Lotus peliorhynchus.—In noticing this plant (p. 631, in last vol.) "B." makes a suggestion in regard to its fitness for out-door cultivation in spring and summer. Permit me to relate our experience with it in a garden near London. In 1881, seeds of this *Lotus* were received from the Canary Islands (not, as "B." supposes, from South America). These were sown in a warm house and the plants obtained grown in a cool greenhouse, where they flowered freely a year or so afterwards. An attempt to grow the plant as a climber against the end of the greenhouse was a failure, as also was one to grow it on a trellis; the only way in which we could get the plants to thrive satisfactorily was either by suspending them so that the shoots could hang downwards, or by allowing them to grow along the cinders on the stage where the pots were placed. This latter method, *i.e.*, trailing, proves now the only really successful one, and we have plants in a cool frame growing over a few stones in the most healthy and promising manner. Here, at all events, this *Lotus* is too tender to be placed out of doors permanently, and we suspect it would not do well exposed in summer unless the season was warm and dry. It is easily increased from cuttings. In Cornwall, south of Ireland, and other similarly warm localities it would probably prove hardy. *L. Berthelotii*, not *Bartholletianus*, is the other name for this plant.—B. W.

QUESTIONS.

5410.—**Sycamore wood.**—I observed in "Woods and Forests" some useful information respecting the care required with Sycamore wood in not allowing it to become spoiled, and would like to know the uses to which it is applied.

5441.—**Gardening in Australia.**—Will any reader of THE GARDEN give me a slight idea of gardening in Australia, or Tasmania, what is generally the wages given to a head man, and is it carried on the same there as here, and how could a situation be procured there; lastly, which country would be the best, Australia or America?—FOREMAN.

5442.—**The purple Gerardia in America.**—Will any kind American reader send us some of the seed of the beautiful purple *Gerardia* which charmed us in the Eastern States of America in autumn? We wish to try it in our wild garden, sowing the seeds, as we suppose there is no other chance of establishing it, the plant growing on the roots of other things, we believe.—R.

5443.—**Self-supporting gardens.**—I shall be grateful for any hints or suggestions as to how to make my garden pay its own expenses. It consists of about two acres of good soil. We have four gardeners, three large Grape houses, two Peach houses, Tomato and Melon houses, and a large conservatory and stove. The great drawback is we are far from any station; everything, therefore, must be packed and sent to London.—LISCHEN, N.B.

5444.—**Cæsalpinia pulcherrima.**—This has bright orange-red, four-petalled, Clarkia-like flowers, distinctly margined with yellow, and issuing from the centre is an erect, trumpet-like crest similarly coloured, and a bunch of long, rose-coloured stamens tipped with pale green. It is a stove plant; might I ask where it can be obtained? I think it is one of those subjects that ought to be rescued from the oblivion into which it has undoubtedly fallen.—R. D.

5445.—**Heating.**—I do not remember ever having seen in THE GARDEN any particulars as regards the quantity of coke required for hothouses given so many hundred feet of piping. Can any of your correspondents tell me what would be a fair amount of coke to use per week for every hundred feet of piping with a saddle-boiler? I should really feel much obliged. The heat during the winter is kept at 55°.—CROMWELL.

5446.—**Cucumber pit.**—I am now about having a Cucumber pit built about 30 feet long by 10 feet wide. The back wall is to be 7 feet high, and there will be a path inside next to it and a 4½-inch wall inside to form a stage the length of the pit. What, next to front wall, would be the best way of heating it? I was thinking of having a slow combustion boiler placed in a shed at one end of the pit, and leading a 2-inch flow and return pipe from it into the pit, and then running the water in troughs formed with brickwork and cement the length of the bed. I have seen Cucumber pits so constructed which seemed to do well and maintain a large amount of damp heat which is not the case where hot-water pipes are used. If some readers of THE GARDEN will kindly favour me with a little advice on the subject I shall be very much obliged.—C. C., *Sudbury*.

LATE NOTES.

Land under fruits.—In my paper last week on "Nuts" I stated that we have in Herefordshire 40,000 acres devoted to the cultivation of fruit. On reference to the "Herefordshire Pomona," I find that the acreage three years ago was 27,000 acres.—W. COLEMAN, *Eastnor Castle, Ledbury*.

Edelweiss in gardens.—We have been amused from time to time by paragraphs in the daily papers which state this to be an extremely rare plant in this country, and an extremely difficult one to grow; the fact is, it is quite easily grown in any ordinary garden soil in any part of the country. Though we have known this for many years, however, we did not know how beautiful and distinct the plant is when grown in a bold picturesque group. It has a most charming effect, and grows perfectly on a low fully-exposed rock garden or open border.

Root excrescences (T. J.).—The excrescences on the roots of your Briers are singular. They may have been caused somewhat in this way: Brier roots often develop buds from which suckers are thrown up. I imagine one would have been produced at the point where this excrescence was found, but that from some unknown cause its growth was impeded and a woody lump formed instead. It is not in any way of the nature of a gall, and I can find no trace of insect action; but the injury to the root might have been originally caused by an insect.—G. S. S.

Names of plants.—*L. Lion*.—1, apparently *Davallia canariensis*; 2, *Adiantum setulosum*; 3, *Polystichum angulare*; 4, *Pteris cretica albo-lineata*.—*B. Cloud*.—1, *Polygala cordifolia*; 2, *Coprosma Baueriana variegata*; 3, *Begonia metallica*; 4, *B. nitida*.—*H. M. White*.—The two specimens are but slightly different; therefore we think that one is a mere form of the other.

Naming fruit.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of fruit.—*A. K.*—1, Golden Noble; 2, Golden Russet; 3, not recognised.—*S.*—Brown Beurre.

WOODS & FORESTS.

LARCH IN PEEBLESSHIRE.

"SCOT'S" article on the Larch in Peeblesshire is both interesting and instructive. In the first place, it illustrates clearly that there are soils and localities in the country that are exceptionally favourable to the growth and healthy development of that tree in a remarkable degree, and this has been noticed by others as well as myself, and it would not be too much to say that Peeblesshire—or, at any rate, a great part of that county—occupies a high rank in that respect. The county is not a large one—being estimated at 356 square miles—but a great deal of the soil upon the hills and well-watered valleys in the vicinity of the Tweed is of a loose, open, kindly texture, and as such is favourable to the growth of the Larch the trees themselves give ample testimony. In the second place, from the sad havoc made in plantations by the wind during a storm, the lesson taught is of deep importance to the cultivator, as it cannot be too much impressed upon the mind of the planter the urgent necessity of spreading out the roots of his trees at the time of planting, although at the same time we by no means affirm that this would in all cases prevent trees from being occasionally toppled over by the wind; but in view of such a widespread calamity, we do say that the planter should use every rational means in his power for the stability of his trees and the prospective value of his plantations. In the formation of plantations upon exposed hilly ground, the trees require to be planted rather thickly; and, although the work may be carried out with the greatest care and painstaking, yet if thinning is neglected at an early period of the tree's growth, irreparable damage may be done; and, in fact, is done in many cases to such an extent, as to seriously blast the prospective value of the plantations, although growing under the most favourable circumstances as regards soil and locality.

Trees that have been overcrowded in their early stages of growth are always deficient in roots, more especially coniferous trees, and the Larch is no exception to the rule; consequently when such plantations are opened up by thinning, the wind has better access, and as the trees are wanting in proper roots, and often top-heavy besides, it is not in the least surprising that such plantations are rendered a complete wreck by the wind during a storm to the sad loss and disappointment of the proprietors. This is the season when planting and thinning is being carried out; and, although storms cannot be averted, yet, with a full knowledge of the past and the widespread catastrophe caused by the power of the elements, we can anticipate from the past what may occur in the future, and work out our plans with the view of counteracting or modifying the evils resulting from such excesses. Trees that have been mismanaged in the early stages of their growth by overcrowding are likewise liable to get bark-bound after thinning, and in order to lessen the risk of this evil the work should be carried out with great caution, otherwise the trees may receive a sudden check to their growth by exposure, which, in many cases, may take years before they recover their wonted vitality. Such trees should be thinned gradually, always keeping in view the aspect and exposure, and so work out details accordingly.

FORESTER.

Her Majesty's woods and forests.—The annual report of the Commissioners of Her Majesty's woods and forests has just been issued as a Blue-book. The amount paid into the Exchequer in the last financial year out of the revenue arising from the

woods, forests, and land revenues, after deduction of all expenses of management, except the salaries and expenses of the official establishment, &c., was £380,000. This is the same amount as was paid into the Treasury in each of the three previous years, but £10,000 less than was yielded in the years 1880-81, and £30,000 less than was realised in each of the years 1877-78-79. The decrease in the past six years is principally to be attributed to the severe agricultural depression.

WHO ARE THE USERS OF TIMBER?

IN opposition to the often expressed view that our British timber could be much more used on the spot where it grows than is now the case, it has been said that the proportion of wood used for what we are in the habit of denominating estate purposes is really very small.

That this is true in substance and in fact is more than doubtful. If it is true that no great quantity of wood is used in inland rural districts, what becomes of the balance of imported wood that is not consumed in the great centres where none can be grown on the spot? From a pretty extensive knowledge of the traffic of country railway stations, and also of the canals, I am able to form a fairly correct idea of what proportion of foreign wood comes in from the ports, and also what home-grown is sent away, and it is no mere theory, but to me a well known fact that much of what is sent away would answer the purpose equally as well where it is grown as much of what is brought in. In a paper upon home-grown *v.* foreign Fir, I see it has recently been demonstrated that so far as regards cost the balance is considerably in favour of the home-grown wood, and what is true of the Fir is relatively so of most other woods; therefore, in face of the ever present problem of how timber growing can be made more profitable, it is little short of the marvellous that such apathy should exist about the employment of the home-produced article where of all places it should be used.

To shift the enquiry by saying that the quantity of wood used to that ordinarily grown on a place is almost infinitesimal, I cannot accept as being satisfactory. If the conditions financially were against its use, no mere sentimental notions in favour of our own produce could have any real weight, but as it has never been disproved that much of the British grown wood is in every respect equal to what is imported, and can in rural districts, where, of course, the bulk is grown, taking the market prices into account, be prepared cheaper than the foreign, I am bound to reiterate that there is something in our present system which needs looking into. Much stress has lately been laid upon the necessity of establishing schools of forestry in order that a better knowledge should be disseminated with respect to timber preservation and production, but however important this branch of the subject may be, that of its utilisation is infinitely greater, and with this we are quite as much afflicted as with the other.

D. J. YEO.

Forests and rainfall.—The fact that forests have an effect on the rainfall of a country has long been established, but the way in which they increase it has not been made so clear. It is certainly more easy to note results than to ascertain the manner in which they have been produced; still, natural phenomena are generally accounted for more or less satisfactorily, and the study is interesting and profitable. With reference to this question of rainfall opinions may still be divided, but the following theory, which was evoked through a discussion on forest conservancy in the Deccan, has many points about it which it would be difficult to controvert or replace

by better reasons. In the first place, the fact that the mean annual temperature of the whole earth is practically constant is dwelt upon, as this appears to prove that the quantity of heat annually received from the sun is balanced by an equivalent loss of heat through radiation into space. According, however, to calculation this is not so, as only about three-eighths are dissipated in this way, and the remaining five-eighths have to be accounted for. This is done by the assumption that this balance of solar energy is converted into another form of energy, viz., vegetable and animal life. In support of this it is pointed out that the growth of vegetation is accompanied by a disappearance of heat, as it is a chemical fact that in the resolution of a compound into its constituents the temperature is reduced. The leaves of the forest under the influence of the sun separate the elements of which the atmosphere is composed, and this chemical decomposition is accompanied by a fall of temperature. Therefore, in addition to the physical cooling which takes place at night over the leaf surface of a forest, in consequence of its radiating power, a chemical action goes on in the daytime which tends in the same direction. This fall of temperature over a large area, it is maintained, is the most important condition towards producing rainfall, as it causes a saturated wind to part with its watery vapour.

THE NEW HARDY CATALPA.

(CATALPA SPECIOSA.)

NOTWITHSTANDING its many merits it seems unlikely that the Catalpa will ever be largely grown in this country as a timber tree, as we have already more species than there are purposes for which they can be used. For ornamental planting, however, it is probable more will be heard of the Catalpa than is now the case, as the state of knowledge about it on this side of the Atlantic, to say the least, seems very imperfect. Loudon speaks of it as a single species, and in America, until comparatively recently, what is now known as the hardy Catalpa was only regarded as a variety of Catalpa bignonioides (*C. syriaca* folia, Loudon), although now there seems to be a general consensus of opinion that it is quite distinct. In its native forests the hardy Catalpa is described as being a tall and majestic tree, sometimes reaching an immense size, with long stems and spreading tops with the limbs rather scattered. We know of no Catalpa answering to this description in this country in point of size, but the scattered habit of its branches is undoubtedly a characteristic. In the summer season, with its broad and abundant foliage, this looseness of growth rather adds to its appearance, but in the winter when divested of its leaves the same cannot be said, as it gives the tree rather an ungainly look. We know that many who write upon the Catalpa, as is unfortunately often the case with fresh introductions, dilate upon it as being everything the planter could desire, both for ornament and for timber, but while considering it to have a good claim for many reasons, we cannot endorse all that has been said. For would-be planters to hope to reproduce this tree at all in accordance with the descriptions which have been given of it as found in its home will only lead to disappointment, but to such as are content with a moderate sized tree, unornamental when bare, but very effective when well furnished, we commend the hardy Catalpa. In his list of trees for reforesting Ireland, M. Howitz says: "This tree prefers a deep and good soil, in a sheltered position. It is easily reared from seed, which requires twelve hours steeping in warm water before sowing, and covered with a quarter of an inch to half an inch of light soil. Transplant when two years old. It should be planted very close or in a mixture with other quickly growing deciduous trees." From this it would appear that although denominated hardy

in distinction to the more widely known half-hardy species, it would be a mistake to look upon it as being suited to exposed or otherwise unfavourable situations. In regard to the places in which it grows best, the Catalpa has something in common with the Acacia, and although its wood is dissimilar in character, it is very like it in the property it has of early putting on heart-wood, and also in that of durability. In the species of which we are now speaking the flowers are much larger than those of *C. bignonioides*, and the colour of the corolla is whiter, the inside markings being more distinct, and it comes into flower a fortnight earlier. With regard to its wood, it appears that in America it is used for many purposes, and that it works easily under the tools of the joiner. The use, however, to which it seems most suited is that of railway sleepers, as, owing to its durability and the small quantity of sap-wood it produces, it out-lasts the Oak. It is also said to be more economical in cutting up, as it does not require to be squared, like other woods, but will answer the purpose with a cut down the centre only and the convex surface laid upon the soil. Like the Acacia, there have been some wonderful instances quoted of how long the timber of the Catalpa has lasted, but these, if correct, are under exceptional conditions, and cannot be given as fairly representing its real value.

Whin fences.—Whin may sometimes be used with advantage for fences, but its principal drawback is lack of durability. It can be grown from seeds, and in a couple of years it will make a good fence. If kept pruned it will last longer, but it cannot be depended upon for a permanent hedge.

PINUS PUMILIO FOR POOR GROUND.

THIS Pine is useful for planting upon cold, bare, inhospitable situations, at high elevations, as well as wet swampy ground that cannot be thoroughly drained. It is therefore valuable for shelter to young plantations. I was recently looking at some trees of this Pine which I planted some thirty years ago, and find that they have succeeded well. The site is about 1000 feet above sea level, exposure north, natural vegetation upon the surface principally heather, some stunted natural Birch, Mountain Ash, and Aspen Poplar, and an occasional Juniper bush. The soil is poor, but a few inches in depth, resting upon a hard black iron pan or till quite impervious to water and tree roots. Notwithstanding the hardness of the Aspen and Mountain Ash, neither of these trees ever attained even a medium size upon this soil, and many of the trees by the time they had attained a diameter of 6 inches at the base of the trunk had contracted heart-rot. The prospect here was so bad, that it was rather a puzzle to know what to plant in order to obtain covert, and give contrast and variety and a clothed appearance to the spot. In the successful planting of such ground the hard till requires to be well broken up with a pick at the spots where the trees are to be planted, by which means the sub-soil is rendered loose and friable for the roots of the young plants. The plants used should be stout and vigorous, and such as have been well prepared by being several times transplanted previous to their removal to the forest. Heather should only be removed at the spots where the trees are to be planted, as I have found it to be an advantage in the way of giving shelter at the outset, and until such time as the plants were inured to their new quarters. The plants used in this case were prepared by being several times transplanted in the home nursery; and in the successful planting of such ground this is an immense advantage, as the planter can have his

plants raised from the ground and inserted at once without risk of the roots suffering from draught or exposure of any kind; and as the weather during the planting season at high elevations is often cold and unsettled, I have found this to be a point of much importance in successful tree culture in such situations.

J. B. WEBSTER.

HEDGEROWS IN MID-WINTER.

HEDGEROWS at this season of the year present many beauties. To the unobservant it may seem that the winter is the one season of the year when they offer no attractions. Many a writer has dilated upon their varied charms in spring, summer, and autumn; but comparatively few seem to appreciate those of this season, which are not less numerous, though more subtle. Where evergreen trees or bushes form the greater proportion of the lines of fences, their characteristics are so apparent, that they are at once seen; so it is to the deciduous trees and bushes, or where the evergreen element only shows itself occasionally, we must go to discover the real, but unobtrusive, variations which have been spoken of. To some there may not seem to be much worth directing thought to in the bare stems of the various trees and shrubs of which hedges are ordinarily composed, yet never could there be a greater mistake. It does not require the eye of an artist to feast upon the inimitable gradations of colour in the Lichens which cover the stems of a single bush of Blackthorn. It may be that there are many other trees, or shrubs, upon which vegetation of this nature is equally at home; but it is seldom, I think, to be found more varied in hue than upon bushes of this species. In many of the hedgerows near my place this occurs very frequently, and from the brightest tints down to the more sober, but not less beautiful grey, its stems are almost entirely decked with these unpretending plants. The Mosses which adorn the banks cannot claim so much diversity of colouring as the Lichens which clothe the trees, yet the difference in form and growth which they show makes them not the less interesting. In many places the Bracken has lost its greenness and become withered; but in more favoured situations masses of Ferns stand out boldly from their habitat in the Moss-covered stumps of trees and bushes which have years ago fell a prey to the axe.

Apart from any extraneous colouring, the stems of many hedge shrubs have much in their normal condition which is worthy of observation. The wood of the Hawthorn, though somewhat sombre in hue, is peculiarly rich, and when standing in proximity to the light green of the Privet stems, and the rugged and still lighter bark of the common Maple, it is seen to great advantage. Where, as hereabouts, the Traveller's Joy occurs over long stretches of country, it may fairly be classed as one of the characteristics of the mid-winter hedgerows, as its grey tufts of winged seeds seen in masses and in a suitable light, if not a "joy for ever," is certainly a joy to the traveller who cares to admire the works of Nature. Even at this advanced season in many places the Bramble may be found, with, so far as its appearance goes, its leaves practically intact, and this with the Ivy, which nestles alongside or underneath, is another feature of the winter hedgerow. The wood of this bush, too, in many cases is very rich in colour, and unlike that of almost any other species. Here and there where an Oak bush occurs the russet of its withered leaves helps to enhance the general effect. The hedge fruit has almost disappeared, but now and again one finds a stray branch of Hips and Haws, and in situations near dwellings, where the birds have not been sufficiently courageous to begin

the onslaught, it is not unusual to see an Ivy-covered Thorn bush crowned with Haws, and this fruit, by the way, was last season abundant and large in size. Another feature in hedges where the tree exists is the swelling buds of the Goat Willow. These may be looked upon as a link between the seasons, as there are few other things which tell more plainly of the coming spring. Amongst the seeds still to be found upon their parent branches may be mentioned the keys of the Ash and of the Maple. Trees proper, though they often abound in hedgerows, are a little beyond the scope of this notice, as they generally tower to too great a height to be seen to advantage at close quarters; but some which are almost grotesque in their habit of growth, and do not grow to a great height, deserve mention. The dwarf and gnarled Oak comes within this category, and the strangely knotted branches of some old Crab Apples, with here and there a fruit remaining, must complete this slight picture of what our hedgerows are in mid-winter. RUSTIC.

The varieties of the Larch.—It is maintained by some that the American Larch is merely a variety of the European species, and that the genus *Larix* consists of only one species and its varieties. However this may be, it is certain there is a more marked difference between what is commonly known as the European and the American species than there is in any other. As a timber tree, or as an ornamental object, the latter cannot hold its own against the former by any means. Of the European Larch there appears to be some nine or ten tolerably distinct varieties. The first variety, known as *L. e. communis*, has its branches aspiring towards their points, with foliage of a light green or grassy hue; its branchlets are very numerous and form a dense conical top. The bark of this variety is somewhat more furrowed than the next to which we shall refer, viz., *L. e. laxa*. The branches of this tree are more horizontal and not so crowded, and when in nursery rows grows more rapidly than the last named variety, and its foliage is a darker green. In general habit of growth *L. e. compacta* is like the common Larch, but its branches are more brittle; near the base they are horizontal or slightly bent down, but the larger ones are erect towards their points and somewhat remarkable by being thickly interwoven. The fourth variety, *L. e. pendula*, is something like the American variety or species, but its leaves are longer and cones larger, and of this tree some remarkable specimens have been grown in this country. There are two other varieties principally distinguished by the colour of their flowers and cones respectively being red and white, and another classified as *L. e. sibirica*, but which is also known under various other synonyms. The seeds of this variety are said to have been brought from Archangel. It does not grow so rapidly as the varieties brought from the Tyrol, and its cones are more like those of the American Larch. In addition to this there are two or three others, but of no particular note. The American Larch, when treated as a distinct species, has also two or three varieties, but it is very little grown, or likely to be, in this country for timber purposes.—D. J. Y.

Manuring trees and shrubs.—For some reason the practice of manuring trees and shrubs seems to be looked upon as a doubtful one. That manuring forest trees can ever be followed with profit, with the exception perhaps of a liming when they are planted, we do not pretend to argue; but with respect to manuring ornamental trees or shrubs the conditions are entirely different, and food supplied artificially in this way is as much in accord with observed results and with common sense as manuring the ordinary farm crops. Some who agree that manure in one form or another is beneficial argue that it should be given in a solid form, and that liquid manuring is dangerous. This may be if a little judgment is not exercised, but with the most ordinary precaution, it may be made a very valuable aid.

No. 738. SATURDAY, Jan. 9, 1886. Vol. XXIX.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

FLORAL FASHIONS.

"LEX" (p. 652 of last year's volume of THE GARDEN) makes a vigorous attack upon the present fashion in bouquets, and with good reason, for not only are very large "mushroom" bouquets still fashionable, but it is now considered the "right thing" to have most elaborate holders—not paper ones, but quite works of art, constructed of card-board, satin, lace, and ribbons. So very showy are these, that unless the bouquet is of imposing size the holder quite overshadows the flowers. Ball-room bouquets, ranging from 12 inches to 15 inches across, must necessarily be of considerable weight and fatiguing to bear. It is an old saying that "pride feels no pain," and it may be that many would not admit that they became tired of their bouquets; but I have observed that they either give them in charge of friends or lay them down prior to engaging in a dance, and do not always take possession of them again. I have good grounds for asserting that many would much prefer smaller bouquets, but unfortunately they have not the courage to rebel against the inexorable laws of fashion. If fashion rules: that large and expensive bouquets are most proper, I am afraid that plenty will be found weak enough to conform to it. Who "sets the fashion" in regard to floral arrangements?—that's the question. It is certain that artists have no voice in the matter. No; nor royalty either. Bouquets of which H.R.H. the Princess of Wales has spoken approvingly have been, I happen to know, very light and simply constructed; in one case her bouquet consisted of one central Rose, a few white Azaleas, and a few spikes of white Roman Hyacinth, while on another occasion a few Marie Louise Violets and Heliotrope were introduced, Eucharis amazonica and Lily of the Valley being other flowers highly valued. One central bloom and two outer rings of flowers, with a few raised spikes of blooms and a little Maiden-hair Fern, ought really to be sufficient for any bouquet; great mixtures ought always to be avoided. "Lex" suggests the idea of a "simple stalk or spray" being borne by each lady at an assemblage, and the idea, if carried out, would be most pleasing, nothing perhaps being more conducive to the rapid spread of a real love for flowers, the life-history of each thus naturally attracting attention. Then instead of large sums being spent with florists, who, I fancy, are really most to be blamed for the present objectionable styles, many more choice and beautiful plants would find their way into private gardens. Thus florists might suffer, but nurserymen would be gainers. Floral muffs (literally) are now becoming fashionable, both natural and artificial flowers being employed in their construction. They appear to find most favour with matrons who attend fashionable assemblages—notably weddings. Chrysanthemums have been the favourite flower, both in a natural and artificial state, those either white or reddish brown in colour being preferred; bunches of these are grouped either with coloured or green Ivy leaves. Autumn foliage and berries intermingled are sometimes effectively grouped in the centre of the muff; while of natural flowers the most pleasing arrangement consists of forced white Lilac, of which large quantities are imported from France, and a few fronds of Maiden-

hair Fern. A single truss of forced Rhododendron, Camellias, Eucharis, Christmas Roses, a bunch of Roses and Tulips with Rose foliage, a short wreath of Stephanotis and its foliage, a small spike of Calanthe or other choice Orchid, and various other flowers at different times are all brought into requisition for decorating muffs.

W. I. M.

ORCHIDS.

AN ORCHID SOCIETY.

IN these days of specialists and of special societies it seems strange that lovers of those now popular and most lovely of flowers, the Orchids, have not formed a special society for the study, culture, and exhibition of these favourite plants. There are many questions of nomenclature and of culture with which such a society might deal, and the results gained could scarcely fail to be most valuable. Again, such a society would benefit trade growers by creating a taste for and giving an impetus to the culture of these flowers in our gardens.

The Rose, the Chrysanthemum, the Primrose, the Daffodil have special societies and committees of experts assigned to them, and why not the Orchids, which are just now so popular in all good gardens? An Orchid society on a sufficiently broad basis would, I feel convinced, prove to be a most useful institution to all those concerned in the culture of these plants, and especially so if formed under the auspices of the Royal Horticultural Society. The Orchid Conference was mainly confined to southern growers, the north country amateurs naturally hesitating at the risk, trouble, and expense of sending rare plants on a railway journey of three or four hundred miles. Again, no one exhibition of these plants in flower can yield us more than a tenth of the kinds now grown in our gardens. Hence the special object of such a society as is herein proposed should be to hold periodical exhibitions in the great centres around and near to where Orchids are largely grown. London, Manchester, and Edinburgh will at once suggest themselves as suitable for this purpose, and the society might be strengthened and aided by the action of a local executive committee in each place where its exhibitions were to be held. If the centralisation plan I propose should not prove to be a workable one, our Scottish friends at least must take care of their own interests by forming a local society for themselves, holding their own exhibitions in Edinburgh, as has already been proposed in a contemporary. My own opinion is that a strong central society on a broad basis would work well if aided by the local exhibitors and amateurs. The whole question is, however, deep as well as broad, and it would be best if our leading amateurs and trade cultivators would give us their views on the matter.

F. W. BURBIDGE.

Sobralia sessilis. This is the dwarfest species of Sobralia known in gardens, the stems rarely exceeding 18 inches in height, whilst in *S. macrantha* they are often 6 feet, and in an unnamed species at Kew the stems have attained a height of 12 feet. What *S. sessilis* lacks in height it makes up for in its free-flowering nature, and although the flowers themselves seldom last more than a day, they are developed in quick succession, often two or three times a year, though generally towards winter. The flowers are produced on the ends of the branches, as in the other kinds, each branch or stem bearing several flowers, although in botanical works it is stated that the flowers are solitary. They are as large as those of a *Pleione*, the sepals and petals white, flushed slightly

with rose, and the lip rose-purple with a large yellow blotch on the inside. This species prefers a higher temperature than is necessary for *S. macrantha*, thriving best when kept in the East India house. It likes plenty of water, as do all Sobralias. Mr. Cross, the Cinchona collector, states that when in South America he often had to cut his way through wide expanses of Sobralias, which always grew in swampy land, and often partially submerged in water, pretty much as the Bullrushes grow in this country. *S. sessilis* is now in flower at Kew.

Nelumbiums.—Mr. Frank Miles, in his interesting paper on Water Lilies in THE GARDEN of the 26th December, mentions that he sent seed of *Nelumbium nuciferum* to Chatsworth, amongst other places. From this seed I succeeded in raising several plants, and planted two in one of our *Nelumbium* tanks in the Victoria regia house. For a time the plants grew away freely, and I was anticipating the pleasure of seeing them bloom before the end of the summer; however, about the beginning of August they appeared to have completed their growth and commenced to go back, and by the end of September had, as I thought, gone to rest for the season. After reading Mr. Miles's note the other day, I examined the tank and hoped to have found a few tubers formed; but I regret to say that I was unable to find any; consequently, I am afraid I shall not have the pleasure of flowering this rare *Nelumbium* as I had hoped to have done during the coming season, unless someone else has been more fortunate in being able to flower it and can send me a tuber, for which I shall be glad to pay. If Mr. Miles has any more seeds, and can send me a few immediately, so as to give me a long season to see whether the plant can be flowered from seed in one season or not, I shall be glad to do the best I can to promote the end in view. I may say that I succeeded in flowering *Nymphaea zanzibarensis* as early as July last year from dry purchased seed sown in March.—OWEN THOMAS, Chatsworth h.

—In Mr. Frank Miles's "Work Among the Water Lilies" (p. 652, 1885) mention is made of his experience with seeds of the Japanese *Nelumbium nuciferum*. In the autumn of 1884, Sir George Macleay received from Japan a parcel of seeds of this *Nelumbium*, which were said to have been saved from the best double garden varieties. At the time of their arrival we were shown a series of coloured plates, executed by native artists, and said to be faithful representations of the flowers of those *Nelumbiums*. The colours ranged from pure white to dark red, and all of them showed a good double form. Be that as it may, however, we sowed a portion of the seeds, which we had previously prepared by what to some may possibly seem to be a rough-and-ready method. We simply took them to an ordinary grinding stone, and whilst one turned it another held on the seeds, one at a time; they were thus easily and speedily divested of part of their hard testa. Thus prepared, they germinated in a few days, and in due time were planted out. They made very little progress during the winter, but as summer came round they pushed up and completed a fairly vigorous growth, such as might reasonably be expected to flower next season, which if they do I shall be pleased to make the fact known. In the meantime, as we have a small parcel of the seeds still in hand, we would be glad to distribute them to anyone who may feel interested enough to make application for them. We intend to try some of them outdoors this year, in order to test the reputed hardiness of these Japanese *Nelumbiums*.—FRANK ROSS, Pendell Court.

Sternbergia.—Mr. Ewbank has forwarded to us a letter from M. Dammann of which the following is an extract:—"As far as we can ascertain all the *Sternbergias*, i.e., *sicula* and *ætnensis*, in cultivation have been in the first instance sent out by us, and, therefore, in all probability Mr. Ware's also came from us. You cannot, therefore, refer very well to Mr. Ware's as being truer to name than ours. We acknowledge readily to having made mistakes with regard to nomenclature, but the fact is, we got the first bulbs under wrong names, and sent them out accordingly. Afterwards, on comparing the different varieties with the descriptions given of them by botanists, we found that the names did not answer,

and, therefore, after bestowing on them considerable attention we succeeded in properly naming them; the description given by us in *THE GARDEN* is therefore correct. If it does not suit the plants you have it proves that you have not the right varieties under their right names. We may add that we have often received varieties wrongly named even from good firms. We have therefore decided not to send out any bulbs in future of Sternbergias until they have been proved by us to be correctly named." As Mr. Ewbank was an early purchaser, it is easy from this letter to see how the confusion in his case has arisen. It is not at all likely to occur again.

ROSE GARDEN.

A ROSE-COVERED PORCH.

AMONG the many beauties of English landscape detail, one of especial charm is found in the wayside gardens of cottages and other modest homes, where simple flowers seem to luxuriate, and are often seen to greater advantage than in gardens of greater pretensions. In the village of Fashing, in West Surrey, well known to artists for the beauty of its fine old stone bridge and river scenery, the effect of a cluster Rose, early in July, on the porch of Mrs. Sweetapple's house was so good, that we had it photographed for reproduction in *THE GARDEN*. These little gardens earn the gratitude of all lovers of flowers, for whereas those of richer people are hidden away for the enjoyment of the few, the little wayside gardens display their beauty to every passer-by, to the delight of all who can appreciate, and to the infinite adornment of the public ways of England.

CLIMBING ROSES.

"THE ROSARIAN'S YEAR BOOK" for 1886 has just reached us. It contains a photograph of Mr. B. R. Cant; a Symposium on Mildew, illustrated, by Messrs. W. G. Smith, D. T. Fish, E. R. Whitwell, and E. W. Badger; Winning Roses, by Mr. T. B. Hall; the Rose, and National Rose Society in 1885, by the Editor; some Single Roses as Decorative Plants, by Mr. T. W. Girdlestone; the Fortunate Isles and their Roses, by Mr. A. Hill Gray; Dew of the Ever-living Rose, by the Editor; Folkard's Plant Lore; the Rose Weather of 1885, by Mr. E. Mawley; and Climbing and Pillar Roses, by Mr. Geo. Paul. This last runs as follows:—

An early sunny morning in June, at Lyons, a pleasant walk beside, and by the ferry, across the swift bright Rhone, and walking in his garden of seedling Roses with M. Lacharme, he drew my attention to the difference of habit amongst some seedling climbing Roses, springing from, I think, the *R. polyantha* or *R. multiflora*. Some might be called creeping Roses, lying flat almost along the ground, and most vigorous in their extension, and he suggested, if I recollect aright, that some of these might develop a race clinging like Ivy to the walls. The idea has often recurred to me, the Rose being a freely rooting plant, when accident, such as a shoot burying itself, favours, but I have never yet seen a kind emitting roots when in juxtaposition to a damp wall. Others had the vigorous uprising shoots such as most of the evergreen Roses already in our collections have. But none had, as far as I noticed, the erect zigzag growth which the accidental climbing sports of the Hybrid Perpetuals have assumed. This leads up to the fact that in climbing Roses we have a great variety of growth and habit as well as of flowers, and well it is that it is so, for the Rose garden has room for other than exhibition Roses and Roses grown for exhibition only, as the National Society has recognised in its latest catalogue. Only in this respect the

catalogue is not inclusive enough; by not including the singles, for example, it omits some of our best arch Roses, such as *R. Brunoni* and *R. sinica* (the Rose Camellia of the Riviera), two of the best for the purpose.

Rose arches are amongst the most picturesque features of the modern garden, and it is astonishing how few sorts make perfect all-wire-covering growths. It is mostly amongst the evergreen Roses we find this habit of long vigorous shoots very freely produced, and bearing, when bent, flowers in great profusion along the length of the shoots; the finest is *Félicité Perpetue*, creamy white, perfectly evergreen, and making the best arch we have. *Leopoldine d'Orleans*, a flower lightly tipped crimson, has a slender, less furnishing growth, but is good. *Flora* and *Princess Marie* (pinks) are of like small and more slender habit, but make either singly or together a pretty pink arch; all these are very hardy, and make also good coverings for north walls. Of the single Roses, *R. sinica*, with large single white flowers, if it proves quite hardy here, will make one of our best arches; it has the foliage of the Banksians, evergreen and shining, but it will need warm summers and being left unpruned to make it flower. *R. Brunoni*, blooming in numerous clusters, and with glaucous bluish foliage, will be the Rose for very large arches, say one over a carriage drive, producing 20-feet long shoots, and these in great profusion. Of Hybrid Chinas, vivid, dark carmine, *Madame Plantier*, pure white, and *Fulgens*, crimson, are first-class arch Roses, free, and the shoots well covered all the winter with evergreen foliage. None of the Teas seem to me to be perfect arch Roses. The Dijon race show too much stick for too little flower. *Marie Van Houtte* would be the perfection of an arch Rose where climate permits. The Hybrid Teas have the fault of the Dijon Teas, if we except the two semi-double evergreen Hybrid Teas from Nabonnand—which are good additions to Roses for arches—*Madame Alphonse Lavallée*, pink, and *Reine Olga de Wurtemberg*, both with grand leaves. Of Noisettes, the only one I can recognise as a first-rate arch Rose is the glossy foliaged evergreen *Céline Forestier*, and perhaps the climbing form of *Aimée Vibert*. So much for arch Roses. The sorts recommended are few, but arches are not plentiful in gardens, and the list is probably sufficiently long.

FESTOON ROSES.—For want of a clearer name I should call such sorts as lend themselves to being led up to the top of a post, and then giving shoots to extend on chains or swinging wire from post to post; there are very few that lend themselves well to this. Nearly all the Ayrshire Roses do. Bennett's Seedling and Countess of Lieven as whites, Dundee Rambler and splendens, with pink-edged white flowers, and Queen, purple, Ruga, pink, all blooming in clusters, and with their long-extending leafy shoots, are the best. Of Hybrid Chinas, *Fulgens*, a crimson, and *Blairi* No. 2, light-tinted white, are both long-shooted sorts, which we know from experience make effective chains. *Gracilis* amongst the double alpine or Boursault Roses is the only one having shoots long and slender enough. Of the evergreen Roses, *Flora* and *Leopoldine d'Orleans* are the two best. Of the "species" Roses, *anemoneflora plena* and the Musk Roses in the warmer climes lend themselves to this culture; whilst the Noisettes, *Réve d'Or* and *Wm. Allen Richardson*, should also succeed. Covered chains are certainly worthy of much freer use. In the old Broxbournebury Rose garden of Mrs. Bosanquet they are one of the prettiest features.

CLIMBING ROSES.—Then there comes the larger subject of Roses for walls and fences, and for use wherever it is possible, by affording

support and shelter to make Roses succeed and flower, which do not do so under the ordinary bed treatment. Not an inch of wall, N. S. E. or W. be the aspect, need be left without its decking of fragrant Rose flowers and leaves. To take the Dijon Teas, *Gloire* may well occupy a space on each of these aspects. The flowers may be followed round with the season—first it gives its flower on the south wall in April and May, following on the east in May and June, and on the west in later June, finally giving even a show bloom or two from the north wall in July. All of its slightly varying coloured family and successors—*Bouquet d'Or*, *Beauté de l'Europe*, *Gloire de Bordeaux*, and *May Paul* (the two best pinks), *Madame Barthelemy Levet*, *Madame Trifle*, and *Melanie Soupert*, a rather dwarfier form, are all equally hardy, and succeed in all aspects. *Belle Lyonnaise* and *Madame Berard*, the other Dijon Tea Roses, are more tender, and need a southern or western wall; all, as will be noted further on, make fairly good pillar Roses. Then, for south aspect alone, comes climbing *Devoniensis*, needing the warm sun to make its wood ripe enough to stand the first winter; and one never forgets the glorious facing of *Marie Van Houtte* Teas which the Bakerian garden at Heavitree used to boast. Most of the Noisettes, for example, *Maréchal Niel* and *Lamarque*, need to look south, and *Céline Forestier* blooms more freely from the wood ripened by such an aspect. *Wm. Allen Richardson* and *Réve d'Or* are fairly hardy all round, bar the north. The two Hybrid Teas, reds as they are, and so much needed, *Reine Marie Henriette* and *Cheshunt Hybrid*, seem to accommodate themselves to all sites. For purely northern aspects, after the Dijon Teas we must again revert to the Evergreen, Ayrshire, and Hybrid Chinas, and some of the stronger Hybrid Perpetuals. The reds, such as *Monsieur Boncenne*, *Maréchal Vaillant*, and *Glories* of Cheshunt and Waltham doing better, even in such a position, than with a southern exposure—the flowers open more slowly.

PILLAR ROSES.—My paper has grown too long so I will spare the reader how I have selected the following, but he may rely on the choice. The best are:—

| <i>Red and Cringons.</i> | <i>Whites and Yellows.</i> |
|--|----------------------------------|
| H.P. Annie Wood. | N. Aimée Vibert scandens. |
| H.P. Camille Bernardin. | H.P. Climbing Bessie Johnson. |
| H.T. Cheshunt Hybrid. | T. Gloire de Dijon. |
| H.C. Chénérole. | *K.C.I. The Garland. |
| *H.P. Duke of Edinburgh. | *H.P. Madame Plantier. |
| *H.P. Duke of Teck. | T. Madame Berard. |
| H.P. Dr. Hogg. | H.P. Princess L. Victoria. |
| *H.P. Climbing Mad. Victor Verdier. | H.P. Paul's Single White. |
| *H.P. Glory of Cheshunt. | S. Rosa sinica. |
| *H.P. Madame de Trottet. | <i>Rose Colours.</i> |
| H.P. Madame Isaac Perrière. | H.P. Anna Alexieff. |
| H.P. Maréchal Vaillant. | *H.C. Coupe d'Helzé. |
| H.P. Mons. Boncenne. | H.P. Climbing Jules Margottin. |
| H.P. Ulrich Brunner. | *H.P. Climbing Edouard Morren. |
| *H.T. Reine Olga de Wurtemberg. | *H.P. Climbing Victor Verdier. |
| H.C. Vivid. | *H.C. Charles Lawson. |
| *H.T. Reine Marie Henriette. | H.P. Paul Neron. |
| H.P. Climbing Capt. Christy. | H.P. Princess Mary of Cambridge. |
| H.P. John Hopper. | H.C. Russelliana. |
| H.P. Madame Marie Lavallée. | |
| H.P. Madame Clemence Joigneux and its salmon form, William Warden. | |

There is care needed in planting them to ensure good covered pillars and long life to them. See that the soil is good and rich, get your post or iron pillar firmly fixed and as permanent as possible. Choose good, vigorous plants if worked with a sound union with stock. In pruning leave the shoots long. Try what M. Jean Sisley has pleaded for the extension system, and let Nature have nearly its sway. What pruning you do, let it be in thinning and guiding, not in shortening. Feed the roots freely to support the vigorous top. The result will be a glorious show of bloom.

NOTES FROM QUEENSLAND.

LEAVING Brisbane by rail for the Darling Downs, the line runs through some pretty suburbs, and, crossing the river twenty-four miles from the capital, we entered a large agricultural district, and soon reached the now important town of Ipswich. Here begins the ascent of the ranges, and soon the steep gradients are indicated by the slackened speed; curves and tunnels are numerous; on one side is a perpendicular wall of broken rocks, and on the other, at various intervals apart, are some frightful precipices. Far down below, hovering over a forest of huge Gum trees, was a flock of black cockatoo, a rare bird. Soon the summit of the main range was passed, and with more speed Toowoomba was reached. This is one of the largest inland towns of the colony; the soil hereabouts is red volcanic, rich in plant food, and quite different from that of the coast country. The atmosphere, too, owing to the altitude, is much colder than that of the coast, being clear and bracing and free from malaria. The chief products at present are Maize and English Potatoes, but amongst the exports of the future fruit is destined to play a prominent part. This is the home of the Orange in the colony. In the coast country Oranges are infested with scale and other insects, but here such pests are not common. They will only do well, however, in light soil.

The Botanic Gardens here are on the western slope of the range, overlooking the town. Near their centre is a large square filled with Apple, Pear, Medlar, Peach, Plum, and other fruit trees of new or rare varieties. They were planted to test their several qualities by the late Mr. Way, who was for many years curator of this garden, and through whose untiring zeal many valuable fruits and plants have been acclimatised. For walk edgings *Gazania splendens* is much used. *Pelargoniums*, *Zinnias*, *Pinks*, *Carnations*, *Roses*, *Lilies*, *Verbenas*, *Petunias*, *Dahlias*, *Violas*, *Gladioli*, &c., made quite a display in the borders. I also noticed many ornamental and shelter trees and shrubs planted in groups here and there. The *Lilac*, *Laurustinus*, and *Viburnum* (Snowball) seemed to be quite at home.

About four miles from the town, and situated on the range, is the nursery of Mr. Carl H. Hartmann, a plodding German of twenty years' residence on the Downs. Much of his "selection" is still uncared; but on entering the gate the handiwork of the landscape gardener is conspicuous. There is a broad avenue skirted by 20 feet or so of grass, on which at regular intervals are some noble specimens of the following Conifers, viz., *Abies Smithiana*, *Cedrus Deodara*, *Cryptomeria japonica*, *Cupressus horizontalis*, *C. Lawsoniana*, *C. sempervirens*, *Thuja dolabrata*, *Wellingtonias*, &c. I found Mr. Hartmann and his daughter busy glazing a new propagating house. It was span-roofed and the sides were of stone and neatly built. All of it had been done by themselves. He showed me several others which he had built, and they certainly looked substantial and tradesman-like. In the houses were many fine-foliaged and flowering plants, and in the nursery outside there was an interesting collection of fruits in excellent health and in full bearing. Amongst

them were the China Date Plum, China Quince, Granadilla, Brazilian Cherry, several sorts of Guava, American Blackberries, Mulberries, Figs, Almonds, Pomegranates, Loquats, and American Grapes. The latter he makes into wine. Of Apples, Pears, Peaches, Nectarines, Apricots, Plums, Cherries, &c., only those best suited to the district are grown. Mr. Hartmann is a great hybridiser, and many excellent seedling fruits have been raised by him. The Orange receives special attention in this respect, as he is quite convinced that the climate and soil of the Downs are well suited for Orange groves. The Rose, too, is one of his favourites, and so are

neria yuccoides is so far perfectly unhurt, and is evidently hardy in sheltered situations. Such a bright red-flowered *Yucca* is an acquisition.—EDWARD H. WOODALL, Scarborough.

PUBLIC GARDENS.

LORD BRABAZON writes to the *Times* as follows concerning work done and in hand in connection with the Metropolitan Public Gardens Association: "During the past twelve months the association has carried to a successful issue forty-six separate undertakings, and has worked at another

forty-six questions without success, while it is still negotiating with the respective authorities concerning over thirty matters. Though the public has supported us most generously, and though our office expenses for the year have amounted to less than £100, the funds at our disposal are at present exhausted, and new gardens, playgrounds, gymnasias, &c., cannot be provided unless those who have the welfare of their poorer brethren at heart will come forward to help our work. There are three chief funds:

1. For the general work of the association, the purchase of trees, gravel, seats, gymnastic apparatus, &c.
2. For the payment of wages to the 'unemployed' labourers engaged on the several works.
3. For the payment of the travelling inspector and the sixteen caretakers in the gardens under the charge of the association. Our financial position is as follows: We have no money in hand for the general fund, £850 having been borrowed to enable the second fund to be used, for the labourers cannot work without material to work with. It may be roughly estimated that for every £1000 given to the "unemployed" fund, £2000 is needed for the general fund. This is the fund, therefore, which needs the most support. Of the 'unemployed' fund we have £800 in hand, but this is already promised for the laying-out of the disused burial-grounds of St. George's-in-the-East, St. Mary, Lewisham, and Paddington Street, Marylebone, the planting of trees in Finchley Road, and the formation of extra cricket grounds on East Hampstead Heath and Primrose Hill. The balance in hand of the third fund will last us for this year, but will carry

us no further. I therefore very urgently appeal to all who have means at their disposal to help us to lay out those gardens for the opening of which the respective trustees have already given their consent, and at the same time to help us to relieve some of the great distress in the metropolis by giving work to the men, often fathers of families, who are unable to find it. The need of our work is daily increasing, and the benefits which spring from it can never be told. During the past year many generous subscribers have given us their help for special undertakings, and in case some may be interested in a particular neighbourhood I will give a list of a few of the works which the association is anxious to under-



Cluster Rose on porch of a house at Eashing, Surrey.

soft-wooded and climbing plants, and also ornamental trees and shrubs.

Adjoining his house is a large glass structure, originally intended for a conservatory, but now turned into a museum. It contains many valuable and interesting relics of the aborigines, quartz specimens, Pine cones, sections of wood, stuffed animals, glass jars containing reptiles, petrified bones, fossils, &c.; also a herbarium, consisting of the plants of the district.

St. Fort, Dundee.

S. F. C.

Red-flowered Yucca.—We have had some sharp frosts this winter, and all half-hardy plants are already killed, but I am pleased to see that *Beschor-*

take, and in each case I will append the approximate cost of the improvement. They are as follows: The laying out of the churchyards of St. Anne's, Limehouse, £600; St. Dunstan's, Stepney, £1000; St. James's, Ratcliff (with a playground), £300; St. Paul's, Shadwell, £200; St. James's, Bermondsey, £700 (£500 promised); St. Mary-le-Strand, £160; the enclosure of Soho Square (expense guaranteed); Edward Square, £360; and a playground in Whitechapel, £300 (£100 promised). I may add that we are also constantly applied to for grants toward public gymnasia, and are often glad to take advantage of opportunities for placing seats in thoroughfares, &c. Cheques should be crossed 'Cutts and Co.,' and made payable and addressed to Lord Brabazon, 83, Lancaster Gate, W."

London gardens.—An architectural writer, Mr. W. H. Leeds, has been giving forth a very funny idea for the regeneration of London gardens. "An idea," he says, "for forming artificial gardens in confined spaces at the back of houses in town was once started to me by a friend, which I consider too good to be lost, although it may startle many at first as an extravagant absurdity. It was to have branches of plants and flowers moulded in earthenware, and painted their natural colours, but unglazed, and afterwards affixed to real stems planted either in beds or pots. These would produce a lively and cheerful appearance as seen from the window of a back parlour, and would constitute a perennial garden in full bloom at all seasons."

FRUIT GARDEN.

STRAWBERRIES ON LIGHT SOIL.

Nor the least of the advantages connected with the cultivation of the Strawberry is that there need be no waiting for the plants coming into a bearing condition, such as is more or less inevitable with other fruits. By means of ordinary forethought and attention there is no difficulty in getting a full crop the season after a plantation is made; in fact, where the conditions are such as the plants require, the largest and finest fruit is generally forthcoming the first year of the plants' bearing. The Strawberry is so far accommodating that it will grow in almost any kind of land, yet, as is well known to those who have had to do with gardening matters, the nature of the soil has much to do with the amount of fruit obtainable. Soil that is naturally of a light sandy character, or in old gardens where by the long application of manure and vegetable matter it has become light, will often grow the plants well enough, although little fruit is forthcoming; so far is this correct, that it is no unusual occurrence to hear amateurs complain that on account of the soil in their gardens being too light to grow Strawberries, or through their not bearing as formerly, they have to buy what they require. This is the point where the disadvantage of being unable to grow this and other soft fruits becomes apparent, as they who have to depend on bought fruit, particularly Strawberries, never know what it is to eat them in a fully ripe state, without which fruit of even the best sorts is wanting in its chief essential. The first thing that the grower for sale has to consider is appearance. Ripe Strawberries will not carry without bruising, and retailers will not buy bruised fruit, which is unsaleable and perishes in a few hours. Consequently, market growers are compelled not only to gather their Strawberries two or three days before they are ripe, but also to a great extent to confine themselves to such kinds as are hard in texture, and which, needless to say, are not the best to eat even if quite ripe, as they are more or less acid

necessitating the addition of sugar, the use of which destroys much of the natural flavour of the fruit, and in the case of good varieties fully ripe completely spoils them.

SOIL.—That Strawberries like new soil, such as where the land has been recently broken up, is apparent by the way they often succeed in it for a few years even where it is of a light description, but, after a time under such conditions, they usually fall off in bearing. A liberal addition of new loam will often set matters right for a while, but new loam of a heavy nature, such as Strawberries like, is just the material that is generally difficult to obtain in localities where it is wanted for the purpose under notice, and is proportionately dear. But clay, which is not only equal in its first influence and much more lasting in its effects, can generally be had without difficulty. The Strawberry, although not confining its roots to the surface in the way it is often represented to do, nevertheless keeps many of the youngest and most active feeding fibres within a few inches of the top; consequently, in making provision for it in ground of a nature such as that under consideration, the clay must not be dug in deeply in the way that would answer best for most things. In place of this, after digging the surface over in the ordinary manner, the clay should simply be forked in so as to mix it with about 6 inches of the top soil, previous to which it ought to be spread on the top and allowed to lie until it crumbles down by the action of the weather, being careful that it is forked in when the weather is dry, so that it will mix evenly with the soil. If the work is done when the material is wet it sticks to the feet, and gets turned under in lumps, without having the effect that it should have.

PLANTING.—Spring is not the time to plant Strawberries where the intention is to get them into bearing with as little delay as possible, unless the plants have been prepared by taking off runners towards the end of last summer and pricking them out in a nursery bed, in which case by careful removal they will bear next season. Where the intention is to make a new plantation in spring, clay should be got in at once and allowed to lie until a dry time in March when it will be in a condition for forking in. For ground such as that under notice 4 in. or 5 in. of the clay will be a suitable dressing. If the planting is not to be done until the runners are ready next summer, the ground, after the clay has been added, may, in the interim, be cropped with anything that does not require its being deeply dug.

In making new plantations of Strawberries my own practice is to plant them much closer than they are to remain after the first summer, say about 9 inches apart in the rows and a foot between the rows; in the autumn, after the crop is cleared, I cut out every other row and every second plant in the rows. By following this method nearly as much weight of fruit can be got off the ground as in the succeeding or subsequent years. Needless to say where this fruit is grown by the acre, planting close in this way could not well be followed, as it obviously requires a great number of plants and entails more labour.

T. B.

Amateur Pear growers. A word of caution may not be inopportune at this moment to the amateur Pear grower in regard to the list of thirty-six kinds which appears in the preliminary report of the Royal Horticultural Society on the Pear conference, and it is that the frequency of appearance of certain sorts in the collection exhibited at Chiswick must not be taken as a conclusive guarantee in every case of the superior excellence of the Pears thus distinguished. No better illustration of this remark

could be afforded than that presented by Beurré Diel, which heads the list, having appeared in 194 dishes. This Pear is admitted to be only of second quality in favourable situations; in the north it scarcely reaches that standard. Besides Beurré Diel, there are at least six sorts, exclusive of baking Pears, which require a better climate than that of the north midland district to develop any good qualities they may possess; these are Chaumontel, Duchesse d'Angoulême, Beurré Clairgeau, General Tottleben, Napoleon, and Passe Colmar. The first named never becomes a mellowy Pear, even grown on a south wall here; the three next in succession have the merit of size and an attractive appearance, and are useful for certain decorative purposes. In making these comments I am assuming that Pears are grown for quality and not for appearance; and as the propriety of diminishing our Pear list has been again and again urged, and quality will be considered as a Pear's greatest recommendation by the majority of amateurs, I can, with the assurance acquired by experience, advise my north country friends to leave to growers in the south the Pears I have indicated as undesirable in a garden the limited space of which only permits sorts to be grown of undoubted excellence.—W. INGRAM, *Belvoir*.

FRUIT CULTURE IN AMERICA.

THE relation of Mr. Hovey's experiences in Pear culture is exceedingly interesting. He furnishes another illustration of the advanced rate of progress that is made in these modern times in the development of fruit, as well as in other matters. Mr. Hovey and his *confères* appear to have done nearly as much in raising, fruiting, proving, and improving the Pear in less than half a century as European cultivators achieved in twelve centuries, although it must be allowed that America begun by employing, or at least had the opportunity of doing so, all the results attained by people of the old world, while progress in Europe was sometimes slow and often interrupted. Mons. Alph. de Candolle, in his "Géographie Botanique Raisonnée," says that the Romans in the time of Pliny already cultivated a great number of varieties of Pears. These great conquerors and colonisers no doubt were the means of distributing the Pear and Apple throughout Germany, France, and Britain, but the fruits they introduced were probably small, hard, and inferior to what we at present possess. The fine sorts of melting Pears do not date back to very remote times; it is in times of peace and prosperity that the greatest advances are made in matters that belong to the art of gardening.

Not only is Mr. Hovey's record of his labours in the improvement in this special fruit interesting, but it is eminently instructive, and his success should stimulate Pear growers in this country to follow an example so full of beneficial results. It shows what power is in the hands of intelligent and energetic cultivators in originating fruits of superior excellence and adapted to a country, as well as prolific and hardy sorts suited to the special requirements of the local consumer. What have we done in this country to compare with the experimental operations in raising seedling fruits which have been carried on in America? One English Pear, raised by our great horticulturist, Knight, called Monarch, should alone encourage us to persevere in the attempt to raise new Pears. Although not large, and favouring the Apple rather than the Pear in shape, and peculiar in its habit of producing fruit in clusters, when fully ripe we have no fruit that more nearly approaches the Pine-apple in quality, and it ripens with fortunate irregularity, so that it may be eaten from December until March. There are two "expurgated" Pears mentioned by Mr. Hovey which we cannot yet afford to lose, both on account of quality and keeping properties. The leathery skins of these Pears seem to contribute to that desirable result; these are Beurré Rance

and Crassane. Just as some animals, nay, even some races of the genus homo, remain insensible to all ameliorating influences, so it appears that a certain number of old-world Pears continue obdurate, and will not be tempted by the bright sunshine of America to an enlargement, or to wear any other aspect than that of a jealous green. *Beurré d'Amanlis* is cited as an instance, a Pear I have seen assume, even in England, a rich russet brown on the sunny side, and showing throughout a yellowish-green tint, which made it very presentable.

I cannot accept the dictum, for this district at least, that *Seckel* is one of our best October Pears. It is strongly perfumed and highly coloured, but it passes away too rapidly, often turning soft before ripening. Therefore I am doubtful as to the correctness of the assumption that because this Pear is good in some parts of the country, American Pears may be successfully grown. I have fruited *Dana's Hovey*, but it has never ripened, grown on a pyramid, in this part of England, which is two degrees north of London.

Belvoir. WM. INGRAM.

Pruning outdoor Vines.—These, as a rule, are sadly neglected, especially in regard to pruning. To produce anything more than leaves and unripened fruit sun heat must get to the wall. Winter pruning, instead of being simply confined to removing the summer growth, ought to be a thorough pruning out of all exhausted wood and the retention of the best ripened canes of the current year for replacing those cut out. The present is a good time to get such work done. If mild weather prevails with the lengthening days, the sap gets excited and bleeding follows, thus weakening the Vines considerably. The best course to adopt is always to prune as soon after the fall of the leaf as possible. The best mode of training out-door Vines is to lead a main shoot right and left about 1 foot from the ground, and from this to train up young shoots about 2 feet apart for bearing; this will allow space for the fruiting shoots to lie close to the wall, which will, moreover, not be so densely covered with foliage as to prevent the sun's rays from warming the bricks.—HANTS.

BOOKS.

THE VEGETABLE GARDEN.*

THIS may be considered from a utilitarian point of view the best book on gardening published in England for many years. A sound knowledge of garden vegetables is very rare, and only to be acquired by persons possessing the high qualifications and peculiar opportunities of the authors of this book. Whatever foreign countries may do for us, it is not likely that they can supply us with vegetables, which deteriorate even when brought from our own gardens to our markets. The climate of Britain is admirably suited for vegetable culture, and is, perhaps, on the whole, unequalled by that of any other country in Europe. The tastes of the people encourage an abundant use of vegetables, and the greatly-growing demand in our large cities and towns is likely to make the work of the vegetable grower for market more important in the future than it has ever been. This being so, the value of a work such as this, which directs attention to many little-known kinds, and, of course, deals as well with all those in ordinary use, can hardly be over-estimated. Innumerable treatises on the cultivation of vegetables have been written, but "The Vegetable Garden" is the first work in any language in which are classified, described, and

illustrated what are the most important of all plants to the human race. It is the production of men who in their work for many years past have had good opportunities of thoroughly studying the subject. No excuse is needed for "making English" such a book—for the benefit, not only of our own horticulture (increasing in interest and importance every year), but also for that of America, and of Australia, and our other colonies, in which, happily, the plants herein described may be grown. It will be an aid in enabling us to realise the wonderful variety of light, pleasant, and excellent food now within our reach, and in making many a good vegetable more widely known. That it may widen our views in this respect will be acknowledged by everyone who, with the usual limited ideas as to French Beans, for example, takes notes of the many excellent kinds described in this work.

DIET REFORM.

The relation of the plants this book deals with to the movement towards diet reform and the greater use of the vegetable world for human food calls for a word at the present time. A generation ago this question was the theme of a very few writers; now the movement has taken shape in actual practice, and there are restaurants in London to-day where over a thousand dinners daily are served, wholly composed of cereals, vegetables, and fruits. Leaving out of view any exclusive tendency of this kind, all agree that the greater use of the best of these in our food would be a decided improvement. So far as we have yet seen, the restaurants devoted to this class of food show a limited knowledge of cookery and of the garden stores from which they might draw. It is a pity it is so, for the neglect or poor cookery of such things, both in private houses and hotels, is a serious loss.

The true reason why the more delicate and wholesome foods are neglected is that the cooks of Europe have served an apprenticeship of a thousand years on the carcasses of ox, pig, sheep, deer, goose, hare, and other animals. We are meat-eaters because our fathers had little else to eat. The plains and green hills of the cold north were dotted with wild grazing animals, as an English park is now dotted with deer, or a Western prairie with antelope and bison. Men killed and cooked; there was little else worth eating. A few generations only have passed since our now commonest vegetables came from the Continent. We are adding to their number every day, and by the aid of cultivation we are winning back our way to a simpler, healthier food, and one more like that which man enjoyed in the tropical or sub-tropical regions whence he originally came. But the education of the cook bars the way to progress. Even when he gives us French Beans, they swim in butter. The French cooks, supposed to be the best, systematically make the natural flavours of the many delicate vegetables of their markets secondary to that of butter—now, alas! often mere grease or hardened oil. In our hotels the best fish and meat in the world are often procurable; the vegetable kingdom is usually represented by a mass of ill-smelling Cabbage and a sodden Potato. We ought to grow more kinds of vegetables than we do, but we need still more a radical change in our modes of cookery, in the direction of cooking and serving for their own sakes (and in most cases without animal substance) the more delicate green vegetables and fruits that are and may be grown. Old or inferior vegetables require the coarser devices of the cook, and must be saturated with grease and spices to make them edible. The true cookery is to deal only with the best and tenderest of every kind, and jealously pre-

serve its flavour; this art is, in any general sense, as yet unpractised. In ten years more every district in London will have restaurants wholly supplied without the aid of the butcher. At the same time, those who share no such views as to food are equally desirous to improve and enlarge our garden supplies; so it is clear that there will be a greatly increased demand for all such produce. This is a hopeful sign in the present day, when all seems so dark for our agriculture. Garden vegetables deteriorate enormously, even ours on the way to our own markets, so that clearly we cannot have rivals here from the Antipodes or across the Atlantic in them, unless, indeed, we grossly neglect our opportunities. And, apart from the important factor of distance, the climate of Britain has few equals for the growth of green vegetables.

VEGETABLE MARKETS.

In London the chaotic struggle and obstruction in Covent Garden tend much to deprive people of the good qualities of the garden produce grown so well in the suburban fields. One simple way to improvement would be the adoption of district markets for local supplies. To bring the vegetables grown at Chiswick to Covent Garden and cart them back to Hammersmith is a needless waste of force. For these markets it is by no means necessary that permanent structures should be built; a wide road, or square, or river embankment would suffice. As wholesale dealings of this kind are usually done in the morning hours, it is easy to make good use of open spaces for this purpose. Some of the useful little district markets of Paris are held in public squares and on the boulevards, and an hour after they are over, tents, stands, refuse, and all other signs of the market are so completely removed, that one passing by does not suspect that the spot has served an important use before the general public is abroad. Regular all-day markets, where the householder could select, are also wanted. Some of our English towns and Paris have admirable examples of these. But while such must be waited for till public taste or enterprise creates them, the wholesale district markets could be established without cost or delay.

EVIL OF MIXED PLANTING.

One point deserves the serious consideration of every owner of a garden, and that is the "muddle" method of planting the kitchen garden with fruit trees and bushes, and so cutting up the surface with walks, edgings, &c., that the very aim of the garden is missed. It is quite a mistake to grow fruit trees over the kitchen garden surface. We cannot grow vegetables well under them, and in attempting to do so we destroy the roots of the trees. This induces canker and other troubles, and is the main cause of our poor garden fruit culture. One-fourth of the space entirely given to vegetables, divested of walks, large hedges, old frame grounds, old walls, rubbish, and other impediments, would give a far better supply. Such a spot well cultivated would be a pleasure to see. It is not merely the ugliness and the loss of the mixed garden which we have to deplore, but the troubles of the unfortunate gardener who has to look after such a garden, in addition to other work. How is he to succeed with the many things so hopelessly mixed up? Here a decaying Plum, there on one side a ragged patch of Black Currants, backed by a rank Privet hedge; and so on through the sorry catalogue. In fact, if the whole cost of the garden were doubled, and all expended on some of the kitchen gardens of this sort that we see, it would still be impossible to get a good result from this method. Put the fruit trees in one part—the higher ground, if

* "The Vegetable Garden; Illustrations, Descriptions, and Culture of the Garden Vegetables of Cold and Temperate Climates." By M.M. Vilmorin-Andrieux, of Paris. English edition. Published under the direction of W. Robinson, editor of THE GARDEN. London: John Murray, Albemarle Street.

any—and the remaining part devote to vegetables, cultivating the ground in the best way, and having it always a fertile, green vegetable garden. The vegetables, too, would be more wholesome from continual good light and air; for shade from ragged and profitless trees and bushes and hedges is one of the evils of this hopeless kind of garden. The broken crops, too (for the most part sickly patches), are not such as one can be proud of. Separation of the two things, complete and final, is the true remedy. There should not be the root of a fruit tree in the way of the vegetable grower.

THE MANIA FOR LARGE VEGETABLES.

All who have to do with gardeners and seedsmen should fight against the deterioration of some of our best vegetables through their mania for size. Although the flavour of vegetables may be more subtle than that of fruit, it is none the less their essential quality. A change in size, by adding to the watery tissues and fibrous framework of the plant, may entirely destroy the quality we enjoy in it. A certain degree of openness to sun and air may govern the flavour; this may be made impossible by doubling or trebling the size of the article itself, which has been done in the case of the Brussels Sprout. This is often no longer the true little rosette of green, but a coarse Cabbage sprout. This is a case of deliberate distortion of a favourite type. Less absurd, perhaps, but equally bad, is the raising of new varieties lacking in good flavour, and abolishing old kinds, from supposed deficiency in size. It generally means that the new ones are coarse; it sometimes means that they are useless. There has been, for example, for the last few years a French Bean observable in our markets, very large and symmetrical, but without any of the good flavour of the smaller kinds. However, its huge mawkish pod has become popular with the market gardener. Here is a delicate vegetable, the value of which depends entirely upon its flavour, and whether we get quantity in the shape of six Beans or one Bean matters little to the consumer if the object of growing the vegetable is lost sight of. So again in Peas. Where is the good in a new Pea if it has not a good flavour? Mere size, or filling of a pod well, is a low quality from any point of view but that of the market grower, who wants his "stuff" to bulk up well. Sometimes a flavour may be made too rich; many good cooks in London prefer the little long Turnip of the Paris market, which has a truer Turnip flavour than some of the sweet kinds. We may lose much of what makes a garden worth having by not efficiently controlling the thoughtless and harmful mania for mere size, unless accompanied by other more desirable qualities. The striving among gardeners to increase the size of vegetables leads often to deterioration, and it is so common that those who have influence with them should protest. Some of the raisers of novelties have done a good deal to injure the Tomato by sending out huge and coarse kinds, which, instead of ripening in the natural way, burst into abscesses and "craters," and have a wretched flavour.

GATHERING CROPS WHEN AT THEIR BEST.

An important subject for all owners of gardens, big or little, is the waste and loss through not gathering things in their best state. The usual way of gathering when wanted should, I think, be changed. In almost every garden, in summer and autumn, one sees rows of Kidney Beans and Peas in quantity in a hard and uneatable state—useless themselves, while robbing the plant of the power to give a succession of eatable pods. All such crops should be gathered at the right time, whether wanted or not. Those who want vegetables

in the best condition only would find it profitable to gather and give away rather than pursue the usual way of growing only to waste. It is a common practice with many market gardeners to allow things to get old and hard before cutting, so as to ensure their filling the baskets easily, instead of gathering them whilst tender. These men must be the best judges of their own affairs, but this practice is the cause of market vegetables being often useless as compared with private garden produce. It is a common error that those who grow their own fruits and vegetables necessarily pay more for them than they would in the market. The pleasure of having them quite fresh and of a proper age would, however, be worth paying for if need be. The great advantage which all who are happy enough to live in their gardens enjoy might be much increased by growing only things delicate and good in flavour, and gathering them at the right moment, which is seldom done in the case of market produce.

CONFUSION IN NAMES OF VEGETABLES.

Loss to all and much confusion arises from the practice now common among seed merchants of naming almost every good vegetable after themselves. It has of late become a nuisance, and England has almost a monopoly of the evil practice, which is not carried out in France. Honourable houses may do it for self-protection with us, but it is nevertheless a great evil to the public, and scarcely less so to the trade. To be able to secure pure stocks of long-tried standard vegetables is not easy for the public while the seedsman affixes a new name and the name of his house to almost everything he sells. I cannot give any just idea of the waste and confusion resulting from this practice. A common cause of failure in the vegetable garden is too many kinds—too many experimental plantings, instead of the garden being devoted to the things we know and like. The liability to fall into this trap is increased tenfold by the chaotic state of the nomenclature of vegetables, and by every one who publishes a catalogue having his own set of names. Seedsmen and growers, at home, in our colonies, and in foreign countries, are compelled again and again to buy old things under new names, and to test them before embarking in their sale. If the practice were confined only to the new kinds raised or purchased by the houses who use these names, it would be less objectionable; but by adopting it generally, even their own children cannot be recognised in the incongruous list. A common way of giving these new names is to secure a pure, well-selected stock of seed of some old, good kind, and re-christen it, say, some one's "Champion" or "Favourite." Changing the name of a good old kind in this way is an evil which the seed trade itself should associate to stop. Houses that practise it may no doubt get a large number of orders from both the public and the trade, but I think the loss is as certain to the trade in the end as it certainly is to the gardening public. Of late years we have seen in London Orchid, Pear, and other conferences, which, while leading to interesting meetings, have had really little more serious reason to be than the vanity or amusement of their promoters. The disgraceful state of the nomenclature of our most valuable garden crops might well occupy the attention of a body composed of representative seedsmen and growers. It would not be a very difficult task to seek out and give their true names to all the older and finer types of our vegetables, and to find some way to prevent confusion in the future without interfering with anyone's right to name a real novelty in a fitting way.

The translation of "The Vegetable Garden" is wholly the work of Mr. W. Miller, author of the

"Dictionary of English Names of Plants;" it could not be better done. Messrs. Vilmorin contributed a very large number of additions and corrections, which have all been embodied in the book. Mr. A. F. Barron, superintendent of the Royal Horticultural Gardens at Chiswick, read the proofs throughout; M. Henri Vilmorin did the same. Of all men in France and England these have probably the best knowledge of cultivated vegetables. Also, as the culture and supply of kinds is more important to the public than any questions of nomenclature, it was thought well to give the culture most generally practised in our gardens, both private and for market. This is printed in double columns throughout the book.

GARDEN IN THE HOUSE.

A BASKET OF PANSIES.

AMONG arrangements of flowers for the sitting-room table, none have truer charms than may be gained from a handful of some simple flower placed loosely and easily in a receptacle of quiet form and colour, such as the white china basket of Pansies here engraved. Pansies should be largely grown for cutting; they last longer in water than most summer flowers, and their varied markings, rich colouring, and velvet-like texture make them worthy of the closest examination. They have an almost human interest from the varying expression of their innocent face-like flowers, while not the least of their charms is a delicate and delightful scent. They should be cut long, with a liberal supply of stem and leaf, when they will readily fall into natural, easy bunches; cut with the flower-stalk alone, they are less easy to manage and never look or last so well.

Foliage to mix with cut flowers.—It is impossible to arrange flowers tastefully without plenty of foliage, and this want is, of course, more felt in winter than in summer, as then we can get it in abundance out of doors. But even now, in the open air, there are sprays of Cypress, especially the Japanese forms, which are light and elegant, and Junipers, which, though sombre-looking, yet make a good base to receive the stalks of flowers, lighter coloured foliage being added afterwards. Sprays of Box do well for the arrangement of Chrysanthemums, and for lighter effect there are the Lavender, Thyme, Rosemary, and Periwinkle, especially the variegated form. In broader, more massive foliage, we have the Holly-leaved Barberry, which is glossy and pleasant to look upon, and sprays of the small-leaved wood Ivy are always serviceable. Under glass are many suitable plants for supplying foliage for cutting. Grevillea robusta, when the plants have arrived at a large size, furnishes graceful Fern-like leaves, which are very lasting, and I am very fond of the old-fashioned scented-leaved Pelargoniums for this purpose. I have one plant of the Oak leaved species trained on the back wall of a viney, a large space of which it has covered; it is valuable for supplying sprays or single leaves, and the flowering sprays in summer are very sweet. Of course, Ferns of all kinds are available, but when taken from a warm house in winter they are not very lasting. It is best to have a supply of Maiden-hairs in a greenhouse temperature in a light position, as this gives strength and firmness to the fronds. Myrtles are very desirable for some purposes, and are easily grown. E. HOBDAV.

Loose earth fixers. The best plant at present known for consolidating, by the interlacing of its roots, the loose soil of a newly-made embankment is, according to M. Cambier (of the French Railway Service), the double Poppy. While the usual Grasses and Clovers need several months for the development of their comparatively feeble roots, the double Poppy germinates in a few days, and in two weeks grows enough to give some protection to the slope, while at the end or three or four months the roots, which are

10 inches or 12 inches long, are found to have interlaced so as to retain the earth far more firmly than those of any Grass or grain. Though the plant is an annual, it sows itself after the first year, and with a little care the bank is always in good condition.

NEW PLANTS OF 1885.

In dealing with these, we will begin with the group which is numerically the strongest, and that is the Orchids, of which more than sixty received during the past year first-class certificates. Passing over such plants as *Cattleya Mendeli carminata*, *Mendeli striata*, *Bluntii*, *Wageneri*, *Hardyana*, and *Massangeana*, *Dendrobium crassinode album*, *crystallinum album*, *Falconeri delicatum*, *heterocarpum album*, *nobile nobilium*, and *insigne*, besides many others which, although handsome, are simply accidental forms of well known species, we note among imported Orchids in the first place the charming *Cattleya Bowringiana*. This plant, which is most valuable on account of its flowering at the duldest season of the year, at first sight somewhat resembles the popular *C. Skinneri*, but besides the latter being essentially a summer flowering species, this new-comer possesses characters by which it is easily distinguished; its pseudo-bulbs, which are altogether more robust than those of *C. Skinneri*, are enlarged and flattened at the base and covered with sheaths of a very peculiar texture; its leaves are also of a glaucous and entirely different tint from those of that well-known species. Its flowers, which are produced during October and November, are arranged in bunches, each consisting of from six to nine flowers, even in the case of plants of recent importation; their sepals and petals are of a mauve-tinted rose, while the lip is dark rich crimson and the throat is ornamented with a yellow stain. This new species is destined to become rapidly popular. Among other *Cattleyas*, *C. Schofieldiana*, if not the most attractive, is probably one of the most distinct. It belongs to the tall, terete pseudo-bulb section. Its flowers, which are produced in bunches of three or four together, are of intermediate size, measuring from $3\frac{1}{2}$ inches to 4 inches across; owing to their ground colour being olive-green and their sepals heavily blotched with brown, they form a striking contrast with the rich deep amethyst broad lip, deeply edged with white. *Angraecum* or *Aerantes Leonis*, the first specimens of which were gathered by Mons. Léon Humbolt, only reached Europe in April last. It is of smaller dimensions than most of the other *Angraecums* already in cultivation. Its stem, which is short and stout, is furnished with sword-shaped leaves disposed in a fan-like manner. Its flowers, which are of the purest white, deliciously scented, and long lasted, are produced on short wiry spikes; they have a broad white shell-like lip and a long and peculiarly twisted greenish-white spur. In *Aerides Ballantini* and *A. Wil-*

sonianum we have also two excellent additions to the East Indian house. The former is in the way of *A. suavisimum*, which it resembles in growth, form and size of flower, but differs essentially from it in colour. Its blossoms, which are pendulous, vary from a very pale pink to a deep crimson, the tips of the sepals being of a more or less deep carmine and the spur yellow. *A. Wilsonianum*, which in growth bears a great resemblance to *A. virens*, has pure ivory-white flowers, disposed on pendulous spikes and, like the preceding, deliciously fragrant. Both these flower in May and June.

Three new *Saccolabiums*, two of which are absolutely distinct from anything else yet in cultivation, have also made their appearance. These are *S. bellinum* and *S. celeste*, the former a sweetly pretty and exceedingly interesting Orchid. It is dwarf in growth, and has short leathery leaves, from the axils of which are produced short rigid flower-spikes, which, instead of

the same dimensions as those of a good form of *Lycaste Skinneri* and triangular in outline; their thick sepals are ivory white, while their lower halves and two lateral petals are stained port-wine colour.

Among Orchids with thick fleshy flowers we must not overlook a couple of forms of the handsome *Mormodes luxatum*; the new variety *punctatum* is also particularly beautiful on account of its curiously shaped flowers, which are borne eight or ten together on a short stiff spike proceeding from the base of a short fleshy bulb, surmounted by long ribbed leaves; they measure about 2 inches across, and are creamy-white copiously spotted with numerous very fine spots of a chocolate-red colour. In the new *Oncidium Brunleesianum* we have one of the most distinct among lately introduced spring flowering Orchids; it is still, however, very rare, and its lovely blossoms, which are of a golden colour with dark brownish-red lips, are so entirely different in shape from those of any other *Oncidiums*, that comparison is out of the question. Its bulb, which very much resembles that of *O. sarcodes*, produces a tall, branching panicle, very slender, which carries quite crowds of small flowers.

Amongst *Odontoglossums* special attention must be directed to *O. crispum Brymerianum*. This, besides being remarkable for the size and perfect form of its flowers, gives us also some beautiful and distinct markings on the broad sepals, each of which is ornamented inside by a large blotch of chestnut-brown, while outside they are flushed with purple. *O. crispum Johnsonianum* has its sepals entirely covered with cinnamon-red, edged with white. Of other *Odontoglossums* the most distinct are *O. Wilckeanum Gode-*

froyæ, an extremely handsome variety, different from all others; its sepals, which have a pale yellow ground, are almost entirely mottled with rich chestnut-brown spots. *O. vexillarium Measuresianum* is a perfectly white form of one of the best Orchids in cultivation. *O. elegans Aliciæ*, with long pointed pure white sepals irregularly spotted and blotched with cinnamon-red, is one of the prettiest of the lovely class of Orchids to which it belongs. Amongst many others belonging to different genera may be mentioned *Renanthera Storeyi*, a kind with flowers of a rich crimson-red, mottled and barred with bright orange-scarlet; the beautiful Stanhopea-like *Acineta chrysantha*, whose large orange-yellow flowers, spotted with very deep brown, and of a waxy texture, are endowed with a delightful fragrance; *Calanthe Sanderiana*, *Dendrobium Burkei*, &c., but those enumerated above are sufficient to show that, at least as far as Orchids are concerned, the supply of imported novelties is as plentiful as ever.

HYBRID ORCHIDS.

Amongst home-raised varieties the most striking are the *Cypripediums* and the *Calanthes*. Of the former we have some half dozen excellent sorts, all raised by Mr. Seden; amongst them the most striking are undoubtedly *C. oenanthum superbum*, *C. Schræderæ*, and *C. Sedeni candidulum*. The latter, which possesses both the habit and floriferousness of the popular *C. Sedeni*, may be best described as an exquisitely



Pansies in a white china basket.

carrying a quantity of blossoms, as is the case with all other *Saccolabiums*, only bear from six to ten, and which are somewhat of a different shape and much larger than usual; the colours are also distinct, the lip being broad and pure white and profusely spotted with deep carmine. *Saccolabium celeste* is the best of the whole genus. It comes from Cochinchina, and is similar in habit to *S. curvifolium*, but its flowers, which are arranged regularly and closely on a short spike, at most only 4 inches long, are of the purest and most beautiful sky blue that one can imagine. This is seen to best advantage on the anterior part of the lip and on the tips of the sepals and petals, and a stripe of it runs on each side of the recurved spur; the anthers are of a peculiar brown tint shaded with mauve. Another *Saccolabium* well worth attention is a glorious white form of *S. Blumei*. *Maxillaria Sanderiana* is quite distinct from those already in cultivation; its flowers, which are very handsome, are of about

pretty pale form of it with sepals nearly white. *C. Schraderae*, the result of a cross between *C. caudatum* and *C. Sedeni*, has flowers much larger than those of any other kinds belonging to that section, measuring, as they do, from the tip of the dorsal sepal to the toe of the slipper more than 4 inches. Besides the size of these flowers, from three to four of which are produced on a spike and open in succession, their colours are also very ornamental; the dorsal sepal is whitish, tinted with delicate rose, while the lower sepal is larger and whiter. The petals, however, which form the centre of attraction, are about 4 inches long, pendulous, elegantly twisted, and pale rose with longitudinal deep rose veins. It is, moreover, a perpetual flowerer; perhaps, however, the most brilliant of these seedlings as regards colour is *C. oenanthum superbum*, the result of a cross between *C. Harrisianum* and *C. insigne* Maulei. This is a plant of vigorous growth and one which produces large, solitary flowers, conspicuous for their lustrous varnished surface and uncommon colours. The dorsal sepal, which is of a deep claret-red with broad lines of blackish-purple spots, is further ornamented by a broad white margin, and where the spots enter it they assume a most beautiful mauve-purple tint. The petals are vinous-red with deeper veins, except at the base and at the apex where it shades off into pale green; the tip is of a deep vinous-red colour shaded with bright shining brown. To the same raiser we are also indebted for the superb *C. cardinale*, *C. macropterum*, a hybrid between *C. Lowi* and *C. superbiens* and exactly intermediate between the two parents, and the lovely *C. Leeannum superbum*. Mr. Seden has also raised *Cattleya Canhami*, a magnificent cross between *Lælia purpurata* and *C. Mossiae*, which latter it resembles in growth, but the general aspect of the flower is that of a fine form of *Lælia purpurata alba*, which it resembles in size and shape. The sepals are white, while the lip is large and of an intensely deep carmine-crimson with a conspicuous pure white margin, which forms the principal attraction of the flower. Then there are the two exquisite *Lælias*, *bella* and *Sedeni*, the former the result of a cross between *Lælia purpurata* and the autumn-flowering *Cattleya labiata*; in growth it is very similar to the last named species, although the features of the *Lælia* are perfectly distinguishable. The flower measures 6 inches across; its sepals are deep lilac-purple, and the lip rich crimson-amethyst, a colour which extends up the throat, while the margins are rendered particularly attractive by a very delicate pale mauve frilling. *Lælia Sedeni* is a magnificent variety, the colours of which, as regards brilliancy, are unsurpassed by those of any other belonging to the same genus. It is somewhat in the way of *L. elegans*, although its flowers, which are a little smaller, have their sepals narrower and shaped differently from those of that species; these are of a plum-purple colour, but the most attractive part is the lobe of the lip, which is of an intensely deep and brilliant carmine-magenta. In *Masdevallia Gahriana* we have one of the very few hybrids belonging to that section; it is the result of a cross between *M. Veitchiana* and *M. Davisii*, and is quite intermediate between those two species as regards shape and colour, which is orange-yellow washed with a purple tinge. *Dendrobium endocharis* is the result of intercrossing *D. heterocarpum* and *D. japonicum*. Its flowers are ivory white except the lip, which is tinged with purple and deliciously fragrant. *Thunia Veitchii* is the first hybrid raised in that genus. It is the result of crossing the white *T. Marshalli* and the rosy-purple *T. Bensonae*, and in point of colour is intermediate between these two; the sepals are of a delicate bluish tint, and the lip is crested with bright yellow. The general habit of the new-

comer is that of *T. Marshalli*. As to *Calanthes*, these being the work of several hybridisers, new varieties have been produced in greater quantities than in any other genus; and it must be admitted that some of them at least are possessed of truly grand colours, which are much needed at the season at which they usually flower. In December, 1884, a variety brighter, darker, and of altogether richer colours than those of any *C. Veitchii* known was shown by Sir Trevor Lawrence, under the name of *Calanthe Sandhurstiana*. That splendid variety, the result of a cross between *Limatodes rosea* and *C. vestita rubra oculata*, was raised by Mr. Gosse, of Sandhurst, Torquay, and owing to the magnificent spike of rich rosy crimson flowers which the plant bore when shown it was acknowledged by all present to be thoroughly distinct and superior to any form of *Cattleya* previously obtained from seed. Other very pretty and distinct varieties are *aurantiaca*, *casta*, *amabilis*, and others; but one particularly handsome kind, certificated under the name of *porphyrea*, also came from Burford Lodge. Very fine hybrids were also shown by Mr. Cookson, Oakwood, Wylam-on-Tyne, and among them one variety, named *C. Alexanderi*, showed the same rosy crimson tints as are seen in *C. Sandhurstiana*; another, named *C. Cooksoni*, was much paler in colour, but equally distinct and beautiful.

STOVE PLANTS.

Amongst stove plants that are grown chiefly for the beauty of their foliage, as well as others grown exclusively for the sake of their flowers, the most conspicuous is *Dracaena norwoodiensis*, a variety of exceedingly elegant habit. Formerly *Dracenas*, as well as *Crotons*, were introduced in such quantities, either as original species or seedlings, that one might have thought that there was but little room left for improvement; such, however, is not the case, for *D. norwoodiensis* is essentially distinct from anything else in cultivation. It belongs to the class of plants whose narrow leaves, ornamented by a particular combination of colours, are highly decorative. In this case they are of a bronzy green, edged with creamy white and tinged irregularly with streaks of rosy pink. *Alocasia Hendersonii* and *A. Sanderiana* are also excellent additions to an interesting genus comprising already some highly decorative species; the former is so entirely different from all others, that it cannot be compared with any of them. Its handsome leaves are metallic green in colour, overlaid with a satiny lustre, and about a foot in length, rather narrow, heart-shaped at the base, and gradually tapering to a point. *A. Sanderiana* is undoubtedly one of the most valuable acquisitions among fine-foliaged plants introduced of late years. Its leaves, which are large and deeply cut into rounded lobes, are also of a metallic green colour, relieved, however, by broad, silvery main ribs; the undulated margins of the leaf are also of an ivory-white colour. *Erythrina vespertilionis* is a plant of curious, yet pretty, appearance, and one which no doubt will be grown on account of the unusually quaint or grotesque aspect of its foliage; its peculiarly shaped trifoliate leaves are borne on long petioles; the leaflets are very remarkable and unusual in form, being obversely triangular, and their uncommon and strikingly furcate character, added to the elegant growth of the plant, renders it very attractive. *Amasonia punicea*, a grand plant, may be considered either as a fine-foliaged or flowering plant. It comes from British Guiana, and has leaves of elliptic lanceolate form, from 9 inches to 10 inches long, but gradually diminishing in size as the plant gets towards the flowering state, when they become mere bracts surrounding the flowers. They

are as brilliant vermilion-crimson as those of a *Poinsettia*, and are disposed in pairs along the entire length of the flowering shoots; these bracts remain in perfection for fully three months, and, being so very numerous, render the plant extremely attractive. Three or four new *Caladiums* have also made their appearance, the most distinct among them being *C. Comtesse de Maille*, a variety with beautiful large leaves ornamented with many various tints of white, crimson, and green, arranged in the form of mottlings all over their surface; and *C. Comte de Germiny*, with small red leaves covered with white spots, and mottled with green. In *Wornia Burbidgei* we have a robust shrub of erect habit and furnished with a bold and highly ornamental foliage, particularly well adapted for the decoration of the warm conservatory; its leaves, which are elliptic and of a pleasing glossy green, attain a length of 18 inches and a width of 10 inches or 12 inches.

Among fine-leaved stove climbing plants *Philodendron nobile* must not be overlooked; its leaves, which are of a firm leathery texture, are produced on fleshy creeping root-stocks, that spread over the surface of the soil and attach themselves to trees or walls. *Piper ornatum* is an elegant plant, with prettily-coloured foliage, and a native of Celebes, in the Malayan Archipelago. Its stems, which are slender and flexuose and of a pale green colour, are furnished with heart-shaped peltate leaves, borne on pale rosy foot-stalks; these leaves, which are produced abundantly, are bright glossy green, spotted with pale rose, the spots being densest along the nerves. It is a distinct plant, and one which will be found useful for covering walls and pillars in warm houses. The above about complete the list of the most meritorious stove fine-foliaged plants introduced last year, although such as *Ardisia picta*, *Phyllanthus Chantieri*, *Vriesia janciriensis variegata*, *Begonia albo-picta*, and several others are well worthy of cultivation. To these must be added a couple of *Nepenthes*, both particularly ornamental. The most distinct of the two, *N. cincta*, is a new kind recently imported from Borneo, and supposed to be a hybrid between *N. Northiana* and *albo-marginata*. Its pitchers measure some 9 inches in length; they are of proportionate breadth, and beautifully coloured with a vinous tint, on which may be noticed copious irregular blotches of claret colour. Though, perhaps, not quite so distinct as the preceding kind, *N. Rafflesiana insignis* may be considered as a magnificent variety of robust growth, producing handsome pitchers; also about 9 inches in length by about 4 inches in breadth, obliquely flask-shaped and heavily mottled in an effective manner with purplish-brown on a bright green ground.

FLOWERING STOVE PLANTS.

Independently of the several *Amaryllises* and *Rhododendrons* of the Javanese section which are yearly produced by the hybridiser, the list of new flowering stove plants contains some remarkably good acquisitions, some of which will undoubtedly hold their ground for many years to come. The additions to the section of stove climbers are particularly good. *Camoensia maxima*, a native of West Tropical Africa, which produces the largest and most magnificent flowers known in the Leguminous Order, must occupy the first place among new-comers. Its pendulous milk-white flowers, tinged with gold on the edges of the petals, are produced in drooping racemes from the axils of the trifoliate leaves; all the petals are white and delicately frilled at the margin where they are further ornamented by a golden yellow tint. In *Aristolochia elegans* we have also a remarkable new species, the flowers of which are handsome in form and quite

devoid of disagreeable odour. *Bignonia regalis* and *Clerodendron delectum* are likewise handsome climbers, especially the former, whose flowers are large and bright yellow and red; while the two *Dipladenias*, *Lady Louisa Egerton* and *Thomas Speed*, are two equally desirable acquisitions. Both have flowers measuring from 6 inches to 8 inches in diameter; those of the former are white suffused with pink, while the ground colour of those of *Thomas Speed* is a rich rosy crimson with a ray of bluish white in the centre, and margins of the same colour. The eye, too, is golden, flaked with red.

Amongst other flowering stove plants *Eucharis Mastersi* is one of the best. It is different from all other known *Encharises*, but comes nearest to *E. Sanderiana*; its blossoms, which are of snowy whiteness and produced in clusters, consisting of from six to eight on each stem, are about of the same size as those of *E. candida*. *Epiphyllum Russellianum* *Gaertneri* has very little in common with the many varieties already in cultivation; not only are its flowers differently shaped, but their colour is of a particularly vivid red similar to that of the finest *Phyllocacti*. In *Billbergia nobilis* we have one of the most beautiful of Bromeliaceous plants. Several other meritorious plants also deserve notice, such as the new *Crinum Sanderianum* from Sierra Leone, the curious *Arisaema fimbriatum* from the Philippine Islands, *Ixora eminens* and *I. Gemma* and *Imantophyllum Distinction*. Of *Gloxinias* the two best are undoubtedly *Flambeau* and *Marchioness of Abergavenny*; the latter has beautifully formed, large, erect flowers with a white ground copiously spotted with purple. The flowers of the former, if not superior in size or shape to older kinds, are, to say the least of them, most attractive. Among *Amaryllises*, *Lady Howard de Walden* is a distinct and chastely beautiful variety, with large flowers of good substance and of the purest white imaginable. *Paragon*, too, is a grand variety, strikingly different from the one just named; its flowers are brilliant scarlet.

Rhododendrons of the Javanese section, which now occupy a prominent position amongst winter flowering plants, are well represented. *Pearl* produces large trusses of wax-like white flowers, delicately tinged with rose; the flowers of *Apollo* are of a peculiar soft orange-cerise colour; while *cardinale* produces large trusses of blossoms of the richest scarlet-crimson, and *Militaire* some of a brilliant and highly attractive orange-red. The prettiest, however, of all is perhaps *Minerva*, which bears massive trusses of large, well-formed flowers of a delicate apricot colour.

FERNS.

To stove and greenhouse Ferns there has been added several plants of great merit. What Fern, old or new, could be more beautiful than *Davallia tenuifolia Veitchiana*, from the Straits Settlements? It has most graceful and finely-cut fronds, which attain a length of from 2½ feet to 3 feet, and are elegantly arched. It is one of the best basket Ferns ever introduced. Then there is the lovely *Nephrolepis Bausei*, at once the most distinct and handsome of its kind. It is distinct from any other *Nephrolepis* now in cultivation owing to the pinnae being bipinnatifid instead of entire, as is the case with all other species and varieties of this genus at present cultivated. This character adds considerably to the peculiarly graceful appearance of the plant. Three new Maiden-hairs have made their appearance during the past season; one, *Adiantum Collisi*, is a plant of fine proportions and graceful habit, somewhat resembling in general aspect the popular *A. tenerum*, to which, however, as a decorative plant it will prove superior. In

Adiantum macrophyllum bipinnatum we have a form imported from Jamaica and generally admired for the peculiar red tinge of its new fronds, which, in the typical form, are simply pinnate; whereas those of this new variety become bipinnate in the lower part. These fronds grow to about 15 inches in length and in their young undeveloped state partake of the same beautiful colours that are common to the ordinary *A. macrophyllum*. *A. Weigandei* is a plant of comparatively small dimensions in the style of *A. decorum*, but differing from it in the form of the pinnules, which, in some instances, are cut like the leaves of a Hawthorn. The charming *Davallia fœniculacea*, from the Fiji Islands, will also prove an acquisition as well as the curious *Lomariopsis buxifolia*, an elegant little climbing Fern of small dimensions. The most curious and interesting of all the Ferns of last year's introduction is, however, undoubtedly the strange *Cyathea divergens*, a graceful Fern having, apparently, no connection with other members of the same genus.

COOL GREENHOUSE PLANTS.

To this class of plants have been added *Rhododendron Manglesi*, a hybrid produced by intercrossing *R. Aucklandi* and *R. album grandiflorum*. Its beautiful flowers, which are produced in dense globular trusses, like those of ordinary hybrid varieties, are pure white, very large, and open, like those of *R. Aucklandi*; besides the beauty of its flowers it is also to be recommended for its vigorous and free growth, which is equal to that of any *Rhododendron* in cultivation. *Blandfordia flammea* is, perhaps, the best of that genus; its bell-shaped flowers, which are about 2½ inches long, are of a dull red colour, tipped with bright yellow. In *Gastronema hybridum* we have also a most interesting plant, produced by the intercrossing of *G. sanguineum* with *Val-lota purpurea*; the hybrid thus produced is intermediate between the two parents. *Abutilon Golden Fleece* is an excellent acquisition, not only on account of its rich golden colour, but principally because of its fine habit and floriferous properties. It is not at all an uncommon thing to see plants of it about 12 inches high in 5-inch pots completely covered with flowers. Of the several *Azaleas* which have made their appearance during last year, *A. Elise Lieber* and *A. Prince Baudoin* are the most striking; the former has large, open flowers, pure white, marked with streaks and spots of purple. The latter has finely formed flowers, of an intense crimson colour. A very handsome *Camellia*, named *Commandatore Betti*, has fine double flowers, probably as large as those of any yet raised. It is also beautifully imbricated and of a soft carmine-pink colour. Two *Sarracenias* complete the list of the most meritorious of new greenhouse plants; these are *S. Courti* and *S. Patersoni*; the former is a very beautiful hybrid produced by the crossing of *S. purpurea* and *S. psittacina*. The young pitchers have a bright crimson-purple ground, veined and reticulated with deeper crimson-purple. *S. Patersoni*, also a deeply coloured hybrid, is a cross between *S. purpurea* and *S. flava*; both have erect pitchers.

FLORIST'S FLOWERS.

To these some excellent additions have been made. In *Auriculas*, a green-edged variety named *Mrs. Moore* may safely be pointed out as the perfection of a first-rate show *Auricula*. Amongst alpinas, *Miss Mollie* has large flat pips of excellent form, with reddish-chocolate ground and a rich golden centre. *Begonias*, though now numerous, have still produced several excellent forms, foremost among which may be named *Earl of Bessborough*, a single-flowered kind of pleasing colour. *King of Crimson* is another

equally worthy single *Begonia*, with unusually large and finely shaped flowers of the richest crimson imaginable. Among double-flowered forms, *Lillie*, with superb deep pink flowers; *Marchioness of Lothian*, with large very double scarlet flowers; *Gabrielle Legros*, *Blanche Duval*, and others are fine sorts. The gem, however, amongst them is undoubtedly *Picotee*, whose cherry-red petals have a well-defined edging of white, giving the flowers a distinct and unique appearance. *John Heal*, produced by crossing the curious-leaved *B. socotrana* with one of the tuberous-rooted *Begonias*, is a grand hybrid; it has a graceful habit, and produces in profusion flowers deep rosy pink in colour and brighter than those of *B. socotrana*. Among the several *Carnations* brought out during last year, *Pride of Penshurst*, with flowers of a moderate size and of a clear, rich yellow, is one of the best; while in pale colours, *The Governor*, with full, large flowers of a delicate bluish white, is unquestionably one of the best yet raised. Of a dozen *Dahlias* or so which have been awarded first-class certificates, most of them are double-flowering varieties, and all exceedingly good. *Mrs. Hawkins*, clear yellow and less formal than those of the ordinary show varieties, is well worth attention. Over twenty *Gladioli* received first-class awards, and although some really good things are to be found among the home-raised ones, the most distinct belong to the *Lemoine* group, a new race produced by intercrossing *G. purpureo-auratus* and others. Of these, the most striking are *Masque de Fer*, a kind with intensely rich red flowers, the lower petals of which are flushed with maroon-crimson; *André Chénier*, with flowers of a rich crimson-lake, flushed with purple; *La France*, pale pink, flushed with crimson, lower sepals deep maroon-crimson and broadly tipped with yellow. Among many excellent new *Pelargoniums*, the Ivy-leaved section appears to have produced the most striking novelties. *Rubens* is one of the finest; its truss is large, as are also the flowers individually, which are cherry-crimson in colour. *Souvenir de Charles Turner* is particularly remarkable for the rich colour of its flowers, which are very double, borne in large trusses, and of a pleasing carmine-magenta tint. Amongst new *Primulas*, *White Perfection* seems to be the best; its flowers, which are pure white, are exceptionally large, of good substance, and produced in large trusses.

HARDY HERBACEOUS PLANTS.

Amongst these the most interesting are the following: *Eremurus aurantiacus*, a new Asphodel-like plant from Central Asia, which, if perfectly hardy, will prove to be very valuable. Its flowers, which are clear yellow, are borne on cylindrical spikes, which, through being thickly covered with blossoms, have a feathery appearance. They measure about 12 inches in length. *Helenium autumnale pumilum* is also a first-rate hardy perennial, and one of the finest of dwarf yellow Composites; it differs essentially from the typical species in size and also in floriferousness; its flower-heads, which measure about 2 inches across, are of a bright rich orange colour, and are produced abundantly, even on very small plants. *Dodecatheon splendidum* is certainly the finest of all the North American Cowslips. The whole plant is barely a foot high, but the flowers, which are highly attractive, are of a particularly beautiful deep carmine-crimson colour. It cannot, therefore, well fail to become popular, especially as it is of easy culture. *Draccephalum virginicum album* is a pure white-flowered variety of a North American plant, which it in all respects greatly excels. It is dwarf and bushy in habit, and produces in profusion dense spikes of flowers, which, opening

simultaneously, are very effective. *Saxifraga lanifolia* *superba* and *Macnabiana* are also acquisitions, as well as the white *Spiraea palmata* *alba*.

Among new trees and shrubs the most noteworthy are: *Chionanthus retusa*, the Japanese Fringe tree, a pretty shrub with deep green ovate leaves and clusters of white, star-shaped flowers borne in abundance. *Ligustrum sinense floribundum* is particularly remarkable for its floriferousness, each branch even in quite young plants being densely laden with small sweet-scented white flowers which open in July. *Olearia Gunni* and *O. macrodonta* are two pretty New Zealand shrubs that produce in profusion small Daisy-like flowers in May and June. In *Schizophragma hydrangeoides* we have a very curious Japanese shrub much resembling a climbing *Hydrangea*, and *Styrax japonicum* as well as *S. californicum* are two excellent additions to our list of spring-flowering shrubs; the former, which has proved perfectly hardy near London, produces long, slender shoots furnished their whole length with snow-white, bell-shaped flowers that are deliciously fragrant.

KITCHEN GARDEN.

POTATOES CLOSE TO WALLS.

THIS is one of the methods of growing early Potatoes which I have adopted for several years, and one which I have found to produce a crop some time before Potatoes were ready for use, even upon the very warmest border. I proceed as follows: I dig up the ground at the foot of a south wall; the latter is generally covered with fruit trees, and therefore the Potatoes should be kept 15 inches from the stems of the trees. Make the border quite level, lay the sets, which should be whole Potatoes, from 9 inches to a foot apart, and about 6 inches from the wall, cover them about 4 inches with fine soil from the alley, thus forming a border 12 inches wide for Potatoes. They will come up early, being close to the bricks. When up, they should have a little fine soil thrown over them, and if they should come up through that, before all danger from frost is over procure some light material and cover them with it in case of frost. Dry litter or dry Bracken put over them at nights will answer the purpose. By means of careful attention this crop will precede the earliest outdoor ones by three weeks. The earliest varieties of Potato should be planted, such as the Walnut-leaved, a well known and prolific sort, and one which grows to a fair size. Early Ashleaf is also a good kind for early planting. Myatt's Ashleaf is one of the best early varieties, and one which succeeds well in almost any soil. Let the seed Potatoes be of fair size, earth them up as growth increases until a good sized ridge has been formed. If the soil gets very dry, give a good soaking of water in hot weather. Next to a wall select the south side of a bank, and next to that the south side of a wooden fence; but nothing will be found to be so good as planting near a wall. W. CHRISTISON.

Brussels Sprouts.—I cannot allow Mr. Muir to knock the Burghley Brussels Sprout on the head without a protest. He describes Matchless as a very fine sort of the type of Reading Exhibition, which he describes as a fine large-sprouted variety. Now, it just happens that Mr. Muir has made a mistake. The true Burghley Brussels Sprout is just about half as large as Matchless, more compact, and much firmer. I have selected this variety for fourteen years past, and the stock this year is pure. I send you one stem of Burghley Brussels Sprouts, and also one of Match-

less. At the same time, I put in a stem of the Burghley Button Sprout, which I recently sent you, so that you will be able to see the three varieties together. R. GILBERT.

* * We need only say that the Burghley Sprouts were excellent in every way; they are of a medium size and firm, while Matchless has open and loose sprouts. —ED.

Broad Beans. In discussing the merits of these allow me to put in a plea for an excellent early dwarf variety too much neglected in the present day, namely, Beck's Dwarf Green Gem. This is a sport from the old Dwarf Fan. It originated at Shipston-on-Stour, I think in the nursery of Mr. Jennings, about 1858, or perhaps a little earlier, and the stocks passed into the hands of the late firm of Messrs. Beck, Henderson, and Child for distribution. It possesses the merit of being early, dwarf, a good cropper, and of excellent flavour. I suppose it is always a scarce variety, for in the wholesale lists it is priced much higher than any other. Cultivators should grow this for early crops; it does well on a warm early border, and if generously cultivated will be found profitable. Perhaps its use is circumscribed to some extent from the fact that it is a green Bean, and, notwithstanding that by many the green Beans are thought to be much more highly flavoured than the white ones, there does appear to be a prejudice against the former. I presume that the Green Windsor is a sport from the white one, and similarly so the Green Longpod. I have known persons who would grow nothing else but the Green Windsor for their own eating. — R. D.

— According to my experience, Leviathan and Aquadule are synonymous, but Seville Longpod each time I grew it alongside of Leviathan and one or two other presumably distinct and wondrously long-podded sorts, proved rather earlier than the kinds just named and the pods were a trifle shorter. "A. D.," however, has formed a correct estimate of their respective values, as they are altogether unprofitable, unless it be for exhibition. Veitch's Improved Longpod is by far the most productive early sort in general cultivation, and this proves to be exactly similar to a sort that has long been cultivated by Mr. Thomson at Drumlanrig. There are several other so-called "improved" Broad Beans to be had, but none of them merit the term, and when I asked for Veitch's, it was not expected that it would turn out to be so profitable a sort as it is. It is as early as the old Early Longpod, and produces a heavy crop of fine pods, each containing about five Beans of good quality. Its habit is sturdy, and the lower pods quite touch the ground. Green Windsor is the only successional sort which we grow, and this is fairly prolific and very good in quality. At one time I was under the impression that very few Broad Beans found their way to the tables of the wealthier classes, but I have had to modify this opinion somewhat, and in all probability many more of them are eaten than "A. D." is aware of. As he rightly observes, if they were properly cooked they would be much more popular. Here, for instance, the husks are invariably removed before they are served up, and as they are much appreciated in this state, we have to maintain as long and continuous a supply as we can. Some prefer to have them sent in before they are half developed, but in this small state they are not nearly so good as when older, and a great number of pods must be gathered to make a dish. — W. I.

Mushroom growing on a new plan.—Some years ago I saw a system of Mushroom culture which was said to be very successful. The man who adopted the plan had been seeking a simple way of securing Mushrooms all the year round, with the least possible trouble, and his efforts had resulted in his finding that for which he had sought. The method was as follows: He obtained a good-sized crate, strong, and with a good bottom, such as hardware is sent by rail in. The staves at one end were all cut out, simply leaving the top rim to keep the thing together, for without that the crate could not have supported the bed laid upon it. The crate was turned upside down, and the bed prepared and spawned in the usual way, so far as the outer crust of it was concerned. But there was not nearly so much manure used as in the

ordinary hot bed, for the heat was obtained in another way. When the bed was made, the inside of the crate was hollow; but the open end had been left uncovered, the close end being all built over with the bed. The method of heating was by placing inside the crate the Grass cut from the lawn. This within a few days generated sufficient heat to develop the Mushrooms in the bed. When the heat appeared to be exhausted, the spent Grass was taken out and fresh material was placed therein. This, it will be at once seen, is a very simple plan, and one that could be worked almost anywhere. Of course, the Grass will not last nearly as long as a well made Mushroom bed, but there is, as a rule, no limit to the number of times it may be renewed. — *Country Gentleman*.

GARDEN FLORA.

PLATE 526.

SINGLE AND SEMI-DOUBLE ROSES.*

IT seems to be a general law of nature as well as of municipal bodies that the special development ("improvement" is the modest civic term) of any one part or quality can only be effected by, as it were, taxing (and so impoverishing) the other members or qualities; and the conviction seems to be somewhat firmly rooting itself in rosarian minds that perfect form, as understood by the florist, is perhaps only attainable in Roses at the expense of vigour. Of course, Marcelhal Niel is cited to the contrary; but the fact remains that the Marie Baumann type of Rose refuses absolutely to risk the disarrangement of so elaborate a toilette by climbing about over our walls and fences; while the admiration of a German rosarian, on seeing a long row of the most perfectly formed of recent Roses, Lady Mary Fitzwilliam, was tempered by the pregnant reservation, "aber es soll weichen!"

No doubt growers are liable to become hypercritical, and, with the number of good qualities supposed to be essential to a first-rate Rose, a failure in some departments is not to be wondered at. A Rose now-a-days is expected to have size, form, perpetuity, scent, hardness, colour, and vigour to be included in the front rank; but one may still count on one's fingers (might one not say one's thumbs!) the varieties that can claim under all these heads. The conjunction of the last two qualities is especially rare, and a bright red Rose sufficiently vigorous to be correctly described as a climber is a desideratum.

Under these circumstances, the red Rose figured in the accompanying plate, Reine Olga de Wurtemberg (Nabonnand), as fulfilling the requirements of colour and vigour, is worthy of extended cultivation. It is classed by the raiser as a hybrid Tea, though hybrid Noisette would, perhaps, describe it more accurately, and it grows with rampant vigour, rapidly covering a large expanse of wall and making a lavish display of its bright red flowers, which are none the less effective from being only semi-double. A companion variety, Madame Marie Lavallée, with similar recommendations, has paler-coloured flowers.

It is a great pity that "semi-double" should be to so many growers a term of reproach and a bar to cultivation, even when it is associated with compensating good qualities; and a tendency for everyone to grow only what are called show Roses, in defiance of their adaptability to special purposes, is much to be regretted. What, for instance, can be more charming than a great plant of Fortune's Yellow (or Beauty of Glazen-

* White, Paul's Single White Perpetual; Red, Reine Olga de Wurtemberg. Drawn in Messrs. Paul & Son's nursery, Cheshunt, in July.



NEW SINGLE AND SEMI DOUBLE ROSES.

wood), smothered with its variously-coloured flowers, either as tawny buds, or, more fully expanded, some nearly white and some almost orange. Or, again, take *Desprez à fleurs jaunes*, almost as rampant in growth as an Ayrshire, making shoots of an incredible length in a single season, from which an armful of buff and yellow-coloured flowers may be gathered to make a feast of fragrance hard to be surpassed. *Ophirie* is another Rose that looks upon every form of fencing, pillar, or post only as a peg on which to hang its innumerable clusters of unique copper-coloured flowers—at once the delight and the despair of flower-painters—until frost and snow enforce the needed rest. These are semi-double Roses, it is true, but they cannot be matched among the more formal court beauties for fragrance and profusion combined.

There is another semi-double Rose of recent introduction which is an improvement upon the type in two valuable characteristics, namely, colour and the perpetuity of flowering. Though rather overwhelmed by the name of *Comte d'Espremenil*, its flowers are darker than those of its well-known parent, *R. rugosa*, and are of a deep rich purple-crimson colour, appearing both early in the season and freely again in the autumn. It may be hoped, therefore, that a similar perpetual form may soon be obtained of the tender pink *R. coruscans*, the most beautifully coloured of the *rugosa* group. For outside the whites and yellows, colour is perhaps the weakest point of the single Roses. This remark does not apply, however, to Paul's single crimson *Perpetual*, a Rose whose brilliant crimson flowers, advantageously set off by gay yellow stamens, are freely produced throughout the summer—an estimable habit equally characteristic of Paul's single white *Perpetual* (see plate), a variety of even more vigorous growth, and which may be effectively employed as a climber. Even during the month of August, when hardly any Roses are to be had, these two varieties will be found covered with blossoms, a fact which by itself is sufficient to make them favourites. This perpetuity of flowering is also a great recommendation in favour of the varieties of the species *R. indica*, whose single blossoms are produced in unending profusion, besides being possessed of the most delicious and powerful fragrance. So late as last November, a plant of one of these single Tea-scented Roses out of doors bore trusses of from four to five dozen buds and flowers, good enough to be considered worth sketching.

Where great spaces of wall have to be covered there are some single Roses especially to be recommended, notably *R. sinica*, a plant whose abundance of Camellia-like foliage alone renders it conspicuous and worthy of general cultivation; but when this dark firmament of foliage is studded all over with floral stars gleaming out in their dazzling whiteness, there is nothing in the Rose garden to eclipse the effect produced. *R. polyantha* again will cover an immense area in a short time, and produces larger trusses of bloom perhaps than any other Rose; the flowers are small, but their number is almost infinite, and they are very fragrant; while the early date at which they are produced (the end of May and the beginning of June) makes them additionally welcome, and a joy to the bees as well as to the workers in Queen Rosa's forces. It is curious that this giant of the Rose family should be the parent of some of the dwarfiest Roses in cultivation—the little polyantha hybrids *Mignonette*, *Perle d'Or*, and the like, supposed to have originated from accidental crosses with Tea-scented varieties.

The mention of Teas ("he always came back to tea!") recalls a series of semi-double Roses

that ought to be much more widely cultivated wherever there is any appreciation of colour. They are all of comparatively recent introduction, and seem to have arisen to meet the demand created by the modern development of colour-sense in the direction of decorative and oriental tints. Though semi-double when expanded, these Roses all have compact and well-shaped buds and bloom freely throughout the entire season, and are eminently well adapted for exhibition in the new class for bud Roses offered by the National Rose Society at their South Kensington show with a view to encouraging the cultivation of Roses of similar refined colour. *Ma Cupucine* is perhaps the most bewitching and the most difficult to describe, for its orange-yellow petals are so tinted with rose colour where the sun has caught them, that one can hardly tell where either colour begins or ends. The blending of red and orange in a sun-painted Apricot (without the speckles) might be suggested as the nearest analogy in hue. *Madame Chélan* *Guinoisseau* is another beautiful variety with lovely clear yellow petals, forming very long buds. *Madame Pery* has been nick-named the "Butterfly Rose," from its beautiful tawny-yellow buds when expanded looking like great creamy butterflies settling on the tree. This variety is very vigorous, and produces its distinct-coloured buds in considerable clusters and with unflinching continuity. *Madame François Janin*, with telling deep nasturtium-yellow blooms, completes a quartet of Roses which should be grown in quantity in order that great bunches of their exquisitely tinted blossoms may be readily obtainable for indoor decoration. *L'Elegante*, though of somewhat dwarf habit, deserves mention for the very refined colouring of its white petals, each margined with clear pink; while *Camoens*, a hybrid Tea, produces abundance of bright rosy flowers with a yellowish base, and would, no doubt, make a first-rate pot Rose for forcing.

There are two other members of this too much neglected section of the Rose family which should not be overlooked—one single, and one semi-double. The former, which is best adapted for large gardens, since it is most effective where it can be allowed to grow in its own way into a large bush (which it soon does), is *R. rubrifolia*, whose every part is pervaded by a soft bluish tint which over the reddish stems is most distinctive; while the plant's attractiveness does not by any means end with the fading of its great bunches of delicate rosy flowers with their curious long sepals. For the brilliant hips which follow are so numerous as to appear more like bunches of Mountain Ash berries than anything else, and the tree is thus kept gay till the very last. The semi-double Rose is the too-seldom seen *Stanwell Perpetual*, the best of all the Scotch Roses both from the fact of its blooming a second time in autumn, and for the exceeding fragrance of its pretty blush flowers; while, though hardy and vigorous, its dwarf habit renders it available for the smallest garden.

It has been often urged as an objection to Rose-growing that the flowering season is so brief—"for a fortnight in July you are gorgeous, but the rest of the year it is all sticks and litter in the Rose garden!" There is just truth enough to give colour to the statement as far as the so-called show Roses are concerned; but if the claims of the semi-double and single Roses were not so persistently ignored, the delights of the rosery would be greatly prolonged in both directions. Let there be show Roses by all means, and plenty of them, but not to the exclusion of other forms, which, if they have not the formality demanded by keen censors, introduce, at any rate,

other good qualities which the exhibition Roses may lack. Notably that most fascinating of all attractions—infinite variety. T. W. G.

INDOOR GARDEN.

EUCHARISES AT LONGLEAT.

IN one of the plant stoves at Longleat there was at Christmas a grand lot of *Eucharises* in bloom. I cannot state exactly how many flower-stems there were, but in few places are so many to be seen at any time of the year as here. The majority of the bulbs are in 12-inch pots, and in nearly every case have they produced, for the third time in the year 1885, from twenty to twenty-four strong flower-spikes. The individual blooms, too, are of great size and substance. Hundreds of them were used for dinner-table decoration in the course of a fortnight, and, as may be imagined, they were highly appreciated. No other flower with which I am acquainted, when judiciously employed and accompanied with choice greenery, presents so chaste an appearance. Though the number of plants grown at Longleat is large, no sign of disease is apparent, nor does Mr. Pratt anticipate any trouble in that direction. He is of opinion that many kill their plants by "starving them too much." No doubt much harm is done by alternately stewing them into bloom and then subjecting them to much too low a temperature, under the impression that this so-called resting is the best preparation for another stewing process. The sudden change from a cold house or pit to a brisk heat sometimes induces them to bloom at unseasonable times; but by such treatment the bulbs get debilitated, and it is then when the so-called disease makes its appearance. Other cultivators, again, are too fond of repotting their *Eucharis* bulbs, and point with no little pride to the number of blooms which the strongest of the bulbs produce soon after violent division; but what can be more weakening to them, seeing that the bulbs perfect a flower scape instead of filling the pots with roots. If we wish to increase our stock, divide the bulbs, pot off the strongest singly in 5-inch pots, or triplets in 6-inch pots, and the smaller ones more thickly, but premature blooming must not be encouraged. At Longleat the greater portion of the plants have not been disturbed for six years, and the pots are crowded with strong bulbs, with roots proportionately vigorous, sufficient, in fact, to occasionally crack the pots. Every pot is allowed plenty of room, and the foliage is always of great size and substance and in perfect health. The house in which they are growing, and from which they are never removed unless wanted for indoor decoration, is always maintained at an ordinary stove temperature, and a light shading is afforded during the summer months. After they have flowered less water is given for about six weeks, but flagging is carefully prevented; then they are given a good watering, and the flower-stems soon begin to push up. At this time they require plenty of water and liquid manure, inasmuch as both not only improve the size of the blooms, but lay the foundation for future displays. I have frequently noticed that well-established pots of *Eucharis* are apt to push odd flower-scapes in addition to the two or three annual heavy supplies, and where, as at Longleat, plenty are grown, the plants are rarely without a few blooms. W. I.

Two new hybrid Anthuriums. The first of these exceedingly ornamental new Aroids is named *Archiduc Joseph*, and is finely figured on plate 577 of *L'Illustration Horticole* and described by Mr. N. E. Brown, of Kew. It was raised by the Compagnie Continentale of Ghent by fertilising *A. Andreamum* with the pollen of *A. Lindenii*. It somewhat resembles

in form the French hybrid raised by M. Bergman in Baron Rothschild's garden, and named *A. ferrierense*, but is much more beautiful, as the spathe, which in *A. ferrierense* are of the dull colour of raw meat, are in the new hybrid of a bright shade of carmine, to which the pure white spadix, with a rosy tip, forms a charming contrast. The second is named *Anthurium Leodiense*, and was raised by M. Jacob-Makoy, of Liege, by fertilising *A. Andreanum* with the pollen of *A. Veitchi*. This beautiful hybrid is said to be synonymous with an English hybrid named *A. Veitchi flore-rubro*, and only differs from the first-named in the colour of its spadix, which is altogether white, shaded slightly with yellow. Its foliage is also longer and more pointed, almost identical with that of one of its parents, *A. Veitchi*. In both these beautiful hybrids the deep pitting which is such a conspicuous feature in the spathe of *A. Andreanum* is altogether absent. *A. Leodiense* is well figured in the first part of *Revue de l'Horticulture Belge* for 1886.—W. E. G.

BOTTOM HEAT IN PLANT STOVES.

A BELIEF in the necessity for plunging stove plants in bottom heat was at one time so accepted by plant-growers, that little success was expected where such means were not provided. The partiality which a few plants show for bottom-heat, coupled with the sudden rush of top growth that most quick growing plants make when their roots are suddenly subjected to a high temperature, was considered sufficient evidence that the practice was advantageous to all plants that require a more or less high temperature. So indispensable were the means of giving continuous bottom-heat looked upon, that when a house for the cultivation of stove plants was built the item for putting hot-water pipes under the bed in which the plants were to be plunged usually formed a considerable portion of the cost of heating the whole structure. Unlearning is a difficult process, and it takes a good deal of time to shake off ideas once accepted. Yet those were not wanting who noticed that the quantity of bloom produced by plants that had their roots thus unduly excited was less in proportion to the amount of growth than that produced by plants without bottom-heat, and that the flowers were also less enduring. As might be expected, the increased demand that has sprung up for cut flowers has tended to sharpen people's wits as to the necessity for producing them in a condition that enables them to last as long as possible after they are removed from the plants. Flowers that stand well are not only more satisfactory whilst they last, but, owing to their lasting longer, fewer are required.

It would be a difficult matter now to find a market grower who uses bottom heat for any of the plants which he cultivates, except such things as small Palms, Lily of the Valley, Eucharis, and Tuberoses; and in not a few cases these are grown wholly without it—in fact, the greater portion of the market men do not use bottom heat for anything but for striking cuttings. With the change in practice that has thus come about, it often happens that the bed of fermenting matter has also disappeared. In not a few cases the brick-pit originally constructed to hold tan or leaves has been converted into a water-tank, as I saw some time since had been done by one of our leading London nurserymen, who for a long period has been amongst the first of the exhibitors of flowering stove and greenhouse plants. This I look upon as a mistake, for, although there is ample proof that the greater portion of the stove plants in cultivation can be better grown without bottom heat than with it, still the bed of fermenting matter, when composed either of tan or leaves, has such an influence in promoting healthy vigour through the exhalations which it gives off, and the genial condition of the atmo-

sphere which it promotes, that, speaking from experience, I feel convinced there is nothing that can be done that will answer as well. I have used ammonia applied directly to the atmosphere by putting a little in a pure state in the evaporating troughs, and guano similarly treated; but by neither of these methods is the atmosphere kept in the even condition that is best suited to the requirements of the plants, and which a good bed of tan or leaves effects.

The larger the bed the better. In a house 50 feet long by 20 feet wide I have had a bed 4½ feet deep by 7 feet wide, all the length except the width of the paths at each end filled with new tan, which, needless to say, got very hot, exhaling proportionately more than a smaller amount of material would do where the heat was less, yet as shown by the state of the plants the atmosphere just suited them. A fermenting bed of this description has many advantages; it acts as a preventive of red spider, and, moreover, the amount of heat given off by a substantial mass of fermenting matter that will keep at a temperature of from 80° to 90° for three or four months through the winter has an influence in maintaining the requisite warmth with less consumption of fuel than would otherwise be required, and in this way a saving is effected that more than covers the cost of construction of the pit and the expense of yearly renewing the material. There is no way of arranging the centre portion of a stove so as to provide standing room for the plants that is so efficient, or that costs less than the erection of a pit to hold fermenting matter; nothing is required beyond a 9-inch brick wall for the lower portion, and the upper half 4½-inch work; if the two top courses are laid in cement, no wall plate will be required.

The best time for getting in new tan or leaves is about the beginning of December, as then the heat gets well up by the close of the year when cold weather may be looked for. As to putting hot-water pipes in the bottom of the bed in the way that used to be done, and still is in some cases, it is just so much expense thrown away; whilst as often as otherwise the pipes thus buried, and all but useless, might with advantage have been employed to give more heat to the body of the house. T. B.

5444. *Cæsalpinia pulcherrima*.—"R. D.," who inquires about this fine stove shrub in your last issue, would, I think, be more likely to find it if he called it by its better-known synonym of Poinciana. I find it well figured in the fourth volume of "Maund's Botanist," plate 151, and better still in the twenty-fifth vol. of the *Botanical Magazine*, plate 995. I have no doubt that its present scarceness is owing to many growers having discontinued its culture from being unable to get it to produce its beautiful flowers in this country till it grew too big for any but the largest stoves. The secret of getting it to bloom in a comparatively small state seems to be to feed it freely with bone dust from its first potting, and to never allow the plant to get pot-bound, but give it more root room as soon as ever it requires it. The plant figured in the "Botanist" was grown in a compost of peat and sandy loam, with one-sixth part of bone dust, in the gardens of Mr. J. Jarret, Camerton Court, Somersetshire, and flowered when only nine months old; the seeds having been sown on a moderate hot-bed in January, reached a height of 8 feet, and flowered freely in the following September and October. It is a native of Barbadoes, whence seed should be easy to obtain, and if treated in the above mentioned manner should be well worth the attention of any lover of handsome stove shrubs.—W. E. G.

Cereus procumbens.—"B." (p. 613) asks how to bloom this brilliant little Cactus. I have grown and flowered it for years and without a bit of trouble. In winter I grew it in pots near the glass in a green-

house facing the south, and in a temperature of about 45°. In summer I planted sometimes plunged it out of doors with many other Cactuses in a warm, sunny bed. I gave it scarcely any water in winter, a little now and then in spring, and not a drop in summer; of course in summer it got the rain, but no other watering. In potting, keep the plants well above the pots as you would an Orchid, so that no water can lodge about them and rot them, and when you plant them out see that no part of the stems is buried in the ground. Never wet it overhead. If at lifting time in autumn the little mat has grown too wide for the pot you wish to put it in, don't cramp it up in the least, but let it spread over the pot like a *Selaginella*; and if you desire vigour and blossoms in spring plunge the pot in a layer of clean sharp gravelly sand on the bench; the little stems will soon find the sand out, send forth roots, and make themselves at home. And you can keep this sand bed moist without hurting the Cactus. I used to treat *Cereus Berlandieri* and all the other little spreading *Cereuses* of that type in the same manner, and they used to flower most gorgeously every year. Damp, foggy weather is detrimental to these and all other Cactuses.—W. F., New York.

FREESIAS AND THEIR CULTURE.

DURING the last three years the several forms of *Freesia refracta*, known in gardens under various names, i.e., *refracta alba*, *odorata*, *Leichtlini*, &c., have become popular favourites for green-houses and conservatories. At first, before the hardy nature of *Freesias* was properly understood, growers were wont to treat them as warm-house plants, in consequence of which they grew weak and spindly, and the flowers were few and unsatisfactory. Now, however, thanks mainly to the Guernsey growers of these and other bulbous plants, we understand fully the *rationale* of *Freesia* culture, and we in England are able to produce in February and March spikes quite 2 feet high, freely branched, and clothed with dozens of delightful flowers. The treatment that brings about this result is as follows: In August or the beginning of September the small Onion-shaped bulbs are potted in a mixture of loam, sand, and thoroughly decomposed manure in equal parts. About a dozen bulbs are planted in a 6-inch pot, or if the ordinary 4½-inch pot is used six or eight bulbs are sufficient for each. If bulbs are plentiful, relays at intervals of a fortnight may be potted. During the first two months or so after potting, little water should be given; indeed, it is safest to water them once immediately after potting, and then withhold water till the leaves push up through the soil. After this, all risk of injury through excessive watering is over, and the soil may be kept uniformly moist. Place the pots containing the bulbs in an unheated frame or house in as light a position as possible. As growth proceeds, dressings of Clay's Fertiliser or any other good manure may be given with advantage, or weak liquid manure once a week will answer just as well. Artificial heat is still unnecessary for the plants, but of course they must be protected by a covering of mats in frosty weather. The nearer the glass and the more direct sunlight they obtain at this stage, the stronger and healthier the foliage will be, and in due time the spikes will be equally satisfactory. In mild weather the lights may be altogether removed if the plants are in a frame; if in a house, abundance of air should be given. Bottom heat is said to be advantageous to the development and vigour of the spikes; but, so far as my experience goes, it may be dispensed with—indeed, it has proved injurious to *Freesias* in some collections with which I am acquainted. If an early vinery is available, a light position in it would answer very well for *Freesias* after they have started to grow and till the flowers begin to develop; then the plants should be removed to a

drier atmosphere. To force them into flower, a temperature of 60° may be used. When expanded, the flowers will remain in good condition for several weeks, and they may be taken indoors and placed in a window in the sun if possible, where the sweet odour of their bloom may be enjoyed. I consider these easily-grown bulbous plants to be at least rivals of the fragrant *Tuberosa* both in beauty and sweetness; whilst in the ease with which they can be managed they are even superior to the *Tuberosa*. After flowering, the bulbs should be left in the pots, and stood in a dry, sunny position out of doors till the return of the potting season, when they may be shaken out and sorted, potting the strongest together, and placing the smallest, or "spawn," in pans or boxes. Out of doors the cultivation of *Freelias* in England is not possible, as they make their growth and flower during our winter. They ripen seeds freely; these should be sown as soon as ripe, and, if properly treated, will develop into flowering plants in eighteen months. B.

Violets failing to colour.—Having, like Mr. Muir, found the blooms of *Marie Louise* and *Neapolitan* Violets planted in two cold frames becoming quite pale in the end of October, I had them taken up and potted into sandy loam, with which was mixed a small quantity of well-decayed leaf-soil. They were afterwards placed in a light position close to the glass in a small house, partly fitted with winter-blooming *Carnations*. They immediately began to improve, and at the present time they are covered with bloom, large and well coloured. There can therefore, I think, be no doubt that the paleness was, as Mr. Muir supposed, due to want of light and heat.—W. C. T.

Primula floribunda.—Despite the darkness and coldness of the weather, this charming species keeps on flowering, and, to all appearance, should the weather be favourable, will continue to do so all winter. It is in a cold house, and, therefore, subject to disadvantages in consequence. During the summer I grew my plants on a shelf in a greenhouse, in an airy position, but, by means of blinds, they were shaded from sun by day. Plenty of water was given, but then there was good drainage; and, in addition to drainage, lumps of charcoal and crocks were mixed with the soil, and pieces of stone were laid on the surface. I think this is a moisture-loving plant; at the same time there must be free drainage. It has seeded pretty freely, but the seeds are very minute, and should be sown thinly.—R. D.

Impatiens Sultani.—If ever a plant deserved the name of being a perpetual bloomer, it is this *Zanzibar Balsam*; plants of it raised from seed commence to blossom when only 2 inches high, and if after that they get the treatment which they like, they are never without flowers, either winter or summer. By the time they get into 8-inch pots they are 18 inches high and 2 feet through, and when they get larger than that we have to throw them away, as they are too large for our purpose. Not only, too, are they always in flower, but they produce their blossoms so freely as to be always presentable; no other plant, therefore, is so much in demand for dinner-table decoration and for other important household uses. There is a degree of freshness about its growth, and its flowers are always so bright, that whether large or small it is always attractive. In some cases it has been rendered useless through being grown in too high a temperature and given an insufficient supply of fresh air. During the winter months it ought to be exposed to no greater heat than 55°. If grown in a higher temperature than that, the growth gets drawn and the flowers fewer in number and smaller in size. As regards soil, it is not at all particular. A compost that suits *Fuchsias* or *Pelargoniums* suits this *Balsam* admirably. When grown under favourable conditions, it is surprising what rapid progress it makes. A small seedling will develop into specimens of large size in nine months. I do not know what the experience of others may be,

but with me seedling plants make much the handsomest specimens. Cuttings strike freely enough; but they are longer legged, and consequently not so symmetrical in growth as seedlings. Our plants of it stand on a bed of ashes on which the seed falls and quickly vegetates. Therefore, at all times we have a supply of young plants without any trouble. I can do nothing whatever with the white variety of this plant, i.e., under the conditions just described. It simply refuses to grow. Perhaps it requires a higher or a drier temperature than the red-flowered kind.—J. C. C.

AMARYLLIS BELLADONNA IN POTS.

It is stated in old books that the easiest way of flowering this *Amaryllis* in this climate is to keep it in pots, which may be placed under a close glass frame in August till it flowers; after that it should be plunged in the open border, or the pots may be kept in an airy greenhouse during winter and placed in a stove without water at midsummer. This agrees with the practice followed many years ago by an old gardener of my acquaintance. He obtained imported Dutch roots as soon as they could be had—about the early part of September, and then potted them singly in 4½-inch pots, using a compost made up of loam, sand, and manure, in equal parts. Freshly imported bulbs will be certain to flower, and when they have done blooming they commence to grow; they were then shifted into good sized pots, using such a compost as that just named. Then a few short stakes were placed round the pots and matting tied round them to keep the leaves from injury; then they were placed in any suitable spot where plenty of light fell on them, and watered when required. In such a place the bulbs remained until spring, when more space was afforded them, and they were treated to plenty of light, water, and heat. As soon as the foliage began to decline water was discontinued, but extra heat was given and as much light as possible, and so until the leaves had decayed, when the pots were removed to a dry shed and there allowed to remain until the blooming season came round again. As soon as coming activity manifested itself, the bulbs were placed in the stove, and every one of them blossomed. To have extra fine specimens he would sometimes place six or eight bulbs in a large pot, and found that they flowered well and were highly effective. I have heard many complaints that this charming *Belladonna Lily* is very shy of bloom, but this is surely a misconception, and must result from unsuitable treatment. At *Gunnery Park*, *Ealing*, it succeeds admirably planted out in a narrow border on the south side of an intermediate house. This border was very carefully planted some years ago by Mr. Roberts, and every year he has a rare crop of fine flowers. A special border was made and the bulbs planted rather deeply, and they are well cared for when such care is necessary. I know there are many who are successful in flowering this charming subject, but there are many more who are not. It is for the benefit of these that the foregoing remarks are made. R. D.

Azalea mollis and its varieties are wonderfully useful plants to those who require showy flowers with but little trouble. They may not be quite hardy enough to endure the climate of the north of England, but in all the south and western counties they may be grown in the open border if rested one year and forced the next, and this is the plan which gives the least trouble; but they will even repay the cultivator if they have to be grown altogether in pots. Amongst the different varieties may be found crimson, orange, lemon-yellow, and creamy-white flowers, all of which are very attractive, and they may with gentle forcing be had from the middle of February onwards.

Azalea amœna is another most serviceable plant for those who have to provide flowers in quantity, as it can be had in bloom easily now if desired. We generally aim at having the first lot of it in flower at the beginning of the new year, and another lot a month later, thus furnishing plenty of flowers up to the end of March. Our plants being large, we can cut from them without injuring them, and the quantity of flowers which a single plant yields is surprising. Our stock of this *Azalea* has been grown in pots for many years; in fact, we treat it precisely as we do the *Indian* species. Our plants always make their growth under glass, and are not placed out of doors until the flower-buds are quite prominent; but after the middle of August I like to turn them out of doors, in order to give them a few weeks' quiet rest. Our plants are too large to be repotted; therefore we can only annually top-dress them with some fresh peat as soon as they go out of flower; but we keep them in vigorous health with constant supplies of liquid manure; in fact, they scarcely get a drop of clear water all the summer. To get them into flower early in January, I find that they require a temperature of 60° during the last fortnight of the time.—J. C. C.

LATE CHRYSANTHEMUMS.

THOSE who have a few late *Chrysanthemums* now coming into bloom will find them perhaps more useful than at any other time, flowers, particularly white ones, being so much appreciated about this time of year. In the extreme south of England it is not so easy to have *Chrysanthemums* late as farther north. The seasons are much earlier in the south; consequently, *Chrysanthemums* come sooner into bloom. Much may, however, be done in furtherance of this object by selecting varieties which are naturally late in blooming and by special treatment. Kinds suitable for this purpose are *Fair Maid* of *Guernsey*, *Mrs. C. Cary*, *Ethel*, *Meg Merrilies*, and *Ceres*, the last a variety with long, strap-shaped florets, gracefully arranged. It is robust in growth and a free flowerer. These are all white kinds, and belong to the *Japanese* section. Nothing would be gained by naming more varieties, these being quite the best; and it is better to grow more plants of one kind which is good than many sorts merely for the sake of variety. *Grandiflorum* and *Thunberg* are two of the best yellow *Japanese* kinds, while amongst rosy lilacs *Mme. C. Audiguier* is one of the best; *Julie Lagravère* and *Père Délaux* are two of the best with brightly coloured flowers. Amongst incurved flowers, *Princess Teck*, bluish white, and *Hero* of *Stoke Newington*, rosy pink, are the best. I have a white sport from the former, which will probably prove useful. The three last-named kinds are dwarf and good in habit. *Miss Margaret*, pure white, and of the ordinary *Anemone* type, is one of the most useful varieties with which I am acquainted; it is dwarf in habit, a free flowerer, and, what is more, lasts a long time in bloom. Cuttings of kinds intended to bloom late should not be struck till February, and should be pinched three or four times, to induce a dwarf habit and increase the number of flower-stems. The last stopping or pinching should take place not later than the first week in July. When bloom buds make their appearance in the end of September disbud to one bloom on each shoot, and at this stage supply them liberally with weak liquid manure, occasionally watering with soot water or any other of the various stimulants now in use. If they can be protected from light frosts, keep them out of doors as long as possible, in preference to taking them inside, as keeping them out assists in retarding them. A thin covering of canvas stretched on poles at night will ward off a sharp frost. After removal inside, admit air night and day freely when the weather is at all favourable. When developing their blooms, if at all wet or foggy, keep the

atmosphere dry by applying a little fire heat. The flowers last much longer in a dry atmosphere than in one charged with moisture.

Swinmore Park, Hants.

E. MOLYNEUX.

FLOWER GARDEN.

CHRISTMAS ROSES.

(HELLEBORUS NIGER VAR.)

SUNNING one's self in the mild warmth of this first day of the year 1886, no flower in the open border claims more attention than the white-flowered Hellebore that we call Christmas Rose; and to no one are we more indebted than to the editor of *THE GARDEN* for bringing forward the charms and claims of hardy flowers such as these which greet us before the new year is fairly awake! What the future may do for us who can say? Perhaps another generation may have their gardens as full of flowers in January as our fathers had in June, but if so, what a future for the Christmas Rose and its many cousins! But one thing at least may be said, that it will be very difficult to combine such beauty with perfect hardiness in any other flower. And yet we often hear complaints such as "I cannot grow Christmas Roses in my garden; they dwindle away, or the flowers are so short-stalked, misshapen, discoloured and eaten, that there is no beauty in them." There must be some reason for this, and I am not at all sure that it is gardening or any such thing that is at fault. Those who have travelled among the Italian lakes in winter or early spring, and more especially those who have penetrated into the Austrian Tyrol thus early, tell us of whole fields of these lovely white Hellebores in full flower at the head of some mountain tarn or on some moist hillside; and, what is more to our point, those who are observant tell us that the variation in size, shape, purity of colouring, earliness or lateness of bloom is most remarkable. To us who are accustomed to divide our Hellebores, and never think of seed as a means of increase, this is most instructive; for it is evident that in Nature, seed is the only means of propagation of these Hellebores, or such variations in a small area would not occur. It is also to be observed that the Eastern or Austrian forms are the largest, and the Italian forms the smallest.

Is there not here a clue to some of our complaints? From my own experience I can affirm with certainty, yes. Like too many ignorami, a Christmas Rose was then to me a Christmas Rose and nothing else, but from the days, now fifteen years ago, when through the kindness of a Scotch friend I became possessed of the giant and early form we now call *maximus*, I began to realise what a wide difference there was among Christmas Roses, and am now convinced that if good varieties be obtained it is hardly possible to avoid having an abundance of beautiful Christmas Roses.

In their culture the one thing necessary is to obtain and preserve fine foliage, and the rest will follow of itself. The most general cause of failure is drought in summer, which kills the leaves; and it should be remembered that the Christmas Rose grows naturally in meadows bordering on lakes where in the driest year there must be moisture both in soil and atmosphere. In a few gardens, no doubt, slugs are fatal to keep them off, when young leaves are soft and succulent and budding flowers fresh and fair, but when that is said, and a good mulch of manure or leaf mould applied in spring to keep the ground moist during summer, what more is needed than "judicious neglect," which does not

seek to disturb and break the long black roots that dive down so deeply in search of the moisture they require?

First in the chain of beauty comes the Austrian form we call *maximus*, which opens its rose-tinted buds by the 1st of November, and is always conspicuous by its large serrated leaves and purple-stained stalks; this is a most desirable and vigorous form, but very soon loses the purity of its pink and white tints; still it is most welcome, as coming first, and as a foliage plant alone it is fit for a prominent place.

By the time that Christmas is upon us the second early forms will be opening; this year they have been somewhat earlier, having been stimulated by the autumn rains which they fully appreciate. There are two varieties specially beautiful—one which Mr. Barr calls *Juvernais*, with large, round-petalled and somewhat cupped blooms, on very strong stalks, and the other known in the north as the Manchester variety, with singularly pale green leaves and smooth edges, and with fine pure white flowers that open flatter and more Eucharis like than any other sort, and with the true petals and stamens in the centre more golden in tone than I have noticed generally. This, if I am not mistaken, is the variety Mr. Brockbank grows and so justly praises.

Next come two varieties, one which greatly resembles *maximus* in its large, coarsely serrated leaves and bold growth; this flowers a fortnight later than those just mentioned, and is very pure in its white tones, but does not seem to flower quite so freely as most kinds, but is a good thing.

Flowering with it and now just in its first flush of beauty comes the Bath variety, which is above all others abundant in bloom, and represents to me the type of the Christmas Rose in perfection. Its flower-buds are sometimes tinged with pink, but the flowers are pure white, and, when opening, more funnel-shaped than any variety mentioned as yet. This, however, is considered by some as being too good to be called the type.

In many Yorkshire gardens may now be seen large clumps with very narrow foliage and plenty of pinkish buds in the centre of the clump. This is a most inferior variety with small and dirty-coloured flowers, that never is satisfactory, and there is even more often a form with leaves that rather curl back, as if stunted, and with the spreading rhizomes that mark inferior varieties. This, also, is very disappointing, for the flowers are small, short-stalked, and comparatively scanty, but of a fair white, and useful sometimes, as being so late that it fills a gap on occasion.

In this part of the world these two very inferior forms of Christmas Rose are decidedly the commonest, and account for the disappointment experienced so often, and it may well be such is the case elsewhere. Mr. Barr's variety, *H. niger scoticus*, is a fine broad-petalled and pure white form, differing somewhat in size and in the leaf from the Bath variety, and is, perhaps, a little the largest; so it would appear as if Scotland is richer in good forms than we are in England, for did not the giant *maximus* find a home for many years near Aberdeen? whence Miss Hope, of Wardie Lodge, first obtained it and brought it into notice, and there is also a good late form, small in growth and flower, that is well known in the north. The other Hellebores, sometimes called Lenten Roses, are this year remarkably early, and one purple-flowered variety is already open, and *H. olympicus* and *H. C. Benary* are fast pushing up their tall flower-stalks with an abundant promise of bloom

to follow shortly; if some kind friend can tell how they may be made to live when cut and placed in water, they will be all the more welcome.

With the white Hellebore there is no difficulty in keeping it fresh in water, so this failure is the more annoying. Ere closing these notes I would ask if anyone has tried to hybridise the yellow Hellebore (which we call yellow Aconite) with any other Hellebore? It would be a real addition to have a clear yellow Christmas Rose that would replace the cheerful *Chrysanthemum* that rarely lasts beyond Christmas Day.

EDWARD H. WOODALL.

ANNUAL IPOMÆAS.

A PACKET of the popular *Convolvulus* major forms part of the annual seed order of almost everybody who has a seed order at all, and there are few annuals either indoors or out which give a more satisfactory return for a little expenditure in pence and time than this plant. Various colours, from pure white to red, purple, and almost blue, are represented in the flowers of the plants thus obtained, this wide variation no doubt having originated through cultivation. In Japan, this species as well as other hardy annual kinds is at least as popular a garden plant as it is here, but the Japanese are ahead of us in the number of forms they have succeeded in developing, yellows, striped, almost black, as well as double varieties being known in the gardens of these clever cultivators. A collection of these varieties was grown at Kew a year or so ago, and



Ipomoea limbatata. Flowers violet, purple and white.

we hear that a quantity of seed has been procured for these gardens for next year. The capabilities of the introduced plants belonging to the genus *Ipomœa* have already been noticed in *THE GARDEN* along with a plate of *I. rubro-cærulea*, the beautiful winter-flowering stove annual which has this year been an attraction in the Water Lily house at Kew, where its flowers were expanded in hundreds together from the beginning of November till now. *I. bona-nox*, the large white-flowered "Moon-creeper" of the Indians, and whose floral charms are expanded only at night; the purple-eyed *I. filicaulis*, and many others may be referred to as useful, easily grown annuals for the stove and greenhouse.

I. QUAMOCUIT thrives only in a greenhouse, except in the warmer parts of the country. It has thin, hair-like stems, about 6 feet long, small *Gleichenia*-like leaves, and long trumpet-shaped dark red flowers, which are developed in abundance during the summer. The plant should be grown in a sheltered, sunny corner of the greenhouse, a draughty position being bad for it. It

is a tropical plant, coming from the warm parts of South America, but it succeeds best if treated as here recommended, the seeds to be sown in heat in March.

I. LIMBATA is the *Convolvulus nil* of the old gardening works, or rather it is a variety of that plant, which is now known as *I. hederacea*. It is very similar in habit to the common *I. purpurea*, as will be seen by the accompanying figure. Seeds sown in spring will yield plants capable of flowering freely from June to September.



Ipomoea quamoclit. Flowers deep crimson-red.

ber if grown in a warm greenhouse. The flowers are 2 inches long and $2\frac{1}{2}$ inches wide, and their colour is violet-purple edged with white. B.

WORK DONE IN WEEK ENDING JAN. 5.

DECEMBER 30.

Six degrees of frost last night, but by noon to-day the temperature had risen to 46° , and it has been a spring-like day with bright sunshine; the latter must have been of great benefit to indoor plants generally, and to early Vines, Peaches, and Strawberries in particular. Our first batch of Strawberries are in flower, and advantage was taken of the sunshine and consequent dryness of pollen to distribute it from one plant to another by a slight touch over with a camel's-hair pencil. The plants do not as yet require much water, but we examine them daily in respect of watering, and always take care that it is of the same temperature as the house or pit. A chill at the roots is just as injurious as a chill from a cold current of air on the tender flowers, and this we know is a frequent cause of non-setting of fruit. Peaches, too, are just opening flower, and the temperature will now be kept from sudden fluctuations of temperature and as near 55° as possible. With sun-heat, of course, we shall not mind if the temperature rises as high as 65° . We have to-day closed up Fig house for forcing, the border having previously had a good watering with tepid water and the trees syringed; and the syringing will be continued once a day, except in very sharp weather. The present temperature will be 45° to 50° by night, and will range from 50° to 58° by day. Picked over bedding plants in frames. Heliotropes, Petunias, Marguerites, and Ageratums required more warmth, and these we have arranged on inside border of early Muscat vinery. The propagating pit being ready, a first lot of cuttings has been put in, consisting of Abutilons, Petunias, variegated Koniga, and Saxifraga Cooperi; the latter is one of our best flowering succulents, and is invaluable for planting on a groundwork of any of the evergreen Sedums or Saxifrages. Outdoor work has been much the same as for a week or two past. We are still busy repairing walks and re-gravelling those that need it; also trenching in kitchen garden, and in new part of grounds for planting shrubs and Conifers; one or two of the latter has to-day been top-dressed. Our manner of doing this is as follows: The turf is rolled back, or else cut right off to the distance intended to be

dressed; the surface is then lightly forked up, the new soil spread over, and the dressing is complete. If, as is sometimes the case, the soil about the roots of the tree be dry, the turf is left off till rain has fallen in sufficient quantity to moisten the whole of the roots. Should the soil be moist, then the turf is put down immediately the new soil has been applied.

DECEMBER 31.

Mild and very fine. Owing to alterations and new work, our garden work proper has necessarily for some time past been very limited, but to-day we determined on having all hands in the garden that we might get at least part of the fruit trees planted that ought to have been finished weeks ago. Planted a few more cordon Pears in place of old horizontally trained trees that had got too aged to bear fine fruit, though in a general way they bore abundantly. The old trees that have been grubbed were Passe Colmar, Marie Louise, Ne Plus Meuris, Beurré Diel, and Winter Nelis, all of which sorts have again been planted as cordons, together with Doyenné du Comice, Louise Bonne, Glou Morceau, Doyenné d'Alençon, Marie Benoist, Emile d'Heyst, and several others. The being able to plant a large variety in a restricted space is, I think, the greatest merit of the cordon system. The trees are now being thickly mulched with good manure, but no tying or nailing to walls will be done for some weeks to come, so that the trees will have full play to subside with the soil, which after deep trenching always takes place. Stirred the surface soil amongst Caulidowers and Lettuces in hand-lights; the latter show a disposition to damp off, and by way of checking the evil, dry wood-ashes has been sprinkled over the plants, and the ground underneath them covered with the same material. Spinach is this winter a most unsatisfactory crop with us, late sowing being really at the bottom of the evil. The drought prevented sowing at the right time; then soon as it was sown, we had a constant succession of rains, that growth was impossible. There is a good plant, if we could but get growth, and to aid this the soil between the rows has to-day been deeply stirred and the whole dressed with dry wood ashes. To keep birds and mice from injuring them, the rows of early sown Peas have been covered to the depth of from 2 inches to 3 inches with cinder ashes, sifted with a quarter-inch sieve. Pruning Currants and standard Apples, also put in a few of the straightest shoots of Currants as cuttings. They strike readily in any position if well firmed on the soil. Ours are put in at the foot of a north wall that is of little value for other plants or crops. Cut a few more Lady Downes Grapes and put in Grape room; all of them will be housed as soon as bottles are vacant. The Vines are now pruned as the Grapes are cut, and the house kept as cool as the well-being of the fruit admits of. Potted a few Gloxinias and tuberous Begonias, the tubers that showed signs of starting being selected; the others are packed closely together in boxes, cocoa fibre being used in lieu of soil, to keep the tubers from shrivelling. Caladiums are of little use to us till beginning of August, and to keep the roots from starting we also turn these out of pots and pack in boxes, and give them the coldest frost-proof place we can find, which is a loft in an airy shed, where they keep well by our taking the precaution to give a little extra covering with mats when severe frost sets in. Potted up a few more Spireas, a few Primroses, and some good clumps of Forget-me-nots—white and blue—which come in well for button-hole and bouquet-making. They force well in a temperature of 60° , and the flower-stalks grow longer than they do in the open air, which enhances their value as forced cut flowers for bouquet making.

JANUARY 1.

The new year has opened with a couple of hours' bright sunshine and an unusually mild temperature, which if continued will make forcing an easy matter; but such mildness may prove disastrous to wall fruit, and, personally, we should prefer to use a little additional fuel in forcing to the risking of injury to Apricots, Peaches, and other wall fruits. However, we have no choice in the matter, and must, therefore, work and hope for the best. Apricot flowers are already swelling up and almost ready to open, and the wall coverings being out of repair, a start has been

made to mend them by ordering new canvas screens, and a carpenter engaged to repair and fix the wood-work. Our Peaches, Nectarines, and Apricots are all protected with canvas, fixed the same as window-blinds, and that can be rolled up or down, as may be required, by means of sash-cord and pulleys. Finished pruning Currants and Gooseberries, and started to prune Plums on east wall. These trees, in spite of all our efforts to prevent it, got badly blighted in the summer, and lost their foliage prematurely in consequence, and the wood is green and immature, and though there are plenty of fruit buds, I shall be agreeably surprised if there is half a crop of fruit; but this gloomy anticipation shall not hinder us from giving the same amount of attention in regard to pruning, nailing, and particularly as to dressing the walls and trees with soap suds and Gishurst, as if the finest crop of fruit was expected. Finished fruit-tree planting for the present, and all that have been newly planted and a few that have been root-pruned have been given thick mulchings of manure—a protector and fertiliser in one. Early Broccoli border being cleared, the ground is now being manured and trenched for planting on it early Potatoes. The old Cabbage plot, the sprouts from which has helped to keep in reserve Savoys and August-planted Coleworts, is now being given a heavy dressing of manure preparatory to trenching it for mid-season Peas and summer Spinach. There is now daily so much of sameness in the work of the houses, that it is only necessary to mention by way of memoranda anything fresh that is being done. Another relay of forcing plants we have put into heat, including Hyacinths, early Tulips, Solomon's Seal, Tea Roses, and Azaleas, the old white variety, and the small purple-flowered variety *amara*. A sowing of Peas has been made in leaf soil in 5-inch pots, a dozen in a pot, the same being intended for planting on a warm border about the middle of February. Sowed Brussels Sprouts and early Cauliflowers in boxes and placed in warmth. Soon as the plants are through the soil they will be shifted into a cold frame.

JANUARY 2.

A little rain during the night, followed by a splendid day and bright sunshine. Another turn at walk renovation, and gave these and the lawn the usual weekly brush up. In trimming up flower beds, it was discovered that mice or rats had found out Tulips and Crocus bulbs, and so traps were at once set. Poison is the most effective destroyer, but this we are forbidden to put down for fear of poisoning pheasants and dogs; but where there is no risk of this being done, phosphorous paste is certain destruction. Our Rose beds are filled with bulbs, and Tulips and Hyacinths were all through the soil, as well as through the cocoa fibre with which the beds are mulched, and therefore another thickness has been put on to-day. What to do with the Roses is a problem difficult of solution; they are still as green—many more so—as at midsummer, and full of bud and flowers, some of which are really good. It is evident that the foliage will not fall naturally for a long while to come, and therefore at first opportunity I propose to give them the cue to go to rest by partial pruning, and if this is successful, prune them fully. In any case the wood is so soft and green, that it will be desirable to cut them extra hard back to make sure of cutting down to well-ripened buds. The drought at the end of June and July was so severe, that the natural flowering season was a very short one; after this was over the flower-stems were shortened back, and with good waterings and abundant rains in September the growth and flower was something marvellous, the final result being, as here stated, namely, unripened growth. Pruning and nailing have been continued, and the dressing of walls and trees is made to keep pace with the same. Besides the thorough clean out and rearrangement of plants in houses, usual on Saturdays, fruit rooms have been overhauled, all bad fruit thrown out, the but slightly decayed being placed in baskets for immediate use. All kinds of Apples keep exceptionally well, but Peas are going off very fast, only the very latest kinds being now in a good state of preservation; Olivier de Serres, Bergamotte d'Esperen, Ne Plus Meuris, Josephine

de Malines, Glou Moreau, Bourré Sterckmans, Knight's Monarch, Bourré Rance, and Catillac are amongst the best of those still good. Grapes in bottles are also looked over on Saturdays, and fresh water added when needed: after the first week though, so little water is taken up by the fruit or evaporated, that it is not necessary to examine them for the purpose of fresh supplies of water oftener than once in three weeks.

JANUARY 4.

Mild, but rainy, so that no outside work has been attempted, except to beat down and roll some newly-laid turf and the running of the roller over the Grass verges of walks that have not yet had their annual trimming. The turf has also been rolled back from large plants of *Arundo conspicua* that it is intended to cut up for planting in other positions. This plant, which is sometimes mistaken for the Pampas Grass, has more finely-cut foliage and the flower-heads are lighter and much more freely produced, in addition to their being at least two months earlier than the Pampas, and yet they outlive the Pampas plumes, which latter, however, has this advantage over its rival, namely, that it thrives better in the wettest positions, though both enjoy and look most at home on the banks and margins of lakes and streams. Potato and root stores have had their turn of attention to-day, and all the seed stocks of the former have been arranged in single file on the shelves and floor of Potato house, a large underground cellar, and those for cooking have had all the sprouts rubbed off. Onions, Carrots, Beet, and Jerusalem Artichokes have all been freed of decayed roots, and Beet and Carrots re-stacked in dry sand. Other out-door hands have helped to scrub the stems with soft-soap water of old Orange trees that are affected with a small white scale that sticks to the stems like glue; also to wash pots, handlights, and bell-glasses that will soon be wanted for various purposes. Divided and re-potted a few Ferns—*Adiantums*; also shifted some small Palms into larger pots; dipped stock plants of *Iresine* and *Verbenas* in tobacco water to kill green fly. Picked back leaves off and weeded pots and boxes containing bedding *Pelargoniums*, and at the same time note was made of the varieties of which the stock was short, with a view of giving such the most favourable positions for the production of cuttings. Moved some *Bouvardias* that have been cut very hard and have now done flowering to a cooler house, where they will get a partial rest by the cooler temperature and the withholding of water, but not to the extent of allowing them at any time to get dust-dry.

JANUARY 5.

A cold, drying north-westerly wind and bright sunshine the entire day; edged another portion of Grass verges and completed turning the gravel on walks; planted several clumps of *Arundo conspicua* on margin of lakes. The natural soil—light loam—being of good depth, the only preparation for planting has been deep digging. The old flower beds and dried foliage has been cut off the old plants, and where the soil had settled down below the ordinary ground level the turf was turned back, fresh soil given as top dressing, and the turf relaid; after which the garden had, unfortunately, again to be deserted to push along with the extra work of grubbing up tree stems and trenching for Conifer, and *Rhododendron* planting on a new piece of ground that has been added to the pleasure grounds. Put in the last batch of *Chrysanthemum* cuttings. The greater half of those already put in are rooted, and these have been taken out of the hand-lights in Peach house and stood in a cold frame, which can be slightly warmed if occasion requires, that is, if the temperature descends below 40°. Washed lights and well scrubbed woodwork of the Gros Colman and Alicanteinery. The border of this house is entirely outside, and the floor being gravel we are able to use the space for plants of any kind that do not require much heat, and soon as the Vines have had the usual dressing and the walls have been limewashed all the hardiest bedding *Pelargoniums* will be shifted from anotherinery that will soon be closed up for forcing. Put in a few Vine eyes; as the Vines are not intended for home planting, but will have to

travel, they are planted singly in 3-inch pots, and for the present are stood on the leaf-bed in the Strawberry forcing pit.

HANTS.

FRUITS UNDER GLASS.

VINES.

We have this day, December 29, cut the remainder of the Muscats, as it is now high time the Vines were pruned. The varieties consist of Bowood and the old Muscat of Alexandria, and, notwithstanding the fact that by some the two are now considered identical, the following notes may be interesting, if not useful, to future planters. All the Vines are growing in one house and in the same internal and external borders. Six Vines, received direct from the late Mr. Spencer, of Bowood, set their fruit from a week to ten days earlier than the old Muscats. They retain the lead throughout the summer, and in the event of an early dish being wanted the Bowood is invariably found best coloured and, consequently, most suitable for cutting. As time goes on, the Grapes on the old variety overtake the Bowoods, which, by the way, have broader shouldered bunches and rounder berries, but they do not run evenly together until the end of the season. All goes well until the leaves fall, and then we find the Bowoods begin to show signs of having reached their best, while their neighbours retain all their berries in a sound condition quite up to Christmas, and are, in every respect, the best for bottling. To the grower of a few bunches of summer Muscats this information may be useless; but there are a great number of gardeners who endeavour to lengthen the Muscat season at both ends by planting a small house for early use and a larger one for keeping up a supply as long as this kind of Grapes can be had in good condition. Many of them are, of course, well acquainted with these facts, and plant accordingly; but since Mr. Barron disqualified Messrs. Lane at the Crystal Palace some years ago, the two Grapes, be they distinct or synonymous, have been very much mixed up by the trade, and it now generally happens that Vines under either name are supplied from one stock, as they no longer think it necessary to keep them separate. Now is the time to put in "eyes," and planters for early work should lose no time in propagating a good stock of the Bowood from a reliable source, and the same of the old Muscat for supplying fruit through the winter. It matters little to the cultivator of Muscats whether the Bowood Grape is distinct or only a seedling; his end will be best secured by growing it for fruiting in pots or for planting in early houses. I said it was high time the Vines were pruned. Many people prune as late as the end of January, but the Vines in question and the Grapes were quite ripe in September; the outside border has been covered up and the inside roots require water. It is not good practice to water any more than it is to start the Vines immediately after they are pruned, and as pruning must precede watering, they will be pruned and dressed with styptic forthwith. A week or ten days will be allowed for the cuts to heal; the inside borders will then be watered, the external covering will be removed and replaced with short stable manure, and the Vines will be kept cool until the buds show signs of swelling.

Late houses.—Immediately after the Lady Downes and other late hanging and keeping Grapes have been cut and removed to the Grape room, the Vines may be pruned, cleansed, and treated precisely the same as the late Muscats. The house can then be thrown open to give them the benefit of a thorough rest before they are again started. Many Grape growers at one time allowed their late Vines to break naturally, gave them very little fire heat through the spring, and trusted to a good or bad season as the case might be for growing and ripening the fruit and wood. Bad seasons, unfortunately, have been more prevalent than good ones, and it has been proved over and over again that late Grapes so treated never attain their best flavour, neither do they keep fresh and plump after the leaves fall. If an equivalent in economy of fuel could be secured, this system might still be pursued; but such is not the case, as every pound saved in the spring is expended in the autumn,

when the Grapes ought to be sufficiently advanced to admit of their being thoroughly ripe by the middle of September. Assuming, then, that the house is now clear and its use as a plant store can be avoided, ten weeks' rest should be allowed, and when the buds begin to swell then will be the time to help them through the early stages with Muscat treatment. If the season proves bright and hot, so much the better for the fuel bills and the Grapes. If it is cold and sunless, time having been taken by the forelock, there will be a chance of securing a crop of really good Grapes that will pay for bottling and keeping.

Earlyinery.—Vines from which ripe Grapes are expected to be ready by the time the Lady Downes are finished will now be on the move; in some few places they will be ready for disbudding. Nothing is, however, gained by commencing this operation in early houses until the buds are well advanced and the most promising shows can be decided upon. Then, guided by the mode of pruning and the spaces left between the rods, the shoots must be reduced to one or two from each spur for tying down to the wires. If space is abundant, two shoots can often be left—one to carry the bunch, the other to aid in furnishing the trellis with foliage and to produce the pruning bud for another year. But where the rods are rather close and hard pruning is practised, one shoot from each spur is quite sufficient, as there is always a profusion of good bunches to choose from where early Vines are vigorous and well ripened. As days will soon begin to increase in length and the foliage expands, a gradual rise of temperature may be indulged in until it reaches 58° to 60° by night and 10° higher by day from fire heat, but unless we have a great improvement in the weather and the sun once more returns to strengthen the young growths and assist in running up the heats, easy forcing will be the safest course to pursue for the present. The ventilators should of course be opened every day, if only for a very short time, to allow the vitiated air to escape and to prevent the tender foliage from being caught by gleams of sunshine, of which November-started Vines are now much in need. Early morning is the best time to change and sweeten the atmosphere; the few hours from midday until the evening can then be devoted to forcing and drawing out the bunches, and rest can again be secured by giving a chink of air on mild nights.

Borders.—If the Vines have the run of internal and external borders, and the first were well top-dressed with compost, but not mulched with manure, a second watering may now be given with advantage. Old Vines which cannot be over-stimulated will derive benefit from a liberal supply of diluted liquid at a temperature of 80° to 90°. Young ones that break strong may also be watered with pure water, but stimulants must be withheld until after the fruit is set.

Syringing plays an important part in the breaking of the Vines, but it is a mistake to keep early houses constantly wet in all weathers; neither is it at all necessary to adopt the sloppy system where good fermenting material is introduced for giving out a continuous supply of warm moisture. Sound Oak leaves, to which a little short stable manure has been added during the course of preparation in the reserve shed, is the best material that can be used, as it stimulates the roots, economises fuel, and by frequent turning and renovation renders heavy syringing quite unnecessary. There are of course circumstances under which the syringe must be used two or three times a day, particularly where the young rods have been left a great length and the base buds do not break kindly. When this is likely to happen, the prudent forcer ties the points of the rods down and throws the base buds up above their level before the house is closed for forcing. He then introduces the fermenting material where a constant stream of warm moisture is most likely to be required, supplements this with warm water from the syringe, and it rarely happens that the lowest buds remain blind. On fine days the paths, walls, and rods may be syringed twice. On dull, cold days the syringe must be used more sparingly.

External borders.—Assuming that these had the full benefit of the August and September rains, and

were then covered up with dry Fern or litter, with shutters or sheets of corrugated iron over all for keeping in latent heat and throwing off cold rain, the breaking of the Vines will mark the time for additional assistance. This can best be given by the removal of the dry covering, and substituting a thick layer of fermenting Oak or other hard leaves. These should be in a fermenting state when they are applied, and sufficiently plentiful to insure their holding their heat for a considerable time afterwards, otherwise much unnecessary labour will be incurred, as the weatherproof coverings must be placed over them to keep in the warmth and shield them from the elements.

EARLY PEACH HOUSE.

Trees started about the end of November should now be sufficiently advanced to admit of a rise to a minimum of 50°, and a day temperature ranging from 56° to 65° when fire heat is needed. On bright days, now few and far between, gentle warmth in the pipes and a moderate circulation of air will favour a rise to 70° for a short time; but unless a great improvement takes place in the weather, tardy forcing will still be the safest course to pursue. Syringe the trees once or twice a day until the flowers begin to open, but guard against having them wet at nightfall, and on no account neglect fumigating to secure the trees from the ravages of green fly during the time the fruit is setting. Choose a calm day for smoking the house, when the trees are quite dry, and repeat the operation once or twice during the last ten days that precede the opening of the flowers. It is possible that greenfly may not be visible, but so sure as this precaution is neglected the enemy will put in an appearance just when it is least wanted, and no power can then destroy it without destroying the set of fruit also. Look well to the fermenting material, as it is a most important factor in early forcing, in dull, dark weather especially, when direct syringing is positively injurious, and moisture from some source must be produced to counteract the parching influence of dry fire-heat. A good ridge of fermenting leaves running along the centre of the border very often reduces the necessity for fire-heat to a minimum, and the stream of warm moisture which, under good management, it is constantly giving off feeds and plumps up the buds without producing cold chills, which so often follow copious syringing. But in order to secure all the good that it is capable of affording it must be turned frequently and renovated from time to time with fresh supplies from the reserve ground. Examine the borders, always bearing in mind that the roots of Peaches must never be allowed to become dry, and if it is thought advisable to give another watering to carry the trees over the flowering stage, turn the fermenting material off, and give them a liberal supply at a temperature of 70° to 75°. If well drained, there is not much danger to be apprehended from over-watering inside borders, while the want of this indispensable element is sure to lead to disappointment, if not to complete failure.

Succession houses.—Many people do not start their first house until the 1st of January; others start much earlier; but unless the early house is well furnished with suitable varieties, the gain from December forcing is not very great. When houses are sufficiently numerous to keep up a steady supply of fruit until Peaches begin to ripen on the walls, and a snug, but not too large, compartment has been started in November, the succession house should be shut up at Christmas, and gently started at a temperature ranging from 45° to 50° by night and 50° to 60° through the day. If fire heat is needed at first, it should be turned on for a few hours every morning, when the trees may be syringed and shut off again in time for the temperature to descend to the minimum through the night. Give the roots liberal supplies of warm water, and follow up previous instructions in the introduction and management of the fermenting material, as it is a powerful aid in every structure that is started before Peaches break naturally in the spring. Always make a point of forcing with a chink of top and bottom ventilation, and exercise patience through the early stages, as time apparently lost at the outset can always be regained with good interest when the fruit begins to swell.

Late houses.—If winter operations are still in arrears, no time must be lost in hurrying the work on to completion, as every day will now bring its own work, and the time is at hand when washing and dressing will be attended with danger. Keep the houses abundantly ventilated, water all inside borders with diluted liquid if the trees are old, and mulch to keep in the moisture. Give young ones pure water, and withhold the mulching until the fruit is set, as grossness very often forces the wood buds in advance of the flowers, and produces a tendency to sterility. Outside borders that have been exposed to the elements will not require water, but they may be well mulched or covered with a good layer of fresh stable manure.

FIGS.

Without a dish of good Figs the dessert in May would now be considered incomplete. To have the fruit ripe by the end of April, trees established in pots or confined to internal borders should be started early in December, and kept steadily progressing under vinery treatment until the fruit begins to ripen. The varieties best known are Brown Turkey and White Marcellis, and it is questionable if we have anything to equal, certainly not to beat, them for early or late forcing. There are, however, other kinds of excellent quality and well adapted for forcing, and as many Fig growers derive pleasure from variety, the following sorts will be found satisfactory: Angelique, Black and Brown Ischia, two delicious old Figs worthy of extended culture. White Ischia, or Singleton, a small early Fig well adapted for pot culture; Negro Largo, a fine, large black Fig, worthy of general culture in early and late houses; and Osborn's Prolific, early, excellent, and almost transparent when ripe. All these varieties, thoroughly established in pots, can be obtained from the trade ready for forcing, or trees of home growth can be secured from eyes or cuttings in a very short time. Bottom heat is considered necessary to successful forcing; but, notwithstanding the fact that the Fig can be started and grown in a temperature that would be considered too high for the Vine, great care must be observed in its application to the roots at the outset. When the trees are established in small pots, they should be dropped into others a size or two larger and well top-dressed with light, rich turf to draw the roots upwards. These should then be placed on dry brick pedestals, or inverted flower-pots, to raise them above the violent heat of the bed, should it exceed 70° to 75°, which is quite high enough, and, at the same time, to favour turning and renovation without disturbing them after growth has commenced. Trees of this description started now will produce very early fruit; but if introduced about the beginning of December they will now be bursting their terminal buds, and the young fruit will be pushing from the nodes at the end of every shoot. The warmth from the fermenting leaves playing about the bottoms of the pots will also have started the young roots, but instead of striking direct into the bed, the check to their progress will cause them to ramify in the rich turf close at home, where they can be treated to diluted liquid of which the Fig will take liberal supplies. Good syringing must now be practised once or twice a day to favour the development of the fruit and to keep the trees free from spider, and while guarding against a sodden condition of the soil they must never be allowed to feel the want of water. If started at 50° to 55° at night, with the usual rise by day, the bursting into leaf will justify an increase to 60° by night, unless the weather is severe, and a corresponding increase through the day. Trees in pots should be turned round occasionally to expose every leaf and fruit to the influence of the sun and light, and weak spray, which very often starts from the base of the bearing shoots, must be pinched or removed to prevent overcrowding and waste of sap on its way through the main channels to the fruit.

W. COLEMAN.

Eastnor Castle, Ledbury.

Iris reticulata cyanea.—A light blue form, smaller than the type, opened its flowers in the open border on New Year's Day! It is a lovely little gem, and why so far in advance of *I. reticulata* Krelagei I do not know. The Elwesian and Imperati Snowdrops are also in bud, and *Crocus Imperati*

is in flower. So all the Christmas Roses, and several hybrid Hellebores raised from seed in 1882. They are crosses between *H. orientalis* and *H. atro-rubens*, and one or two large white sorts and a rosy-pink one are very pretty additions to the group. These, so far, are the freshest and best of our new year flowers. *Iris susiana* is growing strongly.—F. W. B.

TREES AND SHRUBS.

THE MONTEREY CYPRESS.

(*CUPRESSUS MACROCARPA*.)

TREE-PLANTERS generally have not been slow to recognise in this Cypress one of the handsomest and certainly the most valuable of its tribe for planting in breezy, maritime situations that has yet found its way into this country; indeed, for seaside planting it has few, if any, rivals, which is clearly shown by the numerous recommendations from various parts of the country that from time to time appear in the horticultural journals.

Like many another of the recently-introduced Conifers, *Cupressus macrocarpa* has, as regards nomenclature, become somewhat confused, two forms introduced from different stations and at different dates, although one and the same, having received specific identity. Now, however, that these two trees (*C. macrocarpa* and *C. Lambertiana*, or as it is now known by its varietal name of *C. macrocarpa fastigiata*) have attained goodly dimensions in this country, and that since their introduction sufficient time has elapsed for experimental inquiry, it is now become an established fact that *C. Lambertiana* is but a form of *macrocarpa*, that differs in no way, save occasionally, in its more bushy and spreading habit. That the tree varies much in form is well known, cuttings or seedlings raised from the upright variety not unfrequently producing the spreading, horizontal-branched *C. macrocarpa*, or what is at present known in most collections as *C. Lambertiana*, while intermediate types are not uncommon. Why the name *macrocarpa* is retained in preference to *Lambertiana*, which was the originally bestowed on it, may to some not appear very clear, for Gordon tells us that seeds of an unnamed Cypress were given to the Horticultural Society of London by Lambert in 1838, and the young plants, proving different from any other known Cypress, received the popular or garden name of *C. Lambertiana* without the fact, so it is said, receiving due publicity.

Hartweg in 1846, or eight years later than Lambert's discovery, when writing an account of his Californian mission in search of plants, mentions finding his *C. macrocarpa* at Carmel Bay, and describes it as "attaining the height of 60 feet, with a stem of 9 feet in circumference, with far-spreading branches, flat at the top like a full-grown Cedar of Lebanon, which it closely resembles at a distance."

That the two trees are specifically one and the same, few will feel inclined to deny, but why the name *Lambertiana*, which has several years' priority of right, should give place to *macrocarpa* does not, to me at least, appear either just or right. The tree bearing Lambert's name is the horizontal or spreading one, and Hartweg's the upright growing form, and yet in the change of nomenclature, *macrocarpa* (the name bestowed by Hartweg on his find) is given to the spreading tree, or Lambert's introduction, while the upright form (or Hartweg's tree) is recorded as but a mere variety under the name of *C. macrocarpa fastigiata*. Why, if the honour of naming this Cypress was wanted for Hartweg, not have called his introduction, or the upright form, *macrocarpa*, and given a varietal name to Lambert's, instead

of doing away with the long-standing name of *Lambertiana*, giving the plant known as such that of *macrocarpa*, and bestowing but a varietal name on Hartweg's tree!

Here, at Penrhyn Castle, where both forms have attained large dimensions, there is certainly a marked difference in their general aspect, one (still bearing the well-known name of *Lambertiana*) having a flat, horizontal, Cedar of Lebanon-like appearance, while the other is of tall, upright growth, the branches further apart, and the tree usually a more rapid timber-producer. I have, however, noticed, at least such is the case with the trees here, that old specimens of the upright, or fastigate form (that now known as *C. macrocarpa fastigiata*), after perhaps thirty years' growth, gradually put on the flat-topped appearance that is so characteristic of the lower half of our *Lambertiana*, thus giving them a rather unusual appearance from the lower branches being shorter than those further up.



Cones of *Cupressus macrocarpa* (natural size).

Our first specimen of the *Lambertiana* type is, in truth, a lovely tree, and one that, judging from its large size, must have been planted shortly after the introduction of the tree in 1838. It occupies rather an exposed site on the lawn at Brynmeirig, near the Penrhyn slate quarry, the soil being peaty loam resting at but a short depth on shale rock. The broad, horizontal branches, covering a diameter of 24 feet, that is so characteristic of Lambert's tree, is in this specimen shown off to perfection, ample room having at all times been provided for full development of both root and branch. At a yard up the trunk is 6½ feet in circumference, but, as is usual with this tree, it soon branches into numerous limbs, several of these being little short, in point of size, of the main stem. The heavy, massive branches, of an unchanging bright green colour, give to it an air of stately grandeur that contrasts favourably with the lighter and more weeping foliage of the Deodar and other Conifers growing in close

environ and renders the tree one of the most distinct and beautiful of ornamental Evergreens. *C. macrocarpa*, the upright growing form, is also well represented as a stately specimen of some 55 feet to 60 feet in height, growing within a short distance of the old chapel contiguous to the castle. The upright inclination of this form is at once seen in the specimen in question, for although it has attained fully 50 feet in height, the widest spread of branches is only 16 feet, the habit being quite the reverse of that in Lambert's tree.

As an adjunct to our somewhat limited list of seaside trees the above Cypress is of undoubted value, thriving better in such situations than even further inland, as has already been proved in numerous stations along our coast.

Damp, low-lying ground, which induces an early start to growth, is inimical to its welfare, and where the young shoots usually suffer from the effects of early spring frosts—an evil to which the tree, when first introduced, was wrongly supposed to be very susceptible. Now, however, that its requirements are better known, success in the cultivation of this useful and ornamental tree is a by no means difficult task. All along our coast it has been planted with the most happy results and that even when exposed to rather severe saline blasts. In the north of Scotland, the climate of which seems well adapted for its growth, there are many fine specimens, as also throughout England generally—Middlesex, some years ago at least, being able to boast of possessing some of the finest trees of this Cypress in the kingdom. At Neville Court, Tunbridge Wells, two of these Cypresses planted in 1858 are now close on 60 feet in height and equally proportionate as regards spread of branch. A semicircle of fine healthy trees may also be seen at Castle Kennedy, in Wigtonshire. Numerous other examples of the rapid growth of *Cupressus macrocarpa* in various parts of the country might be narrated, but enough has already been given to show that, even under what might be considered adverse circumstances, this tree is well adapted for the climate of Britain, more particularly along the coast. Young plants of this Cypress may be readily enough raised from seed, which is borne in great abundance even on young trees, or, quicker still, from cuttings, but these latter are in several ways inferior to seedlings.

The timber, as regards graining, is by far the most beautiful of any wood grown in this country that I have yet seen—at least, if judging from a fair sized plank now before me gives a fair representation of its qualities. In appearance, except colour, which is of a beautiful barberry-yellow, it resembles the wood of American Walnut, the gnarled graining being quite equal to that timber. Trunk sections from trees here are, towards the centre, of a deep reddish hue, while outward from that the colour passes into a deep yellow. Being close grained and remarkably hard, it works smoothly under the plane, and is also susceptible of fine polish, these qualities rendering it of great value for many of the finer works in which wood is employed.

A. D. WEBSTER.

Fremontia californica.—The writer of this article has forgotten to tell us of its most characteristic habit—that of dying when it looks most healthy. I have lost it again and again, and I believe the beautiful plant at Kew and another at Coombe Wood are both dead. If from wet, why does it suddenly die while apparently in the most robust health?—FRANK MILES, *Sunnyhill, Shirchampton, Bristol.*

Ornamental Vines.—"H. P." has given an interesting account of these Vines, but he makes no

mention of one which I much want to meet with—I mean the variegated Vine, not *V. heterophylla* variegata, but the variegated Grape Vine. I saw it once at Mr. Cooke's when he lived at The Ferns, Queen's Gate, but I have not seen it since. I think it was also grown by Mr. Salter, of Hammersmith, in his great collection of variegated plants. As far as I can recollect it was a golden variegation, distinct and handsome. HENRY N. ELLACOMBE, *Elton Vicarage.*

The Firs. The word Fir is generally very loosely applied, as it is almost an every-day occurrence to hear the most of the common Conifers spoken of under this name. With most people the Larch and the Scotch are Firs, as well as the Spruce and Silver Firs. I do not know that it has been clearly determined how far the term may properly be applied. For practical purposes it matters little, so long as it is understood what trees are indicated; still it would be interesting if some clear dividing line was established. Loudon includes both *Abies* and *Picea*, and this would probably be the most popular limit to the term Fir.—J.

The two Catalpas.—We always protested against the specific use of hardy Catalpa to the *C. speciosa* as distinguished from *C. bignonioides*, because the latter is quite as hardy as most North American forest trees are. *C. speciosa* might possibly be hardier, but that did not warrant the imputation that *C. bignonioides*, or the Eastern Catalpa, was not hardy in any fair acceptance of the term. But it turns out that *C. speciosa* is not more hardy than the older species. "The Bulletin No. 7 of the Agricultural College of Michigan" says: "The two Catalpas, *C. speciosa* and *C. bignonioides*, are about equally hardy. Both suffer considerably, and appear to be unreliable. As *C. speciosa* has not been recognised as distinct from the older species until quite recently, the leading distinction between the two may be given. *C. speciosa*—tree tall, a straight grower; leaves softly downy, inodorous; flowers 2 inches across, nearly white, the lower lobe notched; pods stout and long (1½ inches in circumference). *C. bignonioides* tree lower, diffuse in growth; leaves smooth, or nearly so, giving a disagreeable odour when touched; flowers smaller, dingy, the lower lip entire; pods more slender. Teas' Japan Hybrid Catalpa is not hardy." And of its climate it says: "The climate of Lansing appears to be uncommonly severe for this latitude (43° nearly) in Michigan. Last winter the mercury sank 32°, and many times in quick succession it was below minus twenty. That, however, was an unusually rigorous winter. Moreover, the college grounds lie in an open and exposed country, and the winter winds are very destructive. It is only the hardiest plants which can endure long." *Gardeners' Monthly.*

Hydrangeas as lawn shrubs.—The *Hydrangea* planted out may not be altogether a scarce plant in gardens, but it is scarcer than it should be, for few flowering shrubs last so long in bloom or are so effective when in that condition. It may not perhaps be suitable for exposed positions in the northern counties, as it cannot be said to be quite hardy; but, seeing that it lives for many years in sheltered corners in the neighbourhood of London, it is clear that it is hardier than many imagine. Here in Somerset it has endured 26° of frost in a position fully exposed to the north-east wind, and has not been seriously injured. We have plants of it struck from cuttings fifteen years ago that are now 12 yards in circumference, and during the autumn they had hundreds of heads of flowers upon them, and many of the heads so large that they would not go i to a gallon measure. I should add, however, that our soil seems to suit them better than some others may do. It is a sandy loam and moderately deep, resting on the red sandstone. The plants to which I allude are standing on grass, and have plenty of room on all sides in which to develop themselves. They commence to flower in August, and invariably last in good condition until the end of November. In one part of the pleasure grounds the flowers come quite blue, while the others retain their normal pink colour. Our plants give us no trouble in the way of cultivation. The old flower heads are cut off as soon as they fade, which is all the attention they require. I may add that the flower-heads are larger in a moderately damp summer

than in a dry one, like the past. This shows that the roots like a fair amount of moisture while in active growth, and those who may wish to have specimens of Hydrangeas in the best condition may make a note of this fact.—J. C. C., Taunton.

Cutting down overgrown shrubs.—For the most part these are best attended to in March, especially all tender or partially tender ones, such as Laurels, Laurustinus, and Bays. But very hardy kinds, such as common Yew, Box, and Rhododendrons, may be cut back now without injury, though I should not advise the work to be done in frosty weather. I do not know any plant or tree which submits to having its branches cut at any and all seasons so well as the common Yew. Some years ago, in making some alterations, it was necessary to make a new path where the overhanging branches of some Yew trees were much in the way. The branches were sawn off—in fact, some of them were cut quite back to the stump—and the next season the old stumps were covered with young growth; and now, unless one looks closely into them one cannot see that any amputations have ever taken place, so dense is the growth. I mention this to show that old straggling trees and shrubs may be cut back without any fear of their not breaking and making handsomer trees than they were before. Lilacs and all deciduous trees and shrubs that may need such attention may be cut back now. When such work is delayed till spring, often in the pressure of other matters, it is imperfectly done or still further delayed.—E. HOBDAV.

NOTES OF THE WEEK.

National Chrysanthemum Society.—This Society proposes to hold a show of late Chrysanthemums at the Westminster Aquarium next Wednesday. Prizes are offered for incurred Japanese varieties and collections of others. It will be interesting to see which are the best late sorts.

Narcissus pallidus præcox.—I herewith send you my first bloom of *N. pallidus præcox*. I have a great promise of bloom this spring; a week hence I shall have hosts of it. The Irish *N. spurius* is neck and neck with *N. pallidus præcox*. The bloom sent is from the open air. Snowdrops and Primroses are well in flower here.—W. B. HARTLAND, Cork.

Aspidia epidendroides.—This is not a very showy Orchid, but desirable on account of the flowers being sweetly scented. It differs somewhat from *A. lunata*, but the flowers are about the same size as those of that species. The sepals are whitish and the lip white and purplish-violet. It is a Brazilian plant, and is now in bloom in Mr. Measures' garden at Cambridge Lodge, Camberwell.

Veronica Ville d'Hyères.—I send you a flowering spray of the only crimson *Veronica Ville d'Hyères* that has stood 9° of frost without injury to the flowers. Other varieties have ceased to flower in consequence, but this, though paler in colour, is still useful to mix with other hardy flowers, such as Christmas Roses. *Crocus Imperati* to-day has burst its first flower-sheath, and with another day's sunshine will be open—the first flower of the new year.—EDWARD H. WOODALL, Scarborough.

Jasminum gracillimum.—I send you some sprays of *Jasminum gracillimum* in the endeavour to show you, however faintly, the beauty of this winter-flowering stove Jessamine. If only the flowers did not drop so readily, it would be the "ne plus ultra" of stove climbers, for it is hardly ever a month without bloom, and all winter is one mass of white.—E. H. WOODALL.

Phalænopsis grandiflora.—Flowers of a wonderfully fine variety of this lovely Orchid have been sent to us by Mr. Eden from Lord Stradbroke's garden at Henham Hall. They measure just 4 inches across, and the lateral sepals are no less than 1½ inches broad; they therefore meet the outer sepals and form a bloom of unusual compactness. There is a great difference in the size of the blooms in the various forms of this Orchid, but we have never seen a finer variety than this is. Mr. Eden also sends a curious flower of *Encharis arazoniæ*, two blooms being apparently fused into one.

Odontoglossum adpersum.—There is a quiet beauty about this new species that renders it extremely pleasing, especially when seen in company with its brighter-hued relative, *O. Rossi*; then the soft canary colour of its side petals and the snowy whiteness of its heart-shaped labellum are made more conspicuous. There seems to be no doubt that *O. adpersum* is a cross between *O. Rossi majus* and *O. maculatum*; it partakes of the colour of one and the growth of the other. A fine specimen of it, together with some fine forms of *O. Rossi majus*, have been sent to us by Mr. Measures, of Camberwell. He also sends a bloom of the true *O. maculatum* *Donnianum*, which may be at once recognised from the type by its larger flowers, and particularly by the lateral sepals, which are much broader than usual. The lip is much paler, being but sparsely spotted with chocolate on a canary-yellow ground.

Tecophylæa cyanocrocus Leichtlini.—On the 1st of January this exquisite little flower with such an unwieldy name opened its first blooms. Three are now fully expanded; the darkest is of quite as dark and glowing a blue as *Gentiana verna*, only a great deal more of it. The palest of the three is almost white in the centre, and shades through sky blue into a bright full blue at the edge; and the third is midway between them, a full blue in the centre shading into deep *Gentian* blue at the edge. There are other blooms to follow. There is not a sign or symptom of mauve or red in the colour, but a true pure blue. The bulbs were planted in rich, but gritty soil, and have been kept in a cold frame until the frost came, when they were moved into an unheated greenhouse and kept rather dry. A pot of it containing eight or ten blooms stood between two pots of *Triteleia uniflora* would be a sight worth going far to see.—W. WILKS, Shirley Vicarage.

Cyclamen ibericum, known in gardens as *C. vernum* and *C. Coum* var. *vernum*, is flowering before its usual time this year, but it is none the less welcome, as it is almost the only spring flower that we have in the garden at present, except Christmas Roses. It is nearly allied to *C. Coum*, from which it is readily distinguished by its small oval-orbicular leaves being distinctly marbled with white, and also by its bright red flowers having a purple blotch at the base of each petal. It is a little gem as seen at present, with its charming flowers peeping through the foliage as if afraid of being seen. This seems to have been the plant taken in hand and hybridised by the late Mr. Atkins, of Painswick, the result of which we see in the many fine varieties raised and distributed by him, Atkins especially being particularly handsome. This last has large pure white flowers, with a bright purple blotch or spot at the base. None of the spring *Cyclamens* are at all difficult to manage. We grow them in a partly shady, well-sheltered spot, and, with the exception of an autumn top-dressing, they are never disturbed.

Crassula lactea.—Flowering in mid-winter in a warm greenhouse after having been grown in an airy unshaded house all summer, this comparatively unknown plant proves itself useful, and is worth growing largely, not only for the decoration of the conservatory, but also to supply cut flowers. It forms a compact tuft of about a score branches, all under 6 inches in height, and clothed with closely arranged, fleshy, boat-shaped leaves, 1½ inches long by three-quarters of an inch wide. Each branch bears in winter an erect branching panicle of snow-white flowers, like little stars, placed thickly together, so as to present a pyramidal bunch 4 inches or 6 inches high and about 3 inches wide. The purity of the flowers, their lasting qualities, and their graceful arrangement on the stalks are such as should render them of great value for Christmas decorations, and we feel certain that very few gardeners would pass as unworthy attention the handsome little specimen of this plant now to be seen in flower in the succulent house at Kew. It will be seen from the description of this species that it differs widely from *C. jasminæ*, another pure white-flowered kind, and from such well-known useful species as *C. coccinea*, *C. falcata*, &c. The genus is a large and very variable one, a fine collection of representative kinds, many of them exceedingly curious, being cultivated at Kew. Perhaps

the two most remarkable kinds there are *C. n. multiplex* and *C. pyramidalis*.

Strobilanthes coloratus.—This is a new addition to garden Acanthads, and one of the most graceful of the cultivated kinds of *Strobilanthes*. It forms a little herbaceous shrub about 1½ feet high, copiously branched, the branches nearly equal in length and clothed with large ovate opposite leaves, some of them 6 inches long by 4 inches wide; the margins toothed, the upper surface shining olive-green and smooth, the under side a deep claret colour. The flowers are in terminal racemes, the stalks of which are graceful and hair-like, and bear numerous flowers of a pale violet colour. In form these flowers are funnel-shaped, 1½ inches long, three-quarters of an inch wide at the mouth, and the inside beautifully barred with red. The species in gardens nearest to this is *S. Sabini-anus*, which, however, is not nearly so graceful in habit nor so fine in foliage. Both these species are now in flower at Kew, the former being an introduction from Assam. The genus is common in India, where many of the species are plentiful enough to be called weeds. Some of the kinds have the strange habit of growing into large shrubs before flowering, after which they die. At Kew there are several of these now grown into handsome little bushes, and their flowering is looked forward to with much interest. Is it generally known that *S. isophylla* is one of the most accommodating of stove plants, forming a globe-shaped Willow-like bush, and flowering freely every year under the most ordinary treatment?

Heliotrope White Lady.—This I take to be the best light-coloured *Heliotrope* in cultivation, especially for winter blooming, for in a warm house at this season it flowers most profusely, and its blossoms are very fragrant. The individual heads of bloom are large, but not white, as the name would lead one to suppose; on the contrary, they are rather a kind of pale mauve. For supplying cut flowers *Heliotropes* are by no means so much grown as they should be. If planted out they yield a large supply of blooms throughout the year, and most people are fond of their perfume. Aphides are about the only insects that trouble them, and they are easily kept down by occasional fumigation. At the same time it must be borne in mind that the young foliage of the *Heliotrope* is easily scorched, for which reason fumigation must not be too severe. A good companion to the *Heliotrope* just named is *President Garfield*, a kind with dark-coloured flowers, these two being all that are needed for supplying cut bloom.—ALPHA.

QUESTIONS.

5447.—**The Buckland Yew.** Can you or any of your readers inform me if the celebrated Buckland Yew, transplanted some five or six years ago by Mr. Barron, has taken kindly to its new home? TAXUS.

5448.—**Cool-house Vines.**—I am erecting a viney about 30 feet long. I do not propose using heat, as it is in a very warm position. Will some Vine grower kindly tell me the best sorts of Vines to plant, and how many I should put in?—R. T. S.

LATE NOTES.

Fressias.—In the paragraph about these (p. 11) there is a clerical error which had better be corrected. It is the substitution of "wasting" for "reasting." I am afraid my writing was in fault.—A. RAWSON.

Tropæolum Deckerianum and T. azureum.—If "A. D." will read my note on the latter in connection with the article to which it referred in a recent issue of THE GARDEN, he will find that I did not refer to *T. Deckerianum*, but to a plant not mentioned by name which was described as a blue-flowered *Tropæolum*, and referred to incidentally with other species. The two kinds are mutually very distinct.—R. IRWIN LYNCH.

Names of plants. *R. E.*—*Ruscus hypophyllus*.—*W. S.* 1, *Adiantum cuneatum*; 2, *Salicaria Martensii*; 3, *Adiantum macrophyllum*; 4, *Adiantum hispidulum*.—*G. C.* *Corydalis*, *Zygopetalum Mackenzii*.—*R. G. G. R.*—*Abies nigra* (Black Spruce). The peculiar growth sent seems to be that of an Elm root, the growth of which has been arrested, the result being the production of numbers of what are called adventitious buds. It is not an uncommon occurrence. Names of Grasses next week.—*W. S.* 1, *Retusa spica plumosa*; 2, *Phacelis denizens*; 3, *Retusa spica plumosa*; 4, *Phacelis denizens*.—*H. T.* *Tabernaemontana*.

Name of fruit.—*W. S.*—Apparently *Vaccinium* of Winkfield.

WOODS & FORESTS.

NOTES.

THE TIMBER TRADE.—Oak poles from 1 foot, cubic contents, up to 10 feet, delivered in Manchester, from near Mold, in Wales, at 26s. per ton of 40 feet, does not indicate great profits for the merchant, and hardly anything at all for the grower; but that was the figure quoted last week to one of the metal works in Manchester. Larch is in rather better demand, and those growers who own plantations near railways have reason to congratulate themselves; but out-of-the-way stocks cannot be disposed of at profitable prices. Foreign supplies and low freights have operated disastrously on the home trade, and those who contemplate sales will be glad to learn that the stores of Fir and Oak at the German ports are only moderate this year. Even the foreigners have begun to find prices too low in this country, and, according to the *Timber Trades Report*, much of the timber intended for sale has not left the forests yet, nor won't do, unless the revival comes, which is expected. It would almost appear, however, that, short of giving it away for nothing, owners of some kinds of timber in England cannot compete against the foreign supply, except in special cases. There is a tendency in the colliery districts to take less and less English timber. Some collieries we know of use none, although the landlord from whom the coal-pits are let has timber growing above the coal close to the pits that he would be glad to dispose of at a price that would just leave a margin of profit if he could. Ash, as a timber merchant observed to us the other day, is the one thing that can be readily sold at the present time at fair prices, and Sycamore is good to get rid of also.

TIMBER GROWTH—TALL & SHORT TREES.—If I understand the remarks of "Forester" correctly (p. 666) on the subject of leaf area in its relation to the production of timber in a tree, I would say that his physiology is bad. There can be no more doubt about the amount of deposition of tissue—i.e., woody fibre or timber—depending upon the area of the leafage or quantity of branches exposed to the light and air than there can be about the correctness of any well-ascertained scientific truth. There is, indeed, nothing better proved in vegetable physiology than the fact that the thickness of the trunk and branches is always exactly in proportion to the leafage, and the secret the forester has to learn is the best way to utilise that force for the production of good timber. If actual bulk of contents in timber was the only object, irrespective of quality and shape, then the best way to grow a timber tree would be to plant it in the open field, where it had room to spread on all sides, as large-topped park trees invariably produce the largest bulk of timber, thick and small; but to have the tree straight and shapely, with the bulk of the timber in its trunk, the top must be sacrificed to a certain extent, and the loss of timber caused thereby found by growing more trees to the space. For example, perhaps twenty straight and tall Beeches or Ashes might be grown on the space one large-topped tree would occupy.

TREE PLANTING OF THE PAST.—It is probable, as "T. B." states, that I am "unable to grasp this matter;" but I am under no misapprehension as regards his words which referred to such "grand old trees" as those at Hatfield, where the grand trees are Oaks that, as history tells us, were ancient in Queen Elizabeth's time, and which afford no indication of the character of tree planting in the past whatever, while in places where straight lines and other formal

methods of planting do indicate the hand of man, the evidence simply goes to show a beginning of the art. It appears that I "confused" "T. B.'s" remarks on tree planting with "forestry," and the only reply I have to make is that "T. B." in his first paper left the reader in doubt as to whether his "planting in the past" referred to utility, or ornament, or both; but the general impression he conveyed was that he deemed the planters of the ancient Oaks at Hatfield and elsewhere a thousand years ago particularly wise foresters, and that he grouped these ancients and planters of London's period all under one head. He says his words obviously meant trees "that show in a way that cannot be mistaken that they have been planted." Granted, will he then specify the remarkable examples of skill and taste which he leaves us to infer he saw at Hatfield that belonged to the distant past? As I indicated before, no evidence, either written or practical, exists showing that tree planting was understood in this country in the distant past. When planting did begin, there appears to have been a rush at it among landowners, but, judging from the evidence seen everywhere, it looks as if it had often been done at random.

YORKSHIREMAN.

Mould in timber.—In cutting up trees in damp warm weather, small black inky spots make their appearance here and there on the deals after a shower of rain or even a close heavy mist, and as these spots increase in size with great rapidity if means are not taken to dry the wood and expel the sap, the timber will soon become unfit for purposes where strength, durability, and efficiency are required. This shows the necessity of felling timber during winter, and Pine timber that is not cut up at once should have the bark removed in order to lessen the risk of insects and fungi finding a lodgment in it. In order to season timber properly, after being cut up, and lessen pernicious fungus attacks it should be kept dry, so that it is necessary to have a shed for that purpose in connection with sawmills. Such a shed should be open at the sides to admit a free current of air to dry the wood, and roofed over the top to keep it dry from above. By this means the drying process will not only be facilitated, but the wood has a better colour, and free of spot or blemish of any kind; consequently it is increased in value. This is a point in forestry and wood management which, I think, has been by far too much neglected or overlooked. As a general rule, timber when cut up is placed outside to dry and season without any covering whatever, and being occasionally wet and dry alternately, it is thus a suitable place for fungi spores to lodge and lay the foundation for decay.—J. B. W.

Measuring rate of tree growth.—A variety of methods have from time to time been devised for testing the rate of growth of trees in plantations. Some advocate the setting aside a plot in some part of the area, the trees being marked and numbered, so that the measurements may be periodically taken at exactly the same height. This, so far as it goes, is very good, but to be of any real value I take it that the selection of a plot of land in any part of the plantation should not be adopted. In the same enclosure the soil, situation, and consequently rate of growth, will so vary, that fixing upon any particular spot, however well chosen, will more or less vitiate the result. Whether measurements taken in this way, be they arranged as carefully as is possible, are ever entirely satisfactory, is somewhat doubtful; but to gain figures giving the nearest approach to truth it would be infinitely more reasonable to select and mark a few trees here and there and under as diverse conditions as can be noted. It must not, however, be overlooked that even when data is collected in this way it must not be slavishly followed, as if the differences appear to be abnormal, the causes must be carefully sought after. For fixing the exact spot at which the annual or biennial measurements have to be taken there is probably nothing better than paint; but the plan of daubing rings of white paint round trees, especially where they are

likely to take the eye, is an excessively ugly one, and one for which there is no necessity. If a colour was used very much nearer that of the bark of the tree, but sufficiently distinct to be seen when it was closely approached, every purpose would be answered, and it may either be made a narrow ring, or a series of marks with intervals between. The way in which the trees are numbered will in some measure depend upon their character, or rather that of their outer bark. Where this is smooth, small letters or figures in paint will answer the purpose, always, of course, on the side most hidden from general view; but when the bark is rough—as, for instance, with the Larch—this plan will not answer well without removing the bark, and here, on account of its resinous nature, a difficulty presents itself to marking on the wood or the inner bark. In the case of trees like the Elm, I have known where a portion of the bark has been removed by chopping, and pencil marks which have been made on the bare space have remained legible for years. With resinous trees this would not follow, and some other means of recognition must be adopted. For this purpose it has been advised that a superficial incision something of the nature of a dovetail should be made in the tree, and a small board or label inserted. This is not a bad arrangement, but it is questionable whether a small plug of Oak or some other hard wood would not fix the label equally well. In either case the amount of labour would be much the same.—D. J. Y.

MARKING TIMBER FOR SALE.

THE business of selecting and marking timber when a fall has been determined on is a responsible one, as not only has the question of which trees are ready for the axe, or will make the most in the market, to be considered, but in many instances their value in the landscape. For these reasons the selection of timber for felling should not be left to unskilled men, but, when circumstances admit, should be performed by the owner himself, or a competent deputy who well understands his work, and also the owner's general views. The way in which it is set about will depend upon the way in which it is intended to place the timber in the market. If it has to be felled by the proprietor's own men and subsequently arranged for sale, little care need be taken as to numbers of trees or their dimensions, and the work of selection can be carried on as opportunity offers, so long as a sufficient number is kept marked in front of the workmen. On property which has an ornamental value this plan of marking and felling is perhaps preferable to any other, as, as the work proceeds, should it be desirable, the owner has the option of modifying some of his former decisions as to any particular trees. That this revision of plan will be necessary is more than probable, as the effect of the removal of certain trees can never be fully seen until the work has actually been accomplished. The only drawback to this method is the increased work it throws upon the proprietor, as when it is decided to place the wood upon the market as it stands, all future work, of course, falls on the purchaser.

In respect to marking for sale in this way, in most cases it will be found easier to make the actual selection and marking and the valuation two distinct operations. The first of these will consist in blazing the respective trees, and in taking account of their numbers and situations, and the second in as nearly as may be estimating their contents and value.

When this has been satisfactorily done, either of the three usual modes of selling may be adopted. If by private treaty, a schedule of the numbers, kinds, and situations of the trees may be handed to the merchant, and an offer be obtained from him, or with the schedule the price which it is desired to realise may be given, and if there is any diversity of views be made the basis of subsequent negotiation. If tender

be deemed the better method, the schedule, which, with the exception of naming the price, as in the last case, will be the same, will be forwarded to as many merchants as may be likely to come forward in competition for it. In cases of auction, the arrangement of lots and the valuation often falls upon the auctioneer, who, however, of course, increases his charge proportionately. With regard to the way in which the bulk of timber should be divided, much will depend upon the local trade and requirements, but, as a general rule, it will be found that by tender, as by private treaty, it will be well to divide the fall of trees into but few lots; whilst in selling by auction, by dividing into a relatively large number of lots, the chances are that a better price will be obtained.

THINNING AND PRUNING.

"FORESTER" gives an interesting account of an experiment by one of the Dukes of Portland, who planted nine young Oak trees of four years' growth on the site of an old sawpit in the centre of a wood. Three were stripped of their branches, three were enclosed, and three were left untouched. The result was that the enclosed trees greatly outstripped the others, and at the time the experiment was made public these trees were nearly double the size of the others. Now, I think it a pity that we are not told whether or not these nine trees were all planted under the same conditions as regards soil. If the enclosed trees were planted on the loose friable soil where the sawpit was filled up, and the others planted upon ordinary soil that had only been broken up by making a hole for the plants, this difference in the soil would account for the difference in the size of the trees, independent of the shelter afforded by the enclosures; and, further, trees planted in the centre of an old wood did not require shelter, from which circumstance I am strongly of opinion that soil had more to do with the rapid growth of the trees than the enclosures. Had the trees been planted upon an exposed hillside, where the conditions as regards soil and exposure were equal, it is natural to suppose that the shelter afforded by the enclosures would have been beneficial in promoting the growth of the trees enclosed. Trees that are cramped for want of space are always more or less drawn up, but by the time they reach maturity are less in cubical contents than such as have been allowed space for their proper development, but we are not told about the cubic contents here, as it is only height that is referred to.

With regard to pruning three of the trees in question, as the writer justly remarks, had they been older and the branches of a larger size, the same results could not by any means have been reckoned upon. As regards the root room also, the writer's views are sound and practical; when he tells us that "before this can be decided it is essential to know what really is sufficient root room, and this is a thing which cannot by any means be arbitrarily settled, as the class of soil, its constituents, and the trees most suited to it will have to be determined. In this lies the whole gist of what and how to plant." The writer further says he should like to see it clearly explained how trees grow faster in ravines than elsewhere, and in this his views exactly coincide with my own, namely, that as a general rule straths and ravines have a deeper and richer texture of soil than ground in the vicinity at a higher elevation, and the reason of this is simple and rational, as water and frost promote the disintegration of rocks on the flanks and summits of hills, when the abraded particles are then

carried down by rain and mountain streams from a higher to a lower level, and in its descent gets gradually mixed with organic matter, so that the soil in straths has been improved by mechanical as well as chemical action.

The shelter afforded by hills has likewise a beneficial effect in promoting tree growth in ravines, fine examples of which may be seen in the natural forest, where the trees gradually get less in size till they reach the summit, when they then assume the size and shape of mere bushes. "Forester's" remarks with regard to thinning out trees planted for nurseries are well worthy of being read and put in practice.

J. B. WEBSTER.

THE CORSICAN PINE.

DURING the last ten or fifteen years the good qualities of *Pinus Laricio* have become better known among foresters than hitherto, and it has been planted out in great numbers; indeed lately, nurserymen have hardly been able to keep up a stock of it equal to the demand. The consequence is that it is difficult to procure, at a moderate price, good sized plants of it well rooted and fit to plant out. Possibly another reason why it keeps scarce in the trade is it being a difficult tree to transplant, and unless great care and attention be given to it when moved in the nursery lines large quantities of it often die. It should be moved in the nursery every year in order to check its rapid top-growth and induce the formation of fibrous roots. The system I adopt here is to buy from 5000 to 10,000 two-year bedded seedlings every year, and grow them on in our nursery in a light kindly soil until they are from 2½ feet to 3 feet high. They are shifted in the nursery lines every year until they are finally planted out in the woods. By following this plan I have always a good stock with excellent roots and moderate top-growth, and the result is but few deaths. There is this advantage, too: they are lifted one day and carefully heeled in and planted out the next; their roots are not allowed to be exposed long enough to the air to become dry. From much experience with *Pinus Laricio*, I have found it quite necessary, in order to ensure success, to use these precautionary measures, or I am quite sure disappointment and loss would be the result.

We have planted out many thousands during the last six or eight years with the greatest success; they are mostly planted in large masses on exposed situations, and where the soil is not deemed good enough for the profitable growth of hardwoods. In such positions this Pine flourishes, and I have no doubt that it will prove successful in a pecuniary point of view.

OLD FORESTER.

Preserving fences.—After all that has been advanced in favour of other compounds, it is very doubtful for ordinary country work whether there is anything handier, cheaper, or more effective than common coal tar for coating fences and other wood it is desired to protect from the effects of the weather. Much, however, will depend on the way in which this is used. To cover moist wood with this substance, whether it proceeds from its natural moisture or atmospheric dampness, is very bad policy. To ensure anything like success in the matter of durability the wood to be operated upon must be as dry as possible. This, of course, is equally true of paint, but it is of far we are now speaking. When the woodwork to be coated is as dry as can be and the tar applied hot, there need be little fear that it will fail in its purpose. The chief difficulty lies in the matter of posts at the surface of the soil. Many plans have been tried to overcome the decay which almost invariably sets in here first. Even here tar is valuable; but, according to experiments which have been made to test the best

method of applying it, it appears that the most satisfactory results have been obtained when the wood is charred. As to the way in which this charring should be effected, there seems to be scope for ingenuity. One gentleman has tried the plan of first covering the extremities of the posts, which are set in the soil, and then burning the tar off again. This, it is alleged, makes a surface which will resist decay. If this is so, the operation is simple and is worth trying. The charring should be carried to some distance above the ground level, and after the fence is erected the whole of it above ground can be coated to make the appearance uniform. The plan of first heating the ends of the posts and then dipping them in boiling tar is said to answer well.—Y.

Recording age of plantations.—This is one of the most important things in forest planting, yet it is generally either neglected or imperfectly done. Information which could be relied upon as to the date of planting of the mass of plantations in this country would now be especially valuable, yet very little such exists. When merely recorded in books, there is no wonder that when wanted the particulars are in most cases missing, as it is not often that books of this class pass from generation to generation intact. What is wanted is some simple, yet durable, record in the enclosure itself. This has been obtained at Earl Spencer's place, near Northampton, by placing stones, with the date of planting upon them, in the various plantations. This, it appears, has been the practice for the last century or two, and a more simple, yet effective, plan it would be hard to find.—J.

HOME GROWN V. FOREIGN TIMBER.

THE fact that builders and others persist in using foreign timber in preference to that of home growth for building and other purposes shows how difficult it is to fight against prejudice or established custom. In many cases where the proprietor's woods are well stocked with excellent timber of various kinds which would be highly suitable for building, his carpenter's yard is stocked with foreign timber.

I noticed an excellent article recently on this subject where the writer gives a brief, but rational, summary of the case as it stands at present, and also throws out some common-sense hints for the emancipation of the present system, all of which may be read with interest by estate improvers and such as take an interest in rural economy generally.

I have cut up and prepared timber of home growth (Scotch Fir) for house building—window frames, doors, roofing, flooring, lathing, &c., and I can see no reason why such timber should not be used, more especially as it can in many cases be had on the spot, or within a short distance where it is wanted, and in using it there can be no doubt the proprietor is consulting his own interest in the widest sense of the term, as he is creating a market for his own stuff, where it could be spared, for the improvement of his property and plantations, and that, too, without incurring any expense in sending such stuff to a distant market.

In one case the carpentry or joinery work was done by contract, and it was stipulated in the agreement that wood was to be cut up and supplied at the following prices, namely: Scantling and planking of different sizes, at 10d. per cubic foot; 1-inch boarding, at 8s. 4d. per 100 superficial feet; three-quarter-inch do., at 6s. 3d. per do.; half-inch do., at 5s. 6d. per do.; and lathing, at 2s. 6d. per do. In cases where building is contemplated, and where home-grown timber is to be used, it is a matter of much importance for the stability of the work to have the wood thoroughly seasoned, and in order to meet this requirement, it had better be cut up and perfectly dried before the building is commenced, in order to render it efficient in this respect, more

especially the timber that is to be used for making doors, windows, flooring, &c. Lathing, however, may be cut up and used immediately without seasoning, and may even be prepared from young trees that have not matured their timber, as it is found that the lime plaster keeps the wood safe and sound for an indefinite period of time.

A great deal has been said and written against the quality of Fir timber of home growth as compared to that of foreign growth, and this arises in a great measure from the fact that the timber of home growth has in many cases been used before the latter was thoroughly matured; hence, one of the principal prejudices against its use; but in all cases where the trees used have been properly matured and the wood thoroughly seasoned, I have found the merits of the Scotch Fir to be of a high order indeed, and capable of being used equally as well as the best foreign Pine in all cases where strength and durability is requisite. Such being the case, the former arguments are mere groundless assumptions, and cannot be supported in any case where the timber used has been equally well matured and seasoned.

J. B. WEBSTER.

THE USE OF HOME-GROWN TIMBER.

THE abuse of home-grown timber in its application to farm buildings having led the Enclosure Commissioners of England and Wales to state in their memorandum of instructions to persons using the powers of the Improvement Acts, that "in all cases where Fir timber is used, that obtained from Memel or Norway, and battens from Dram, St. Petersburg, or other Norway or Baltic ports, is to be preferred," the importance of their recent decision with respect to home-grown timber, after it has been prepared by being steeped in a solution of lime, cannot be over-rated; inasmuch as, not only may the cost of farm buildings be reduced by its judicious employment, but the growth of suitable timber on soils which might otherwise remain unproductive will be encouraged. Thus, two branches of estate improvement greatly affecting the interests of landowners may be advantageously promoted.

In the month of March, 1867 (says a writer in the Royal Agricultural Society's Journal), Mr. Burton Borough, of Chetwynd Park, near Newport, Salop, applied to the General Land Drainage and Improvement Company for the use of the powers of their Act in the erection of certain farm buildings and carrying out certain other improvements, at the same time expressing his intention of using the Fir timber grown upon his estate where it could be profitably applied, and desiring an investigation into the system he was then adopting of steeping the timber he used, after it had been sawn by steam machinery to the proper scantlings, in a solution of lime. An investigation of the process satisfied my father, acting on behalf of the company, that the object was not only desirable in this particular instance, but that it might be found advantageous in the majority of cases where suitable timber was growing on estates. For many years the process of soaking Fir timber of mature growth in a solution of lime had been adopted on the Chetwynd estate, and specimens of timbers used in the roofs of buildings upwards of a quarter of a century ago, exhibiting an absence of all decay from fungoid action or animal destruction, having been laid before the Enclosure Commissioners, they intimated their disposition to accept with equal-readiness home-grown timber so prepared, or foreign timber as ordinarily used, if the trees selected for the purpose appeared suitable and of sufficient age to their

inspector, Mr. C. Selby Bigge. We have long been in want of a cheap and generally applicable mode of rendering timber more durable, either by expelling the sap and filling up the pores of the wood with substances of a less changeable and destructive nature, or by so neutralising the effect of the sap and altering its character as to produce the same result. Sap, it is well known, is the first and most powerful cause of decay in timber, since the fermentation of its albuminous compounds is the cause of the production of cryptogamic or fungoid vegetation and the deposit of the eggs of zylophagous insects. Sap, also, is the primary cause of dry rot, for it is the putrefactive fermentation of sap which affects in the first instance the woody fibre, and, inducing decomposition, causes that entire destruction of the whole substance of the timber which too often brings about the worst results.

Many methods of preventing these evils or arresting the progress of decay have been proposed. Some of them have for their object the destruction or evaporation of the sap, and the consequent closing up or hardening of the woody fibre. Others are designed to attain the same result by the destruction of the albuminous constituents of the sap, or by forming insoluble precipitates with metallic salts. To attain the first of these objects, viz., the destruction or evaporation of the sap, heat obviously is the readiest agent, and from the earliest ages it has been a common practice to char the ends of timbers intended to be exposed to the action of damp or alternation of temperature. Several improvements upon this expedient have been proposed. Amongst others, I may mention the process of smoking timber in a drying-stove, recommended by a French authority named Guilbert. The processes, too, of preventing decay by the total expulsion of the sap, and by the neutralisation of its properties, have had many exponents. Amongst others, I may especially refer to Mr. Kyan, who may be regarded as the pioneer of the theory of injection, and whose method of injecting chloride of mercury is distinguished by his name. Burnett's system of injecting chloride of zinc, Lege and Pironette's system of injecting sulphate of copper, Mr. Payne's preparation by injecting sulphate of iron and muriate of lime, and Mr. Bethell's process of creosoting are all methods of similar character, though employing different agents, the inventors of which follow the same principle as that adopted by Mr. Kyan. Mr. Clift, in describing Bethell's creosoting process, uses these words, which clearly represent the effect intended and produced. He says: "When injected into a piece of wood the creosote coagulates the albumen, and thus prevents putrefactive decomposition, and the bituminous oils entering the whole of the capillary tubes encase the woody fibre as with a shield, and close up the whole of the pores so as to entirely exclude both water and air. These bituminous oils, being insoluble in water and unaffected by air, render the process universally applicable." I quote these words because they fitly describe the effect aimed at by the process of injection, viz., the preservation of wood when exposed to the influence of the weather.

The immersion of wood in a solution of lime renders it, by the cheap and simple process of absorption, equally durable when used above ground and under shelter, and will be found worth equal attention. That timber, when immersed for a short time in a solution of lime, undergoes much the same chemical changes as when subjected to the action of metallic agents or to the process of creosoting.

Lime, like corrosive sublimate, precipitates albuminous matters, and renders them inactive.

Hence it is largely employed by sugar-boilers for the purpose of removing such matters from the juice of sugar-cane. For the same reason it appears to me well adapted to neutralise and render inactive the soluble albuminous matters in timber, and thereby to protect it against decay. I may mention further that wood immersed for some days in lime-water takes up lime in the shape of a perfect solution, as caustic lime. On subsequent exposure of the wood to the air, the excess of lime which remains in the wood after the precipitation of the albuminous compounds gradually absorbs carbonic acid, and the woody fibre throughout the whole mass of the wood becomes coated with insoluble carbonate of lime. To some extent the interstices of the timber become filled with carbonate of lime, and the wood to some extent is mineralised, which strikes me as an additional recommendation of the lime process of protecting timber against decay. Such is the chemical view of the question.

Pits or ponds may be constructed, varying in size and position with the locality in which they are made and the quantity of timber to be soaked. The simpler their character the more profitable their use. A common pond, from which cattle can be excluded, is perhaps the best soaking tank that can be adopted. All that is essential is to have depth and size sufficient to steep and hold timber of all characters and dimensions that may be required upon the estate, and it is unnecessary to say that a little outlay in the first instance to make the tank sufficiently commodious may be a means of saving in the end. Having secured a good supply of water in the tank, the next point is to immerse in it a sufficient quantity of lime to satisfy the water, that is, to feed it with all it is capable of absorbing and retaining—thus, in fact, impregnating the water completely with lime. To render this intelligible, we will assume that it is intended to make it a steeping tank or pond 50 feet long and 20 feet wide; this, if filled with water 6 feet deep, will contain 37,500 gallons. As it requires only 88 grains of chalk or stone lime to impregnate 1 gallon of water, 46 lbs. of lime will satisfy this quantity of water if equally distributed through its bulk; but as it is better to make sure of uniform effect, such a quantity should be used as will cover the bottom of the pond. It will not require many bushels to do this, and the mixture should be renewed at discretion as the pond receives fresh water.

It is needless to observe that it is not advisable to use young trees, even though they may have grown rapidly and attained a size beyond their age. Forty years would probably be found to be the earliest period of growth at which Fir timber would be serviceable for use. Mr. Selby in his book of "British Forest Trees," p. 408, thus speaks of wood of the Coniferæ tribe: "It has also been used for roofing and other building purposes with success, and found durable after having undergone the process of steeping in lime-water; this mode of protecting the fibre of Scotch Fir sap-wood was first practised by Sir J. Menteth, Bart., of Closeburn, Dumfriesshire, some fifty years ago, and he finds that sap-wood which unprotected would not have lasted thirty years, after having been subjected to this treatment, shows not the slightest symptoms of decay after having been put up more than forty years. The solution is made by dissolving a small quantity of quicklime in the water in which the wood is steeped, and in which it ought to remain for ten days or a fortnight. Kyanising, or the solution of corrosive sublimate, would doubtless be equally, if not more, effective than the lime, but more costly in its application."

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

SELF-SUPPORTING GARDENS.

Owing to the prevailing depression, owners of gardens in many instances find it necessary to curtail expenses, at least until affairs begin to wear a brighter aspect, and therefore all of us must study our employers' interests in this respect, and, under the circumstances, do the best we can. After all, I think it will be found that many gardens are really self-supporting, or, at any rate, not profitless luxuries, that being easily proved by keeping a strict account of all that is produced in the shape of flowers, fruits, and vegetables for one year. Then, if due allowance is made for the amount of work done in the pleasure grounds and various other duties which fall to the lot of gardeners to a much greater extent than many are aware of, it will perhaps be found that the balance will be in favour of the garden. Where, however, several men from large places, and one or more from smaller ones, are discharged without also a proportionate reduction in the requirements, notably in the form of a complete change in the present style of planting the flower garden, then I say that great hardships will be inflicted on the gardener, and unless he is allowed to charge the proper value for every plant put out, he cannot possibly make the garden self-supporting. Very few employers are aware of the amount of work attending the furnishing of large flower gardens, or it is doubtful if some at least would think the "flame worth the candle." During the whole of the winter and spring months the greater portion of the room in various houses, pits, and frames is fully occupied with plants that are to fill the flower garden beds for about four months, and which many employers not unfrequently do not see till they are past their best. At least half the flower beds in the country might safely be turfed over, or else filled with plants that do not require much attention preparatory to planting time. Then, instead of so much wasted time and space being devoted to, comparatively speaking, worthless bedding plants, proper attention could be paid to the cultivation of fruits, flowers, and vegetables, many of which, if need be, would usually find ready markets.

THE BEST MARKETS.—Having had some rather unexpected and undesired experience in making the garden self-supporting, I am in a position to point out what private gardeners will find most profitable to cultivate both for home use and for sale, and my remarks ought also to meet the case of "Linchen" (p. 16), who solicits information on the subject. As a rule it is not advisable to study the requirements of the London markets, as these are well and fully supplied with nearly all kinds of fruit, flowers, and vegetables. At any rate salesmen do not care to receive such dribblets as most private growers are obliged to send, and it does not pay to send them any great distance. At times it is advisable to send up boxes of choice flowers, *i.e.*, when these are usually scarce, and those who may have a good surplus of choice fruit either very early or very late in the season will also do well to try Covent Garden. On the whole, however, the grower should rather endeavour to find markets nearer home, notably in such towns as Manchester, Liverpool, Birmingham, Nottingham, Preston, Leeds, Bristol, or even much smaller

places, and when once the connection is established and their wants ascertained, maintain as far as possible a regular and even supply.

CUT FLOWERS.—It will be found that it is not a few very choice flowers that will pay, few of these ever realising half their actual value; what is wanted are large quantities of flowers that travel and keep well and which are serviceable for sprays, button-hole and hand bouquets. Tea Roses are nearly always in demand, and as they are perpetual flowering—a point always to be considered when growing for market—they are very profitable. So, also, are perpetual Carnations, these being flowered more or less throughout the winter and spring months under glass and subsequently in the open, while beds of seedling border sorts yield very large quantities of bloom. Semi-double zonal Pelargoniums may be had in flower during the duldest quarters of the year and sell well, while Bouvardias, including the double-flowering sorts, are simply indispensable. The old double white Primula is one of the best of plants for supplying unlimited supplies of cut blooms from November till May, but the seedling semi-doubles, as well as the single sorts, are of little real service. Cinerarias, notably the double sorts and which may also be raised from seed, sell well, and so also do Cyclamen persicum, strong plants of these yielding many dozens of blooms. There is sometimes a demand for Poinsettia heads with a good length of stem and foliage. Old plants in 8-in. pots yield three or more good heads and young ones in 5-inch pots one extra fine head, and only require house room for a short period of the year. Eucharises are always acceptable, and it is hardly possible to grow too many of them, and the same may be said of the more cheaply grown Arum Lilies, the latter being in good demand for church decoration. Stephanotis sells readily early in the year and may be grown over the Eucharises, while Allamanda blooms also find favour, and are available from May till February. A few Gardenias may be grown with advantage, and white Camellias also sell well at times. Semi-double Indian Azaleas being the best travellers are preferred, but a few strong old plants of the old white, for Easter time especially, are valuable. It does not pay to buy Lilacs and other plants for forcing, but if a few plants are available these may be forced, but Lilacs are in most respects inferior to the Staphylea colchica for forcing. Spiræa japonica lifted in large batches from the open ground and forced is profitable, and so also is Lily of the Valley, but as a rule it does not pay to purchase either roots of these or Roman Hyacinths, Narcissi, or other Dutch bulbs unless they can be had exceptionally cheap. In the open ground Christmas Roses are very profitable, these requiring glass protection only when in bloom. Czar Violets in the open ground and Marie Louise and Comte de Brazza in cold frames and pits yield innumerable bunches of blooms, which always "go off" well. Roses, Stocks, Asters, Dahlias, especially white Pompons, Pinks, including Mrs. Sinkins and Mignonne, are all profitable at times, and some of the earliest flowering Chrysanthemums are useful. During some winters, including the present, Chrysanthemums of all kinds are in demand, but as a rule early and late white varieties are the most profitable. Where there is a large conservatory this should also be utilised, as it is quite possible to cut many baskets of flowers in such places without any apparent disfigurement. The best plants for walls and pillars are Camellias, Heliotropes, semi-double zonal Pelargoniums, Cytisus racemosus, Abutilon Boule de Neige, Mûrchal Niel, and other climbing Roses, white and red Lapagerias, Bougainvillea glabra, Cle-

matiss indivisa, and Plumbago capensis; while bushy plants of the first five named, either in pots or planted out, are serviceable and ornamental in the body of the structure. Large quantities of Chrysanthemums may either be flowered in pots or lifted from the open ground and planted in the conservatory borders. Fine-foliaged plants must inevitably suffer where gardens are to be self-supporting, and, much as it may grieve cultivators, it may prove the best plan to at once clear out a considerable number of them, according as the space is required for the more profitable flowering plants.

THE MOST PROFITABLE FRUITS.—It will be seen that the majority of the plants just recommended will require house room during the late autumn, winter, and early spring months, and this liberates, especially if few or no bedding plants are required, the houses for the purposes of fruit and early vegetable culture. Tomatoes a short time ago were the most profitable amongst "catch crops," and though at the present time these are much more extensively cultivated than hitherto, there is yet sufficient demand to encourage, still more to market them. Consequently, a house may well be devoted to them, or good crops may with a little contrivance be grown in the various forcing houses. Cucumbers, again, are not so profitable as they were, but a certain number may be grown with advantage, summer crops in pits frequently proving very remunerative, and the same remarks apply to Melons. Really good Peaches and Nectarines realise the best prices in London, as also do Figs, and the two former especially may safely be termed profitable, the houses in which they are grown being also available for Chrysanthemums in autumn. Grapes are frequently unsaleable, especially during August; those, therefore, who study the markets as well as their employer's table, should strive to have the earliest sorts ripe during May or June, and the late sorts, which ought to preponderate, in good condition during November, December, and later if possible. Muscat of Alexandria, if well grown, realises the best prices, but these have not paid nearly so well this winter as usual. Forced Strawberries ripe, say, early in April and onwards, the latest pickings being from plants in sunny pits and frames, planted out if possible, usually prove remunerative. Pine-apples are unprofitable now-a-days, at least that is my experience, and I hear of several growers who are clearing out their plants. The houses in which they have been grown are to be devoted in some instances to the cultivation of other choice fruits for the market. It is middle-class buyers who have to be studied principally, and they do not pay fancy prices for anything. Soft hardy fruits, or those that travel badly, should be sold near home, but selected Pears, Apples, Plums, Apricots, and Peaches usually realise good prices. Pears have been the most profitable hardy fruit during the past season, a friend of mine having got £60 for his surplus fruit.

EARLY VEGETABLES.—These frequently pay as well as anything I have grown. We force kidney Beans extensively, but I should not do so if they were not required for my employer's table, as the surplus does not fetch good prices; later crops of them, however, in pits and on sunny borders are fairly remunerative. The same remarks apply to Potatoes, and with these great quantities of Wood's Frame and French Breakfast Radishes are grown, the latter selling readily. Early Carrots and Radishes are profitable crops for frames, and so also are early Turnips. Turnips are very scarce this winter, and we shall feel safe in sowing either Early Milan or Early Munich under glass more extensively than usual. Two

or three frames of Early Paris Market Lettuce frequently give good returns, and now is the time to sow a pinch of seed. Early Peas under glass are not profitable, and I am not sure that they pay for coddling on south borders. William I. sown in the open, and closely followed by several rows of Telegraph or Telephone, yield satisfactorily, and when the produce can be carted to a neighbouring town, as in our case, they pay fairly well. Main-crop and late Peas are not profitable, but Scarlet Runners are. A good breadth of Early Nantes Horn Carrot on a south border, and Early Milan and Snowball Turnips on an east border, are paying crops, and good beds of Asparagus still more so. Cauliflowers are rather uncertain, but early Broccoli frequently sells readily, while Brussels Sprouts are always remunerative. Early Ashleaf Potatoes only should be sold from private gardens; other root crops are of uncertain value, though I ought to except Onions, as these rarely fail to be profitable. Plenty of Seakale and Rhubarb for forcing and successional cutting should be grown, and Mushrooms may be grown in the open air, sheds, and cellars with advantage. Salading, notably early and late Lettuces, Endive and Beet, the latter in small quantities, find ready markets, and Celery may safely be grown extensively. Proprietors of hotels are the best customers for surplus garden produce. W. I.

NOTES ON RECENT NUMBERS.

ORNAMENTAL VINES (p. 1).—I remember one autumn being much struck with the beauty of a Vine growing on an open wall, the foliage of which was a rival for the time being to the most brilliant Virginian Creeper in the neighbourhood. "*Vitis foliis erubescens*" it was significantly labelled, and so much at least one was able to see, but I have never found this name again either in print or in a nurseryman's garden, and I do not suppose I shall! A Vine may be a beautiful thing, even though it bears no Grapes, and we scarcely see it to its best advantage "under fruiting conditions" in a glass house in England or on the banks of the Rhine. It is strange, with all the number of beautiful climbers we have, how few are made use of for bold effects on trees, and valuable wall space is monopolised by coarse-growing things which might better be devoted to more tender subjects. "H. P." has done well to point out that, when a climber is to be planted "against" a tree, it ought really to be planted away from the stem and outside the radius of the branches. It does not seem to be generally known that there are two very distinct varieties of the common Virginian Creeper; the one turns colour all over with the first frost to a bright red, and sheds its leaves very soon afterwards, almost before the other has begun to think of changing, which it does by degrees, slowly, and bit by bit, giving a greater variety of colour, and lingering with pardonable vanity in the hopes of admiration. For an effect with a *Pinus austriaca* such as that described the former would be the variety to use; to cover a roof or bare wall where it is seen by itself, the latter.

ABIES PINSAP (p. 2) has borne cones with us for the first time, which are now rapidly falling to pieces. I wonder if any of your readers have noticed the very strong aromatic fragrance of the juice in the seeds, something like a mixture of Tangerine Oranges and turpentine, very powerful, but at the same time pleasant, though peculiar. The Pinsap, like many others of the Conifers, is apt, in this part of England, to start into growth too soon in the spring, and, consequently, is frequently getting a pinch of the nose by the frost, and, being essentially a formal growing tree, does not look well with more

than one or no leader. This unbecoming haste would no doubt be checked in trees farther north.

TENDER PLANTS (p. 8).—Many which at first are not sufficiently hardy to stand our climate may, to a certain extent, be acclimatised by being made to conform by degrees with our seasons, as opposed to those of the country from which they were brought; this may be effected in some cases by special treatment of the plants themselves, and in some cases by the delaying or hastening of the sowing of seeds. *Calla aethiopica*, for instance, has been taught, with some trouble, to die down during the winter, and to start into growth in the spring instead of the autumn, as it had previously been accustomed to do, and I am in hopes that after a time its offsets may be found to have changed permanently their routine of growth to correspond with our seasons. This, of course, can only be done with those plants which are not hardy, only because of starting into growth at the wrong time, not with any that succumb to our cold and damp, even though at rest at the right time. Much, naturally, may be done by finding the right place for a tender plant as also by turning out vigorous and seasoned specimens; but, of course, as pointed out, this affects the individual only, not the species. C. R. S. D.

Sussex.

GARDEN IN THE HOUSE.

MISUSE OF FLOWERS.

SURELY there are enough ways of enjoying flowers without such elaborate inventions as employing them for the garnishing of muffs (p. 19)! Between muffs and flowers there is an incongruity shocking to the flower-loving mind; for my own part I should as soon think of putting them on my boots! Flowers are delicate things, to be treated tenderly. When cut, their best purpose is to be preserved in water and enjoyed in a quiet room, or, secondarily, as hand-bouquets or dress ornaments, but within reasonable limits. Now a muff is a piece of female gear whose purpose is to protect the hands in severe weather. In its normal and most sensible form it is made of fur, with a warmly-wadded lining. No one would think of adding flowers to such a muff; it would be obvious that, while fingers were being warmed within, flowers should not be put to shiver outside. On the other hand, a muff of pure "luxé," made of satin and ribbons and covered with flowers, is a thing of no sense; it can have no self-respect, being unable to justify its existence; it is about as senseless as the flower-covered parasols one hears of at Nice. Surely it is wrong to freeze flowers on muffs and to grill them on sun-umbrellas, or to subject them to any such cruel martyrdoms.

It is equally shocking to hear of a thousand pounds being spent on flower decorations for balls, where even the handrail of the stairs is wreathed with costly Orchids! Such a state of things may even be a hardship to the guests. Witness the case of a lame dowager, who absolutely needs the handrail in an efficient state as an aid to safe progression.

Great facilities have of late years been put in the way of all for acquiring a knowledge of flowers; their culture has much increased in private gardens and for market. A true taste and wish for their more extended use and enjoyment has sprung up, and is steadily growing; but along with this, as in the case of other sound and good social movements, the demon Fashion rushes in and runs riot, and, having decreed that flowers are now "in," must needs lavish them on everything, even including the above-mentioned

apparatus and engines designed to protect us from the rigours of climate!

Strange, indeed, are the edicts of fashion; when one thinks that not many years ago, according to its dictum, a woman could not wear a natural flower—they were not *bien portées*!

G.

FLOWER GARDEN.

A GARDEN AT FALMOUTH.

WE often receive notes from gardens on the Cornish coast, but none has afforded such evidence of the mildness of the climate in that part of the country as the account which Mr. Howard Fox sends us of the kinds of plants which he is able to grow in the open in his garden at Rosehill, Falmouth, all, or nearly all, of which are too tender to thrive in the open about London. The list speaks for itself. The plants which flourish at Rosehill one would only expect to find flourishing in the sunny Riviera. We received the list on New Year's Day. "The following," Mr. Howard Fox says, "are among the most noteworthy which flourish here:—

Acacia dealbata, several trees 30 feet to 35 feet high, generally covered with bloom in February.

A. melanoxylon, 30 feet high.

A. lophantha, now flowering.

A. dependens, 15 feet high.

Desfontainia spinosa, 8 feet high, flowers for eight or nine months in the year.

Brugmansia sanguinea, 10 feet high, in profuse bloom in June and again in the autumn.

Aralia Sieboldi, a very free grower.

Abutilon *Boule de Neige*, 12 feet high.

A. megapotamicum.

A. vitifolium.

Lophospermum scandens.

Citron, Madras, &c.

Eucalis, many species.

Aloysia citrodora (Lemon plant), 10 feet high.

Aster argophyllus, 10 feet to 15 feet high.

Benthamia fragifera, large trees, 20 feet to 25 feet high.

Benthamia Metake, &c.

Ceanothus, several species against walls.

Chamaerops excelsa, 12 feet to 15 feet high.

Clematis balcanica, &c.

Cordylina australis, 10 feet to 15 feet high, now in seed.

Dracena indivisa.

Daphne indica.

Diplazium glutinosus.

Eugenia Ugni, bears fruit abundantly.

E. apiculata.

Escallonia, various species.

Eucalyptus globulus, &c.

Habenaria elegans.

Hedychium Gardnerianum (flavum).

Hydrangea japonica and *quercifolia*.

Magnolia grandiflora, &c.

Phormium tenax, now in seed.

Pittosporum Tobira.

P. Mayi, 15 feet to 20 feet high, flowers freely.

Solanum crispum, &c.

Veronica, several shrubby species, 10 feet high.

Woodwardia radicans, self-rooting fronds, 6 feet long.

"At Penmere, one mile from Falmouth, there are *Eucalypti* over 50 feet high bearing seed freely, from which we grow our young plants."

The annexed illustration, showing a grove of *Dracenas* at Rosehill, was reproduced from an excellent photograph taken and sent to us by the Rev. A. H. Malan, of Perranarworthal Vicarage, who also says that "the *Dracenas* do admirably hereabouts. I have a large bed of them in this garden, but not so tall as Mr. Fox's, for they are younger than his—it is only a question of time. The *D. indivisa* is better suited for an avenue than *D. australis*, or than the cross between both, as the two latter send up so many shoots from the base. Mr. Fox has a *Citron* tree on which I saw some ripe fruit last summer. *Benthamias* and *Embothriums* do well here; of course, also *Gunneras* and *Camellias*. I have a red-berried *Solanum* which has been established some years here; *Oleanders* do well as to growth, but it is difficult to get them to blossom, though they form buds freely. I had one truss of flowers this past summer. The trees that don't do with us are Walnuts, Apricots, and *Deo* ars.

CHRISTMAS ROSES.

No flowers are more useful or better appreciated at this season than Christmas Roses, and, considering the simplicity with which they can be grown, almost anyone can have them. Where a large stock of plants is available it is a good plan to plant them out after blooming in an open piece of ground and allow them to remain for two years, as forcing weakens the roots considerably; but where the number of plants is small, the best way to treat them is as follows: Plant them in a well drained situation or, say, an east border where they can have the advantage of what little sunshine there may be at this season of the year; thoroughly trench the ground, and if the soil is strong and retentive add peat, leaf soil, and sand freely; into such a compost as this they will root freely, and it is surprising what a number of roots they will make after being planted. Mulch them with rotten manure, which should not be removed during the summer. When growing freely water should be liberally supplied, and occasional doses of liquid manure will prove advantageous to them, as upon free growth depends the number and quality of the blooms produced. In spring, after the plants have bloomed, is a good time to make fresh plantations in permanent quarters. Place the plants at such a distance apart as will admit of their being covered in October or November with frames; then stir the surface soil and clear off any dead leaves and everything likely to harbour slugs. Where the latter

are troublesome, clean, dry sawdust spread over the surface will keep them in check; give air freely whenever the weather permits. The advantage of frame protection is that the plants bloom earlier and the flowers are kept clean; no water will be required after the frames or hand-lights are placed over them. The common kind is one of the best for this sort of treatment, and it is also one of the most desirable, its blooms being sweet-scented. *H. maximus* has larger flowers and comes in earlier than *H. niger*, and for that reason it should also receive attention; the blossoms of both sorts last good a long time in a cut state, which doubly enhances their value.

E. MOLYNEUX.

Swanmore Park, Bishop's Waltham.

Primula obconica.—Mr. Wood's note on this Primrose (p. 654, 1885) is comforting to those who, like myself, have been unable to keep it alive in the open ground during winter. I have kept it so far this winter in an ordinary cold frame, in which it flowered

continuously from the last week in October until Christmas. It is a really valuable late autumn-flowering plant, and one which is easily managed either in a cold frame or a greenhouse.—J. W. ODELL, *Barrow Point, Pinner.*

AN ALLOTMENT ROCK GARDEN.

MANY rock gardens have been described in THE GARDEN; I have myself attempted to give an idea of those at St. Albans, Floore, and other places, and others have told us of Mr. Harvey's, Mr. Ewbank's, &c., but these are all more or less extensive; that of which I now write is small, and in an allotment garden at Newcastle-on-Tyne. It is one of the simplest and most natural pieces of rockwork that I have ever seen; the rocks consist of the sandstone of the neighbourhood, which had been carted a couple of miles to form it; these are all laid in a natural manner, while

from four blooms the first year to thirty last year, but, unfortunately, this year a man in weeding took it up by mistake. It is curious that although no plant stands better the smoky atmosphere of a town than the Carnation and Picotee, yet *Dianthus alpinus* and other rock varieties will not do at all on Mr. Wilson's rockery. Amongst other plants grown in this remarkable rock garden were *Acænas*, *Anemones*, *Aponogeton distachyon*, *Aquilegia glandulosa*, and others; *Aubrietia Campbelli*, *Butomus umbellatus*, *Campanula garganica*, *Hosti muralis*, *pulcherrima*, *pulla*, and others; different *Lilies of the Valley*, *Plantain Lilies*, *Erinus alpinus*, *Christmas Roses*, *Hepaticas*, *Irises*, *Forget-me-nots*, *Linnæa borealis*, *Narcissus Bulbocodium*, and others; *Phlox Nelsoni* and others; *Primroses* of many kinds, *Rhodiolarosea*, *Scillasibirica*, *Spiræas*, the little trailing *Sibthorpia europæa*, *Speedwells*, *Statice*, and others too numerous to name. Mr. Wilson has one of the greatest charms in the posses-

sion of a rockery—that of having collected the plants himself; he and his friend Mr. Denny explored mountainous districts to gather plants, and devoted themselves to their interesting gardens, and, as I have attempted to show, with no mean result. I would advise anyone in the neighbourhood who wishes to make a rockery to get permission to visit Mr. Wilson's.

DELTA.



Avenue of Dracenas in Mr. Howard Fox's garden, Rosehill, Falmouth.

on a very tiny piece of water floats a Water Lily, which produces blooms as white and pure as could be met with in any mountain loch. The other plants seem to have been selected with judgment; there are many herbaceous ones, which, though beautiful in themselves, would not have endured the smoky atmosphere of a manufacturing city, and there are others which might have passed through that ordeal, but which, owing to their height and coarseness, would have been unsuitable for a confined space. The owner of the rockwork in question thought best to rely upon low-growing *Sempervivums*, *Sedums*, and *Saxifrages*. Of these he has a large and beautiful collection, and they seem to flourish here as well as in their native habitats, forming large cushions; but he is by no means confined to these; on the contrary, he has *Gentians*, *Soldanella alpina*, several patches of which are very healthy, while *S. minima* hardly exists at all. *Gentiana bavarica* grows slowly, but sturdily; *G. verna* also does well. One plant received from Backhouse seven years ago increased

be a severe check to it. Last year plants in sheltered spots which retained their leaves were much more robust than those which lost them; others have suffered just as severely as *P. japonica*, notably *P. floribunda*, which we thought we had established, has been killed back to the crowns, as has also been *P. obconica*—perhaps the most prolific of all Primroses when kept in a cool or intermediate house. It does well in the open during the summer months, but it succumbs to frost and fogs, even in sheltered places. Therefore, instead of subjecting the plants to certain death we lift them and winter them in a cool frame. If this is carefully done the check does them no great harm, and they may then be utilised for greenhouse or conservatory decoration.—K.

Rhodostachys andina.—I have a plant under this name which has proved excellent for the decoration of rockwork. It is Aloe-like, and has lanceolate-pointed leaves spiny along the margins. It forms dense tufty masses, and is not unlike some of the larger *Eryngiums* in habit. It has not yet flowered, but it is perfectly hardy, which is a great point in its favour. A patch or two of it is found to be very

useful on the rockery at present. It is easily increased by means of offsets, which are produced abundantly at the base of the clumps, and which, if taken off and potted in autumn and plunged in a cool frame, make good plants by spring, and may be planted out along with the others. It should have a high, dry, and well exposed position—at least such is my experience with it, and I have had no trouble in establishing it wholesale.—K.

THE EDINBURGH ROCK GARDEN.

LIST of plants which flowered during the year 1885 in the rock garden at the Royal Botanic Garden, Edinburgh:—

DATES WHEN FIRST FLOWERS OPENED.

| January | March |
|---|--|
| 12. <i>Primula vulgaris</i> | 15. <i>Corydalis angustifolia</i> |
| 18. <i>veris</i> | 27. <i>Saxifraga Burseriana</i> |
| 20. <i>Helleborus atro-rubens</i> | Boydii |
| Double lilac Primrose | Sancta |
| 31. <i>Douglas Epipactis</i> | oppositifolia bry- |
| <i>Helleborus purpurascens</i> | oides |
| <i>abschasiensis</i> | <i>Hepatica triloba</i> Barlowi |
| <i>Hepatica angulosa</i> | <i>Primula Polyanthus</i> |
| February | (Hose-in-Hose var.) |
| 2. <i>Muscari lingulatum</i> | <i>Erythronium Dens-canis</i> |
| <i>Primula denticulata</i> alba | <i>Doronicum caucasicum</i> |
| 3. <i>Crocus Imperati</i> | <i>Aubrietia celestis</i> |
| 6. <i>Galanthus nivalis</i> | <i>Orobanchis</i> |
| 8. <i>plieatus</i> | <i>Viola odorata</i> |
| 9. <i>Hepatica triloba</i> | 30. <i>Korolkowia Sewerzowi</i> |
| 14. <i>Crocus Olivieri</i> | <i>Primula ciliata</i> alba |
| 16. <i>Saxifraga Burseriana</i> | 31. <i>Omphalodes verna</i> alba |
| 19. <i>Galanthus Elwesii</i> | Double white Primrose |
| <i>Leucojum vernum</i> | <i>Primula Wulfeniana</i> |
| 20. <i>Symplectopus foetidus</i> | <i>Omphalodes verna</i> |
| 21. <i>Crocus species</i> (Mount Olympus) | <i>Corydalis nivalis</i> |
| 22. <i>Primula denticulata</i> | <i>Draba aizoides</i> |
| 24. <i>Daphne Mezereum</i> | April |
| 24. <i>Scilla piceox</i> | 1. <i>Primula denticulata</i> |
| 25. <i>Daphne Mezereum</i> al- | <i>purpurea</i> |
| <i>bum</i> | Miss Hop's Daisy |
| <i>Cheiranthus Cheiri</i> var. | 2. <i>Iberis petraea</i> |
| Golden Drop | <i>Primula villosa</i> alba |
| 26. <i>Draba Aizoon</i> | <i>viscosa</i> major |
| <i>Iris reticulata</i> var. Kre- | <i>Pachystima Canbyi</i> |
| lagii | <i>Vinca major</i> plena |
| 27. <i>Scilla sibirica</i> | 4. <i>Draba altaica</i> |
| <i>Crocus vernus</i> | <i>Corydalis solida</i> |
| <i>Potentilla alba</i> | <i>Androsace Lageri</i> |
| 27. Double Sulphur Prim- | <i>Saxifraga oppositifolia</i> |
| rose | <i>aretoides</i> |
| March | <i>Narcissus lobularis</i> |
| 1. <i>Helleborus olympicus</i> | <i>Hepatica acutiloba</i> |
| <i>purpurascens minor</i> | <i>Primula suaveolens</i> |
| <i>viridis</i> | <i>uralensis</i> |
| <i>antiquorum</i> | 5. <i>Draba Mawei</i> |
| <i>Andromeda floribunda</i> | <i>Draba crumena</i> Prim- |
| <i>media</i> | rose |
| 3. <i>Helleborus graveolens</i> | <i>Soldanella montana</i> |
| <i>Arabis albidia</i> | <i>Helleborus argutifolius</i> |
| 4. <i>Rhododendron piceox</i> | <i>Vinca major</i> alba |
| 5. <i>Biota orientalis aurea</i> | <i>Erica mediterranea</i> alba |
| <i>Bulbocodium vernum</i> | <i>Cheiranthus Cheiri</i> |
| 6. <i>Hepatica triloba</i> (double red) | <i>Arabis procurrens</i> |
| 7. <i>Mandragora vernalis</i> | <i>Muscari botryoides</i> |
| <i>Crocus nevadensis</i> | 7. <i>Primula rosea</i> |
| <i>Sisyrinchium granditlorum</i> | <i>Draba ciliata</i> |
| <i>album</i> | <i>Thlaspi alpestre</i> |
| 9. <i>Sisyrinchium granditlorum</i> | 8. <i>Androsace carnea</i> |
| <i>album</i> | <i>Draba brunneifolia</i> |
| <i>Crocus biflorus</i> | <i>Narcissus incomparabilis</i> Sir Watkin |
| <i>suaveolens</i> | <i>Primula viscosa</i> |
| 10. <i>Colchicum crociflorum</i> | <i>Hutchinsia alpina</i> |
| 11. <i>Scilla bifolia taurica</i> | 9. <i>Adoxa moschatellina</i> |
| <i>Saxifraga media</i> | <i>Primula caschmeriana</i> |
| 13. <i>Narcissus Pseudo-Narcissus</i> cambricus | <i>Androsace coronopifolia</i> |
| 14. <i>Scilla bifolia</i> | <i>Epigaea repens</i> |
| <i>alba</i> | 11. <i>Draba alba</i> |
| 16. <i>Erythronium grandiflorum</i> | 13. <i>Primula elatior</i> (Bardfield Oxlip) |
| <i>Corydalis Sewerzowi</i> | <i>Narcissus Emperor</i> and |
| <i>Saxifraga oppositifolia</i> | <i>Empress</i> |
| <i>Helleborus alpinus</i> | <i>Androsace pyrenaica</i> |
| <i>Crocus chrysanthus</i> | <i>Anemone Pulsatilla</i> |
| <i>alba</i> | <i>memorosa</i> |
| 18. <i>Chamaejasme caudensis</i> | <i>n. Robinsoniana</i> |
| <i>Iris pectinata</i> | <i>Rhododendron alatum</i> |
| <i>Arabis alba</i> | <i>Primula Clematis</i> |
| <i>Hepatica triloba</i> (double blue) | <i>Omphalodes verna</i> mar- |
| 19. <i>Pachysandra procumbens</i> | <i>gunda</i> |
| 20. <i>Narcissus minor</i> | <i>Saxifraga Cymbalaria</i> |
| 21. <i>Corydalis cava</i> | <i>Narcissus Bulbocodium</i> |
| <i>Primula pulcherrima</i> | <i>minor</i> |
| <i>Crocus Emperor</i> | <i>Geum aureum</i> |
| 23. <i>Puschkinia scilloides</i> | 14. <i>Sanguinaria canadensis</i> |
| <i>Gagea lutea</i> | <i>Berberis Darwini</i> |
| 24. <i>Arabis rosea</i> | <i>Ornithogalum fimbria-</i> |
| <i>Primula marginata</i> | <i>tum</i> |

| April | May |
|---|--|
| 15. <i>Anemone coronaria</i> | 28. <i>Primula longiflora</i> |
| 16-17. <i>Allium paradoxum</i> | <i>Oxalis corniculatus</i> (red form) |
| <i>Corydalis Graelii</i> | <i>Saxifraga purpurascens</i> |
| <i>Carex Fraseri</i> | 29. <i>Trifolium uniflorum</i> |
| <i>Adonis vernalis</i> | <i>Saxifraga ciliata</i> |
| <i>Dentaria encaphylla</i> | <i>Trollius anserinus</i> |
| <i>Ranunculus Ficaria</i> fl. pl. | <i>Camassia esculenta</i> alba |
| <i>Narcissus rupicola</i> | <i>Saxifraga muscoides</i> |
| <i>Ornithogalum exscapum</i> | <i>purpurea</i> |
| 18. <i>Aubrietia Hendersoni</i> | <i>Arenaria balcanica</i> |
| <i>Tulipa pulchella</i> | <i>Aubrietia purpurea</i> variegata |
| <i>Saxifraga corifolia</i> | <i>Erythronium americanum</i> |
| <i>tridentata</i> | <i>Thlaspi prostratum</i> |
| <i>Andromeda tetragona</i> | 30. <i>Andromeda racemosa</i> |
| <i>Aubrietia Bougainvillei</i> | <i>Ledum latifolium</i> |
| <i>Erythronium giganteum</i> | <i>Vesicaria utriculata</i> |
| <i>Primula ciliata</i> Balfouri | <i>Salix reticulata</i> |
| 19-20. <i>Primula decora</i> | <i>Ledum canadense</i> |
| <i>Menziesia empetrifor-</i> | <i>Alyssum saxatile</i> |
| <i>mis</i> | <i>Hellonias bullata</i> |
| <i>Bryanthus erectus</i> | <i>Saxifraga tenella</i> |
| <i>Tritelia uniflora</i> | May |
| <i>Muscari armeniacum</i> | 2. <i>Lunaria biennis</i> |
| <i>Menziesia carulea</i> | <i>Aubrietia</i> (red seedling) |
| <i>Ranunculus amplexicaulis</i> | <i>Veronica pectinata</i> rosea |
| <i>Arabis Soweri</i> | <i>Globularia nudicaulis</i> |
| 21. <i>Petrocallis pyrenaica</i> | <i>Lychnis dioica</i> rubra plena |
| <i>Narcissus bicolor</i> vera | <i>Trollius aconitifolius</i> |
| <i>Leucojum aestivum</i> | <i>Andromeda fastigiata</i> |
| <i>Aubrietia deltoidea</i> vars. | <i>Saxifraga hybrida</i> splendens |
| <i>Mahonia glumacea</i> | 4. <i>Sedum Beyrichianum</i> |
| <i>Ranunculus auricomus</i> | <i>Alyssum saxatile</i> variegatum |
| <i>Saxifraga hirta</i> | <i>Arabis sp.</i> (Japan) |
| <i>Euphorbia capitata</i> | <i>Viola biflora</i> |
| <i>Ulex europaeus</i> | <i>Scilla amena</i> |
| <i>Arabis lucida</i> variegata | <i>Salix repens</i> |
| <i>Orobanchis</i> | <i>Azalea procumbens</i> |
| <i>Euphorbia myrsinites</i> | <i>Saxifraga repanda</i> |
| 22. <i>Saxifraga pallida</i> | <i>Salix herbacea</i> |
| <i>Primula floribunda</i> | <i>Muscari dilatatum</i> |
| <i>Cardamine bellidifolia</i> | <i>Coptis trifoliata</i> |
| <i>Arenaria caulescens</i> | 6. <i>Pyrus Maulei</i> |
| <i>Primula intermedia</i> | 7. <i>Silene acaulis</i> |
| <i>Pulmonaria saccharata</i> | <i>Ornithogalum sp.</i> |
| <i>Pyrethrum Tchibatchewi</i> | <i>Linaria alpina</i> |
| 23-24. <i>Polygala Chamæbuxus</i> | <i>Arctostaphylos californica</i> |
| <i>Corydalis nobilis</i> | <i>Mertensia sibirica</i> |
| <i>Narcissus incomparabilis</i> albus | <i>Adonis vernalis</i> (small form) |
| <i>Trollius pallidus</i> | 8. <i>Erysimum rupestre</i> |
| <i>Saxifraga sp.</i> (Corsica) | <i>Vaccinium Vitis-Idaea</i> |
| <i>hymenoides</i> | 9. <i>Anemone alpina</i> |
| <i>Lamium maculatum</i> aureum | <i>Androsace villosa</i> (Indian var.) |
| <i>Andromeda polifolia</i> intermedia | <i>Myosotis antarctica</i> |
| <i>Myosotis dissitiflora</i> alba | 10-11. <i>Claytonia virginica</i> |
| 25. <i>Androsace filiformis</i> | <i>Myosotis elegantissima</i> |
| <i>Rhododendron glaucum</i> | <i>Veronica pectinata</i> |
| <i>Ranunculus millefoliatus</i> | <i>Wulfenia carinthiaca</i> |
| <i>Dentaria pentaphylla</i> | <i>Skimmia japonica</i> |
| <i>Phlox setacea</i> | <i>Ajuga pyramidalis</i> |
| <i>Euphorbia Gmelini</i> | <i>Pilox aristata</i> |
| <i>Primula cortusoides</i> | <i>Genista piceox</i> |
| <i>Thomasi</i> | <i>Ledum buxifolium</i> |
| <i>Fritillaria Moggridgei</i> | <i>Rhododendron Rhodora</i> |
| <i>Arceuthobium</i> | <i>Tellima grandiflora</i> |
| <i>Salix lanata</i> | <i>Asperula odorata</i> |
| <i>Fritillaria montana</i> | <i>Cornus suecica</i> |
| 26-27. <i>Narcissus bicolor</i> Horsfieldi | 12. <i>Actaea spicata</i> |
| <i>Erythronium giganteum</i> roseum | <i>Saxifraga peltata</i> |
| <i>Hyoscyamus orientalis</i> | 13. <i>Aquilegia canadensis</i> |
| <i>Nigella arvensis</i> | <i>Camassia esculenta</i> |
| <i>Anemone fulgens</i> | 14. <i>Saxifraga nepalensis</i> |
| <i>Arctostaphylos Uva-ursi</i> | <i>muscoides atrotubens</i> |
| <i>Epimedium alpinum</i> | <i>Primula obconica</i> |
| <i>Sedum saxatilis</i> | <i>Dianthus deltoideus</i> |
| <i>Epimedium virens</i> | 16. <i>Anemone narcissiflora</i> |
| <i>Primula ciliata</i> | <i>Primula Sieboldii</i> |
| <i>Anemone pulchella</i> | <i>Alchemilla alpina</i> conjuncta |
| <i>Rhododendron</i> Blundy-anum | <i>pentaphylla</i> |
| 28. <i>Primula Auricula</i> (double yellow) | <i>Lepachium peltatum</i> |
| <i>exaltata</i> grandiflora | <i>Mitella prostrata</i> |
| <i>Muscari Szovitsianum</i> | 18. <i>Ranunculus repens</i> fl. pl. |
| <i>Argemone</i> | <i>Enkianthus himalaicus</i> |
| <i>Epimedium versicolor</i> | <i>Papaver alpinum aurantiacum</i> |
| <i>Saxifraga Bucklandi</i> | <i>Alchemilla vulgaris</i> |
| <i>Scrophularia vernalis</i> | <i>Saxifraga umbrosa</i> |
| <i>Iberis gibraltarica</i> hybrida | <i>pe tinata</i> |
| <i>Gaultheria Leschenaultii</i> | <i>Wilkommitiana</i> |
| <i>Saxifraga Lindsayiana</i> | <i>Dodecatheon meadia</i> |
| <i>Rhei</i> | <i>Primula mollis</i> |
| <i>Gmelini</i> | <i>Anemone alpina</i> sul- |
| <i>Doronicum drayton-</i> | <i>plumbea</i> |
| <i>euse</i> | <i>Ianthe bogulifolia</i> |

| April | May |
|--|---------------------------------------|
| 28. <i>Primula longiflora</i> | 19. <i>Ermus hispanicus</i> |
| <i>Oxalis corniculatus</i> (red form) | <i>Gentiana acaulis</i> |
| <i>Saxifraga purpurascens</i> | <i>Streptopus roseus</i> |
| 29. <i>Trifolium uniflorum</i> | <i>Thalictrum alpinum</i> |
| <i>Saxifraga ciliata</i> | <i>Olearia Gunniana</i> |
| <i>Trollius anserinus</i> | <i>Saxifraga muscoides</i> |
| <i>Camassia esculenta</i> alba | <i>pygmaea</i> |
| <i>Saxifraga muscoides</i> | 20-21. <i>Iberis Tenoreana</i> |
| <i>purpurea</i> | <i>Rhododendron lepidotum</i> |
| <i>Arenaria balcanica</i> | <i>Scilla parva</i> |
| <i>Aubrietia purpurea</i> variegata | <i>Narcissus poeticus</i> |
| <i>Erythronium americanum</i> | <i>Linaria hepaticifolia</i> |
| <i>Thlaspi prostratum</i> | <i>Daphne Cneorum</i> |
| 30. <i>Andromeda racemosa</i> | <i>Potentilla verna</i> |
| <i>Ledum latifolium</i> | <i>Armeria maritima</i> |
| <i>Vesicaria utriculata</i> | <i>Gnaphalium dioicum</i> |
| <i>Salix reticulata</i> | <i>roseum</i> |
| <i>Ledum canadense</i> | <i>Cheiranthus versicolor</i> |
| <i>Alyssum saxatile</i> | <i>Arabis petraea</i> |
| <i>Hellonias bullata</i> | <i>Veronica sinuata</i> |
| <i>Saxifraga tenella</i> | <i>Linaria origanifolia</i> |
| May | <i>Potentilla ambigua</i> |
| 2. <i>Lunaria biennis</i> | <i>Narcissus poeticus longiflorus</i> |
| <i>Aubrietia</i> (red seedling) | 22. <i>Aquilegia vulgaris</i> |
| <i>Veronica pectinata</i> rosea | <i>Lychnis lapponica</i> |
| <i>Globularia nudicaulis</i> | <i>Dodecatheon integrifolia</i> |
| <i>Lychnis dioica</i> rubra plena | 23. <i>Valeriana Salmunca</i> |
| <i>Trollius aconitifolius</i> | <i>Polemonium reptans</i> |
| <i>Andromeda fastigiata</i> | <i>Phlox stolonifera</i> |
| <i>Saxifraga hybrida</i> splendens | <i>Menziesia empetrifor-</i> |
| 4. <i>Sedum Beyrichianum</i> | <i>mis Drummondii</i> |
| <i>Alyssum saxatile</i> variegatum | <i>Pulmonaria arvensensis</i> |
| <i>Arabis sp.</i> (Japan) | <i>Erysimum pumilum</i> |
| <i>Viola biflora</i> | <i>Anthericum Liliastrium</i> |
| <i>Scilla amena</i> | 24-25. <i>Phlox amena</i> |
| <i>Salix repens</i> | <i>Uvularia sessilifolia</i> |
| <i>Azalea procumbens</i> | <i>Potentilla lupinoides</i> |
| <i>Saxifraga repanda</i> | <i>Polygonum sphaerocephalum</i> |
| <i>Salix herbacea</i> | <i>Claytonia sibirica</i> |
| <i>Muscari dilatatum</i> | <i>Valeriana montana</i> |
| <i>Coptis trifoliata</i> | <i>Cortusa Matthioli</i> |
| 6. <i>Pyrus Maulei</i> | <i>Ranunculus uniflorus</i> |
| 7. <i>Silene acaulis</i> | <i>Genista hispanica</i> |
| <i>Ornithogalum sp.</i> | <i>Saxifraga paradoxa</i> |
| <i>Linaria alpina</i> | <i>Phlox Nelsoni</i> |
| <i>Arctostaphylos californica</i> | <i>Coronilla minima</i> |
| <i>Mertensia sibirica</i> | <i>Salix reticulata</i> |
| <i>Adonis vernalis</i> (small form) | <i>Orchis mascula</i> |
| 8. <i>Erysimum rupestre</i> | <i>Helianthemum polifolium</i> |
| <i>Vaccinium Vitis-Idaea</i> | 26. <i>Erodium Reichardi</i> |
| 9. <i>Anemone alpina</i> | <i>Anthemis Aizoon</i> |
| <i>Androsace villosa</i> (Indian var.) | <i>Calendula officinalis</i> |
| <i>Myosotis antarctica</i> | <i>Papaver alpinum</i> |
| 10-11. <i>Claytonia virginica</i> | <i>Campanula Wanneri</i> |
| <i>Myosotis elegantissima</i> | <i>Hyacinthus amethystinus</i> |
| <i>Veronica pectinata</i> | <i>Ajuga orientalis</i> |
| <i>Wulfenia carinthiaca</i> | <i>Dryas octopetala</i> |
| <i>Skimmia japonica</i> | <i>Alyssum alpestre</i> |
| <i>Ajuga pyramidalis</i> | <i>Perula conspicua</i> |
| <i>Pilox aristata</i> | <i>Iris pumila</i> var. |
| <i>Genista piceox</i> | <i>Dianthus gelidus</i> |
| <i>Ledum buxifolium</i> | <i>Scilla umbellata</i> |
| <i>Rhododendron Rhodora</i> | <i>Dracocephalum grandiflorum</i> |
| <i>Tellima grandiflora</i> | <i>Potentilla argyrophylla</i> |
| <i>Asperula odorata</i> | <i>Edraianthus serpyllifolius</i> |
| <i>Cornus suecica</i> | <i>Iris pumila</i> |
| 12. <i>Actaea spicata</i> | <i>Saxifraga Hirculus</i> var. |
| <i>Saxifraga peltata</i> | <i>Iberis corifolia</i> |
| 13. <i>Aquilegia canadensis</i> | 27. <i>Aquilegia glandulosa</i> |
| <i>Camassia esculenta</i> | <i>Linaria Cymbalaria</i> |
| 14. <i>Saxifraga nepalensis</i> | <i>Lysimachia nemorum</i> |
| <i>muscoides atrotubens</i> | <i>Saxifraga cuspidata</i> |
| <i>Primula obconica</i> | <i>carinthiaca</i> |
| <i>Dianthus deltoideus</i> | <i>Primula sikkimensis</i> |
| 16. <i>Anemone narcissiflora</i> | <i>Meconopsis cambica</i> |
| <i>Primula Sieboldii</i> | <i>Hypochaeris pinnatifida</i> |
| <i>Alchemilla alpina</i> conjuncta | 28. <i>Cytisus decumbens</i> |
| <i>pentaphylla</i> | <i>Veronica prostrata</i> |
| <i>Lepachium peltatum</i> | <i>repens</i> |
| <i>Mitella prostrata</i> | <i>Arenaria purpurascens</i> |
| 18. <i>Ranunculus repens</i> fl. pl. | <i>Saxifraga Guthrieana</i> |
| <i>Enkianthus himalaicus</i> | <i>cristata</i> |
| <i>Papaver alpinum aurantiacum</i> | <i>exarata</i> |
| <i>Alchemilla vulgaris</i> | 29. <i>Pentstemon procerus</i> |
| <i>Saxifraga umbrosa</i> | <i>Convolvulus majalis</i> |
| <i>pe tinata</i> | <i>variegata</i> |
| <i>Wilkommitiana</i> | <i>Kernera saxatilis</i> |
| <i>Dodecatheon meadia</i> | <i>Euphorbia amygdaloides</i> |
| <i>Primula mollis</i> | <i>Saxifraga intacta</i> fari- |
| <i>Anemone alpina</i> sulphurea | <i>triosa</i> |
| <i>Ianthe bogulifolia</i> | <i>regulans</i> |
| <i>Cheiranthus Marshalli</i> | <i>Taygetea</i> |
| <i>Salix Sadleri</i> | <i>Fragaria indica</i> |
| <i>Erodium absinthifolium</i> | <i>Pentstemon Menziesii</i> |
| <i>Lamium Orvala</i> | <i>Saxifraga gibraltaria</i> |
| <i>Erica australis</i> rosea | <i>Anemone palmata</i> alba |
| <i>Saxifraga athenis</i> | <i>Allium oreophyllum</i> |

| May | May |
|---------------------------------------|----------------------------------|
| 19. <i>Ermus hispanicus</i> | 30. <i>Fritillaria kamschat-</i> |
| <i>Gentiana acaulis</i> | <i>tica</i> |
| <i>Streptopus roseus</i> | <i>Anthyllis crinacea</i> |
| <i>Thalictrum alpinum</i> | June |
| <i>Olearia Gunniana</i> | 1. <i>Lupinus nutkensis</i> |
| <i>Saxifraga muscoides</i> | <i>Oxytropis cyanea</i> |
| <i>pygmaea</i> | <i>Saxifraga McNabiana</i> |
| 20-21. <i>Iberis Tenoreana</i> | <i>Lychnis dioica</i> fl. pl. |
| <i>Rhododendron lepidotum</i> | <i>Iris tenax</i> |
| <i>Scilla parva</i> | <i>Geranium macrorrhizum</i> |
| <i>Narcissus poeticus</i> | <i>Lilium monadelphum</i> |
| <i>Linaria hepaticifolia</i> | <i>Potentilla lanuginosa</i> |
| <i>Daphne Cneorum</i> | <i>aurea</i> |
| <i>Potentilla verna</i> | <i>Gunnera magellanica</i> |
| <i>Armeria maritima</i> | <i>Thalictrum aquilegi-</i> |
| <i>Gnaphalium dioicum</i> | <i>folium roseum</i> |
| <i>roseum</i> | <i>Melittis Melissophyllum</i> |
| <i>Cheiranthus versicolor</i> | <i>Robertia toxaecoides</i> |
| <i>Arabis petraea</i> | <i>Cornus canadensis</i> |
| <i>Veronica sinuata</i> | <i>Geranium Loweii</i> |
| <i>Linaria origanifolia</i> | <i>Monarda polifolia</i> |
| <i>Potentilla ambigua</i> | <i>Iris pumila cerulea</i> |
| <i>Narcissus poeticus longiflorus</i> | <i>Androsace rotundifolia</i> |
| 22. <i>Aquilegia vulgaris</i> | <i>macrolepis</i> |
| <i>Lychnis lapponica</i> | <i>Anthericum Lilago</i> |
| <i>Dodecatheon integrifolia</i> | <i>Silene maritima plena</i> |
| 23. <i>Valeriana Salmunca</i> | <i>Ajuga genevensis</i> |
| <i>Polemonium reptans</i> | <i>Saxifraga dentata</i> |
| <i>Phlox stolonifera</i> | <i>Kolentianica</i> |
| <i>Menziesia empetrifor-</i> | 2. <i>Erigeron Roylei</i> |
| <i>mis Drummondii</i> | <i>Onosma tauricum</i> |
| <i>Pulmonaria arvensensis</i> | <i>Erinus hispanicus</i> albus |
| <i>Erysimum pumilum</i> | <i>Saxifraga hieracifolia</i> |
| <i>Anthericum Liliastrium</i> | <i>Smilacina racemosa</i> |
| 24-25. <i>Phlox amena</i> | <i>Silvestria triflora</i> |
| <i>Uvularia sessilifolia</i> | 3. <i>Anemone sylvestris</i> |
| <i>Potentilla lupinoides</i> | <i>Veronica Guthrieana</i> |
| <i>Polygonum sphaerocephalum</i> | <i>Helianthemum umbellatum</i> |
| <i>Claytonia sibirica</i> | <i>Geranium cinereum</i> |
| <i>Valeriana montana</i> | <i>Peonia tenuifolia</i> |
| <i>Cortusa Matthioli</i> | <i>Helianthemum Gari-</i> |
| <i>Ranunculus uniflorus</i> | <i>baldi</i> |
| <i>Genista hispanica</i> | <i>Veronica rupestris</i> nana |
| <i>Saxifraga paradoxa</i> | <i>Clintonia Andrewsiana</i> |
| <i>Phlox Nelsoni</i> | <i>Rheum palmatum tan-</i> |
| <i>Coronilla minima</i> | <i>guticum</i> |
| <i>Salix reticulata</i> | 4. <i>Vella spinosa</i> |
| <i>Orchis mascula</i> | <i>Saxifraga cochlearis</i> |
| <i>Helianthemum polifolium</i> | <i>Antennaria sericea</i> |
| 26. <i>Erodium Reichardi</i> | <i>Veronica fruticulosa</i> |
| <i>Anthemis Aizoon</i> | <i>Asphodelus ramosus</i> |
| <i>Calendula officinalis</i> | <i>Aquilegia californica</i> |
| <i>Papaver alpinum</i> | <i>alba</i> |
| <i>Campanula Wanneri</i> | <i>Linum alpinum</i> |

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|---|---|---|---|---|--|
| June 7-8. <i>Ononis rotundifolia</i> <i>Linum perenne</i> <i>Sedum Hookerianum</i> <i>Houstonia cerulea</i> <i>Gum coccineum fl.-pl.</i> <i>Saxifraga Andrewsii</i> <i>Lupinus polyphyllus</i> <i>Trifolium alpinum</i> 9. <i>Erodium macradenum</i> <i>Veronica Hulkeana</i> <i>Helianthemum Yellow</i> Standard <i>Xanthoxylon sp. (Japan)</i> <i>Dianthus alpinus barbatus</i> <i>Sempervivum Braunii</i> <i>Houstonia serpyllifolia</i> <i>Leptinella scariosa</i> <i>Linaria pallida</i> <i>Veronica Ponce</i> gentianoides 10. <i>Oxytropis uralensis</i> <i>Carex frigida</i> <i>Lychnis Viscaria purpurea</i> <i>Nepeta longiflora</i> <i>Saxifraga pentadactylis</i> <i>Centranthus ruber</i> <i>Diphylleia cymosa</i> <i>Lychnis Viscaria splendens fl.-pl.</i> <i>Podophyllum peltatum</i> <i>Arenaria cespitosa</i> <i>Hieracium pilosella-forme</i> <i>Linaria Cymbalaria alba</i> 11. <i>Erigeron aurantiacum</i> <i>Mimulus maculosus</i> <i>Corydalis glauca rosea</i> <i>Helianthemum The Bride</i> <i>Libertia grandiflora ixioideis</i> <i>Potentilla nevadensis</i> <i>Vaccinium Mortinii</i> <i>Anemone Hudsoniana</i> <i>Globularia globularantha</i> 12. <i>Arisema triphyllum</i> <i>Calochortus ceruleus</i> <i>Allium ceruleum</i> <i>Hypoxis erecta</i> <i>Arenaria stricta montana</i> <i>Tofieldia palustris</i> <i>Dianthus hybrid</i> <i>Orchis maculata</i> <i>Helianthemum vulgare variegatum</i> <i>Dielytra speciosa</i> <i>Saxifraga longifolia tenella</i> <i>Delphinium nudicaule</i> <i>Linum boreale</i> <i>Potentilla tridentata</i> <i>Stellaria aurea</i> <i>Saxifraga squarrosa</i> Porte notata <i>Petrocoptis Lagasce</i> <i>Euphorbia amygdaloides variegata</i> <i>Astragalus leontinus</i> <i>Oxalis trapezoides</i> <i>Dianthus Tymphrestus</i> <i>Acena adscendens</i> <i>Vancouveria hexandra</i> <i>Occlus japonicus</i> <i>Eriophorum alpinum</i> <i>Dianthus fragrans</i> <i>A pulgia trinitensis</i> <i>Dactylis glomerata aurea</i> <i>Sempervivum flagelliforme</i> <i>Veronica verbenacea</i> <i>Dianthus caucasicus</i> <i>Rhodotypos kerrioides</i> <i>Hormium pyrenaicum</i> <i>Anthyllis Vulneraria rubra</i> <i>Hypericum humifusum</i> 13. <i>Fritillaria cirrhosa</i> <i>Potentilla peduncularis</i> <i>Dianthus cespis</i> <i>Antennaria dioica hyperborea</i> <i>Carex atrata</i> <i>Saxifraga sibirica</i> <i>Tofieldia americana</i> <i>Chrysobactron Hookeri</i> <i>Cerastium grandiflorum</i> <i>Gaultheria Shallon acutifolia</i> <i>Verbascum olympicum</i> <i>Delphinium ca-humerianum</i> <i>Galium saxatile</i> <i>Sedum oreganum var.</i> 14-15. <i>Dianthus alpinus</i> <i>Silene alpestris</i> <i>Saxifraga aspera</i> <i>Aster glabellus</i> <i>Scabiosa alpina</i> | June 14-15. <i>Phlox carolina</i> <i>Globularia Wilkommi</i> <i>Helonias asphodeloides</i> <i>Orchis maculata superba</i> <i>Veronica saturifolia</i> <i>Helianthemum Curiosity</i> <i>Polemonium caeruleum</i> (fasciated var.) <i>Veronica Haasti</i> <i>Linnea borealis americana</i> <i>Rosa pyrenaica</i> <i>Veronica diosmeifolia</i> <i>Dianthus eximius</i> <i>Aquilegia formosa</i> <i>Collomia coccinea</i> <i>Campanula carnica</i> <i>Veronica Cataractae</i> 17. <i>Geranium armenum</i> <i>Potentilla Louis van Houtte</i> Mrs. Salter <i>Calceolaria Kelliana</i> <i>Aster alpinus</i> <i>Campanula collina</i> <i>Jasione montana</i> <i>Lindolia spectabilis</i> <i>Allium atrosanguineum</i> 18. <i>Dianthus Simsi</i> <i>Sempervivum arachnoidum</i> <i>Dianthus neglectus var.</i> <i>Celmisia spectabilis</i> <i>Tofieldia carinthiaca</i> <i>Vicia villosa</i> <i>Erigeron purpureum</i> <i>Achillea herba-rota</i> <i>Delphinium Belladonna</i> 19. <i>Eriogonum umbellatum</i> <i>Ranunculus geranioides</i> <i>Astragalus vaginatus</i> <i>Potentilla floribunda</i> <i>Escallonia macrantha</i> <i>Mugledium alpinum</i> <i>Primula capitata</i> <i>Silene ciliata</i> <i>Potentilla variabilis</i> <i>Ajuga alpina</i> <i>Echium rubrum</i> <i>Hemerocallis Dunroberti</i> 20. <i>Papaver orientale</i> <i>Dianthus superbus</i> <i>Smilacina borealis</i> <i>Potentilla aurantiaca</i> <i>Campanula turbinata</i> <i>Santolina alpina</i> <i>Sedum anglicum</i> <i>Thymus Marshallianus</i> <i>Geranium Andressii</i> <i>Linaria Cymbalaria maxima</i> <i>Campanula thyrsoidea</i> <i>Plantago media variety</i> <i>Ajuga reptans variegata</i> 21-22. <i>Hedysarum obscurum</i> <i>Genista sagittalis</i> <i>Dianthus neglectus</i> <i>Galardia maxima</i> <i>Digitalis purpurea alba</i> <i>Melissa grandiflora</i> <i>Potentilla Mrs. Rouland</i> <i>Erodium caruifolium</i> <i>Phlox hybrida compacta</i> <i>Lonicera tomentella</i> <i>Astragalus hypoglottis albus</i> <i>Cotoneaster thymifolium</i> 23. <i>Erigeron eriophorum</i> <i>Campanula (G. F. Wilson)</i> <i>Fettes Mount Pink</i> <i>Spiraea Aruncus plumosa</i> <i>Cathartica villosa</i> <i>Campanula Portenschlagiana</i> tenella <i>Crucianella stylosa coccinea</i> <i>Haplocephala Leichtlini</i> <i>Lilium carnioleum</i> <i>Potentilla Cameleon</i> <i>Silene muscipula</i> 24. <i>Dianthus Fischeri</i> <i>Lotus corniculatus fl.-pl.</i> <i>Coronilla iberica</i> <i>Aristolochia Clematidis</i> <i>Primula elliptica</i> <i>Peliosanthes sp.</i> 25. <i>Sedum pallens</i> <i>Gazania variegata</i> <i>Veronica cathartica</i> <i>Sedum kamtschaticum</i> <i>Thymus Serpyllum hirtum</i> | June 25. <i>Iris pallida</i> <i>Saxifraga mutata</i> <i>Allium McNabianum</i> <i>Dianthus pulchellus</i> <i>Papaver alpinum Linneanum</i> 26. <i>Sedum obtusatum</i> <i>Oenothera odorata</i> 27. <i>Cistus formosus</i> <i>Vicia craca</i> <i>Campanula punctata</i> <i>Aristolochia rotunda</i> <i>Potentilla Dr. André</i> <i>Campanula glomerata dalurica</i> <i>Dianthus Mrs. Sinkins</i> <i>Phlomis fruticosa</i> <i>Iris cuprea</i> <i>Pratia angulata</i> 28-29. <i>Geniunea lutea</i> <i>Iris xiphioides</i> <i>Thalictrum formosum</i> <i>Oenothera marginata</i> <i>Malva sylvestris</i> <i>Orchis foliosa</i> <i>Campanula pulchella</i> <i>Aster alpinus albus</i> <i>Scutellaria alpina</i> <i>Potentilla purpureo-lutea</i> <i>Campanula gracilis gracilis alba</i> <i>Plantago maritima var. (dwarf form)</i> <i>Veronica candida</i> <i>Wahlenbergia saxicola</i> <i>Anchusa sikkimensis</i> <i>Allium pedemontanum</i> <i>Dianthus superbus Holtzeri</i> <i>Erigeron mucronatus</i> <i>Potentilla Alfred Salter</i> 30. <i>Alyssum argenteum</i> <i>Armeria alpina</i> <i>Potentilla Vase d'Or</i> <i>Lathyrus tingitana</i> <i>Phyteuma Scheuchzeri</i> <i>Senecio adonidifolius minor</i> <i>Dianthus trostratus</i> <i>Anagallis tenella</i> <i>Lilium umbellatum croceum</i> <i>colchicum</i> <i>Erigeron glabellum</i> <i>Sedum oreganum</i> <i>Pentstemon gentianoides</i> <i>Thymus Serpyllum albus</i> <i>Scutellaria altaica</i> July 1. <i>Thymus acinus</i> <i>Cistus florentinus</i> <i>Astragalus purpureus</i> <i>Brodiaea congesta</i> <i>Scutellaria galericulata</i> <i>Campanula rotundifolia maxima</i> 2. <i>Calochortus albus</i> <i>Mimulus cardinalis</i> <i>Erica cinerea bicolor</i> <i>Gladiolus Colvillei</i> <i>Potentilla marginata</i> <i>Campanula glomerata</i> <i>Cypripedium spectabile</i> <i>Sedum elegans turgidum</i> <i>Gentiana cruciata</i> <i>Triteleia Murrayana</i> <i>Potentilla valderia</i> <i>Lupinus arboreus</i> <i>Jasione perennis</i> <i>Saxifraga Hausmanni</i> <i>Sedum asiaticum</i> <i>Herniaria ciliata</i> <i>Crucianella stylosa</i> <i>Erica cinerea</i> 3. <i>Stenactis speciosa</i> <i>Prunella pyrenaica</i> <i>Sedum farinosum hirsutum</i> <i>spurius</i> <i>spurius album</i> <i>Sempervivum californicum</i> <i>fimbriatum</i> <i>atlanticum</i> <i>Vicia onobrychioides</i> <i>Bupleurum ranunculoideis</i> <i>Potentilla insignis</i> <i>Anchusa incarnata</i> <i>Micromeria Douglasi</i> <i>Mentha Requienii</i> <i>Aquilegia The Borderer</i> <i>Veronica australis</i> <i>Sempervivum Pittoni</i> <i>Oenothera glauca</i> <i>Acantholimon glumaceum</i> | July 3. <i>Geranium sanguineum</i> <i>Agrostemma Flos-Jovis</i> <i>Actinella scaposa</i> 4. <i>Michauxia campanulatus</i> <i>Veronica perfoliata</i> <i>Oxycochus macrocarpus</i> <i>Lithospermum petraeum</i> <i>Sedum sexangulare cruciatum</i> <i>Selskianum pinnatum</i> <i>Epilobium longipes</i> <i>Rheum officinale</i> 5-6. <i>Verbascum collinum</i> <i>Silene Elizabethae</i> <i>Brodiaea coccinea</i> <i>Morina longifolia</i> <i>Betonica orientalis</i> <i>Acena microphylla variety</i> <i>Genista tinctoria</i> <i>Hypericum pulchrum</i> <i>Campanula garganica</i> <i>Lychnis Haageana</i> <i>Veronica Traversi</i> <i>Kniphofia Uvaria</i> <i>Leontopodium alpinum</i> <i>Rose Paquerette</i> <i>Paronychia serpyllifolia</i> <i>Galium erectum</i> <i>Saxifraga grandlandica</i> <i>Phyteuma orbiculare</i> <i>Genista aspalathoides</i> <i>Dianthus Little Gem</i> <i>Zygadenus elegans</i> <i>Chrysanthemum Leucanthemum var.</i> <i>Pyrethrum Willmottii</i> <i>Centaura stricta</i> <i>Polemonium Richardsoni</i> 7. <i>Bupleurum Candollei</i> <i>Dianthus barbatus pumilus fl.-pl.</i> <i>Thymus lanuginosus</i> <i>Salvia Horminum</i> <i>Dioscorea villosa</i> <i>Delphinium Madame de Bihan</i> 8. <i>Cistus creticus</i> <i>Asteriscus maritimus</i> <i>Urospermum Dale-champi</i> <i>Dianthus Marie Pere</i> <i>Epilobium latifolium</i> <i>Anthyllis Vulneraria</i> <i>Bupththalmum salicifolium</i> <i>Santolina incana</i> <i>Digitalis nevadensis</i> <i>Potentilla sericea</i> <i>Idalecia candida</i> <i>Gillenia trifoliata</i> <i>Fuchsia magellanica</i> <i>Allium species</i> <i>Sedum hispanicum montegalense</i> <i>Spiraea discolor</i> 9. <i>Geranium Lambertii</i> <i>Thymus micans</i> <i>Agrostemma coronaria alba</i> <i>Centaura montana</i> <i>Chelone barbata Torreyi</i> 10. <i>Lilium Kramerii</i> <i>Lathyrus latifolius albus</i> <i>Tradescantia virginica</i> <i>Dianthus atro-rubens</i> 11. <i>Mazus Pumilio</i> <i>Lilium canadense</i> <i>Potentilla alchemilloides</i> 12. <i>Funkia marginata</i> <i>Saxifraga odontophylla</i> 13. <i>Lathyrus latifolius</i> <i>Thymus alpinus</i> <i>Campanula nitida alba</i> <i>Potentilla nepalensis</i> <i>Lilium davuricum</i> <i>Lychnis vespertina fl.-pl.</i> <i>Veronica Dabneyi</i> <i>Geranium Wallichianum</i> <i>Orobancha rubra</i> <i>Rumex sanguisorbaefolia</i> 14. <i>Calliprora flava</i> <i>Coronilla varia</i> <i>Erica tetralix Lawsoniana</i> 15. <i>Oenothera taraxacifolia</i> <i>Sedum dasylphyllum Aizoon</i> <i>virescens</i> 16. <i>Campanula azurea</i> <i>Silene chlorophylla swertiaefolia</i> <i>Helianthemum Tuberosaria</i> <i>Scabiosa Welbiana</i> | July 16. <i>Meconopsis Wallichii</i> fusco-purpurea <i>Astilbe japonica</i> <i>Spiraea astilboides</i> <i>Dianthus Atkinsoni</i> 17. <i>Helenium Bolanderi</i> <i>Veronica Andersoni</i> <i>rubra</i> <i>Rosa viridiflora</i> <i>Campanula Soldanella fl.-pl.</i> <i>Gentiana septemfida cordifolia</i> <i>Inula ensifolia var.</i> <i>Teucrium pyrenaicum</i> <i>Dianthus cruentus</i> <i>Sedum caeruleum</i> <i>multiceps neglectum</i> <i>virescens major maximum</i> 18. <i>Calochortus venustus roseus</i> <i>Anthemis tinctoria discoidea</i> <i>Milla longipes</i> 19-31. <i>Campanula Waldsteiniana</i> <i>Delphinium velutinum</i> <i>Veronica maritima alba</i> <i>Hypericum elegans</i> <i>Agathaea caelestis</i> <i>Gentiana Buseriana</i> <i>Polygonum vacciniifolium</i> <i>Calluna vulgaris tomentosa</i> <i>Micromeria Piperella</i> <i>Cyananthus Inariaefolius</i> <i>Campanula Tymoni</i> <i>Oxytropis deflexa</i> <i>Eryngium asperifolium</i> <i>Polygonum Brunonis</i> <i>Helenium pumilum</i> <i>Gentiana Wallichii</i> <i>Convolvulus lineatus</i> <i>Onopordon Acanthium</i> <i>Helleborus niger grandiflorus</i> <i>Calceolaria scabiosae-folia</i> <i>Inula ensifolia</i> <i>Veronica corymbosa variegata</i> <i>Phlox ovata</i> <i>Centaura procumbens</i> <i>Dracocephalum argu-nense</i> <i>Epilobium Fleischeri</i> <i>Spiraea palmata alba</i> <i>Ononis arvensis</i> <i>Erythraea diffusa</i> <i>Cineraria maritima</i> <i>Linum monogynum</i> <i>Campanula isophylla alba</i> <i>haylogdensis</i> <i>Geranium polyanthes</i> <i>Hypericum reptans verticillatum</i> <i>Statice Dodardi</i> <i>Erica ramulosa</i> <i>Cassinia fulvida</i> <i>Linaria genistae-folia</i> <i>Calandrinia umbellata</i> <i>Hesperocordon lacteum</i> <i>Adenophora lilifolia</i> <i>Rose White Pet</i> <i>Coreopsis lanceolata</i> <i>Linaria vulgaris Peloria</i> <i>Alstroemeria aurea</i> <i>Campanula elegans</i> <i>Phlox glaberrima</i> <i>Silene Schaffa</i> <i>Spiraea palmata</i> <i>Linum luteum</i> <i>Pratia littoralis</i> <i>Campanula Hendersoni</i> <i>Lysimachia thyrsoiflora verticillata</i> <i>Lilium dalmaticum Leichtlini</i> <i>auratum</i> <i>Oenothera fruticosa</i> <i>Anomatheca cruenta</i> <i>Sedum populifolium stellatum</i> <i>Dracocephalum stramineum</i> <i>Monarda didyma</i> <i>Veronica incisa</i> <i>Lavandula Spica</i> <i>Stobaea purpurea</i> <i>Gaillardia grandiflora</i> <i>Anemone rivularis</i> August 3. <i>Calochortus pulchellus</i> <i>Marrubium vulgare</i> <i>Pteroccephalus Parnassi</i> <i>Gentiana adscendens</i> <i>Calluna vulgaris fl.-pl.</i> | August 4. <i>Clematis Jackmanni</i> <i>Calluna vulgaris Searlii v. alba-Spica-bravus</i> 7. <i>Campanula Hosti</i> 8. <i>Ophelia sp.</i> <i>Gentiana Bigelowi</i> <i>Gum reptans</i> <i>Campanula pyramidalis macrantha alba</i> <i>Scabiosa speciosa</i> <i>Potentilla reptans fl.-pl.</i> <i>Veronica salicifolia</i> 10. <i>Campanula sarmatica</i> <i>Polygonum capitatum</i> <i>Gentiana tibetica</i> <i>Dianthus chinensis Hedderwigi</i> <i>Spiraea Bimaldii</i> <i>Phlox coccinea</i> 12. <i>Hypericum glaucum</i> 13. <i>Saxifraga flagellaris</i> <i>Campanula isophylla</i> <i>Sedum cyanum</i> 15. <i>Geranium aconitifolium</i> <i>Delphinium cardinale</i> <i>Calluna vulgaris pygmaea</i> <i>Lobelia syphillica</i> <i>Polygonum cupidatum</i> <i>Veronica maritima</i> 16-17. <i>Montbretia Pottsi</i> <i>Francia rupestris</i> <i>Lilium pardalinum superbum</i> <i>Malva moschata</i> <i>Campanula floribunda nitida</i> 18. <i>Ballota spinosa</i> <i>Veronica spicata laxa</i> <i>Echinops Ritro</i> <i>Gentiana ornata</i> <i>Aster sikkimensis</i> <i>Seseli gummiferum</i> <i>Scabiosa Gramuntia</i> 19. <i>Sedum maximum purpureum</i> <i>Colchicum autumnale album</i> <i>Hypericum patulum</i> <i>Salvia interrupta</i> 20. <i>Senecio speciosus</i> <i>Helianthemum amabile</i> 22. <i>Cyclamen hederifolium</i> <i>Yucca filamentosa</i> 24. <i>Anemone japonica alba</i> <i>Colchicum autumnale verum</i> <i>Erica vagans alba minor</i> <i>Veronica longifolia subsessilis</i> 25. <i>Origanum Tourneforti</i> <i>Cyclamen europeum</i> <i>Linaria vulgaris</i> <i>Colchicum variegatum</i> <i>Platycodon pumilum</i> <i>Colchicum speciosum rubrum</i> <i>Onopordon horridum</i> <i>Ballota spectabilis</i> 29. <i>Sedum acetabulosum</i> <i>Monarda didyma alba</i> 31. <i>Sedum dasylphyllum oblongifolium</i> <i>Dracocephalum virginicum</i> September 1. <i>Gentiana asclepiadea alba</i> 3. <i>Lilium tigrinum</i> <i>Calluna vulgaris Alporti</i> 5. <i>Lobelia lutea</i> <i>Sedum multiceps</i> 7. <i>Gladiolus Saundersi var.</i> <i>Helianthus multiflorus</i> <i>Saponaria officinalis fl. pl.</i> <i>Palmerella debilis</i> 8. <i>Colchicum autumnale plenum</i> 9. <i>Schizostylis coccinea</i> <i>Veronica spicata</i> 11. <i>Colchicum maximum</i> 13. <i>Mutisia decurrens</i> 14. <i>Montbretia crocosmaeflora</i> <i>Crocus speciosus</i> 15. <i>Coreopsis tenuifolia</i> <i>Campanula primulaefolia</i> <i>Colchicum rubrum</i> 17. <i>Salvia argentea</i> <i>Rudbeckia Newmanni</i> 18. <i>Colchicum autumnale album fl.-pl.</i> 21. <i>Veronica glauco-caerulea</i> <i>Crocus nudiflorus</i> 24. <i>Gladiolus purpureo-aureus</i> <i>Linaria purpurea</i> 25. <i>Crocus pulchellus</i> <i>Tricyrtis australis</i> 28. <i>Allium Sanborni glaucum</i> |
|---|---|---|---|---|--|

| October | December |
|--------------------------------|---------------------------------|
| 7. <i>Crocus medius</i> | 15. <i>Helleborus torquatus</i> |
| 19. <i>Shrundi</i> | <i>niger angustifolius</i> |
| <i>byzantinus</i> | 16. <i>niger</i> |
| <i>Ethiopia acualis</i> | 22. <i>purpurascens</i> |
| 27. <i>Polygala Chamæbuxus</i> | <i>orientalis</i> |
| <i>purpurea</i> | 25. <i>Dionda Epipactis</i> |
| <i>Hepatica triloba alba</i> | 28. <i>Hepatica triloba</i> |
| November | |
| 4. <i>Crocus hadriaticus</i> | |

TABLE SHOWING THE NUMBER OF SPECIES COMING INTO BLOOM EACH MONTH.

| | Species. | Species. |
|--------------------|----------|------------------------|
| January, 1885. | 8 | August 71 |
| February | 23 | September 30 |
| March | 64 | October 6 |
| April | 171 | November 1 |
| May | 178 | December 7 |
| June | 349 | |
| July | 233 | 1141 |

R. LINDSAY.

Erinuses.—After many failures with these, we have come to the conclusion that, away from the west of England and the Isle of Wight, they are not to be depended on as perennials, except in cold frames. At Munstead notably, and also at other places, we have seen *E. alpinus* covering an old wall and flowering profusely. We did not notice, however, any old plants, and those in flower were mostly the previous year's seedlings, with hundreds coming up ready to flower the following summer. Instead of leaving the old plants, we pull them up and throw them away as soon as they have all shed their seed. We find that, even in pots, these plants are not by any means long-lived. At the second or third year branches get black and die off; other signs of decay likewise show themselves, and the best way is to replace them with younger and more robust plants. They are easily increased from cuttings, and as they seed freely, there can never be any difficulty in keeping up the supply.—Q.

Potentilla nitida.—This grows well, one might almost say luxuriantly, on the ordinary rockery, but it rarely, if ever, flowers, and even then not at all in proportion to the size and strength of the plant. It grows well in pots also, but here again the same difficulty arises. In desperation we wedged a piece of it in an old brick wall, using enough soil only to cover the roots and to our surprise it was successful; last year it bloomed more profusely than we had ever seen it before, the flowers being large and of a handsome soft pink colour. Although the summer was dry and the plant got little or no water, the roots were apparently, in the old soft mortar, far out of reach of the sun's influence. In the latter position, too, it retains that beautiful silvery appearance which one generally admires in the case of imported plants of this *Potentilla*, but which in ordinary soil they lose in common with most other alpine plants, notably *Achillea holosericea*, many of the crusted Saxifrages, and glaucous Sedums.—K.

Wall plants.—Though there are numbers of plants suitable for this purpose, but few of them adhere to walls without some assistance. Among deciduous subjects, the place of honour must be awarded to Veitch's *Ampelopsis*, which will adhere closely to woodwork, whether painted or not, as well as to bricks or stone. In good soil it is of quick growth, and an additional recommendation is that large plants of it can be moved without injury—at least, such is my experience. Two years back, wishing to cover a space of wall as quickly as possible, I stripped some large plants of this climber from another portion of wall and removed them where required. The roots were long and rambling, with but few fibres, so that I was rather fearful of the consequences; but, being planted in good soil and kept well watered, all succeeded. The principal branches were secured in their new position by means of nails and shreds, and as soon as growth began in earnest, the new shoots took hold of the wall in all directions, and now, after two seasons' growth, it is clothed in a perfect manner without any traces of so recent a removal. This is indeed a grand wall plant, for, though lacking the vigour of the older variety, it needs no attention, while the former must be secured in position. *Tecoma radicans* will clutch the wall fairly well if the surface is not too smooth, but, in order to flower it successfully, a good sunny position should be chosen where

the wood can be well ripened. Among evergreen climbers, the different *Ivies* take prominent positions; most planters, however, seem to overlook the fact that there exists among them great diversity of form. Of this I was forcibly struck the other day by a stretch of wall on which there was a large collection, each variety having a certain space allotted to it.—ALPHA.

EFFECTS OF THE SNOWSTORM.

TWELVE inches of snow fell in this district in the course of four hours on the morning of the 6th inst.; it is hardly necessary, therefore, to say that shrubs, Conifers, and ornamental trees generally have been seriously injured by the great weight so quickly forced into their centres. A few degrees of frost on the previous night prepared every branch and twig for holding this mass of snow, which came from the east and took the trees, as it were, the wrong way, our prevailing winds coming from the opposite direction, and many slender growers were found at daylight with their heads bent to the ground. Others less pliant, notably the *Arbutus*, evergreen Oaks, and even the common Yew, have lost great numbers of branches; but the full extent of the damage cannot yet be ascertained, as many of the lower branches are bent down and partially buried in the snow. Amongst Conifers exposed to the east, *Taxodium sempervirens*, *Pinus Lambertiana*, *P. Edgariana*, *P. Benthiana*, *P. insignis*, and *Abies Douglasi* have suffered most. The *Piceas*, even the beautiful *P. bracteata*, do not seem to have lost a single bough, and, contrary to expectation, a very handsome specimen of *Pinus Montezumæ*, although every long-leaved branch was literally a pillar of snow, seems to have escaped. Large single specimens and groups of golden Yew are completely snowed up; but I do not anticipate much injury, as they have safely passed through similar ordeals before. Gardeners in charge of large collections of Evergreens and Conifers need not be told that all hands were out at daylight, and, armed with long, light poles used in our perry orchards, with a hook at the top end, an attempt was made to lighten the branches of the most valuable trees by a sharp shake, which saved many a fine specimen from mutilation. Twenty-six degrees of frost followed this heavy downfall; but being so well protected, the most tender trees and shrubs were in the best possible condition for passing through the sudden depression with impunity, for, after all, there is nothing like a good coating of snow for shielding our most tender outdoor subjects from severe frosts and piercing winds. In years gone by the shaking of overloaded trees, even in large pine-trees, was comparatively light work, but since many of them have attained large dimensions, those only which are most likely to suffer from actual breakage should be taken in hand. No one would think of depriving the formal *Araucaria*, the grass-green *Pinus insignis*, or the picturesque *Arbutus Andrachne* of Nature's covering, unless they were in actual danger, and even then it is a question if the loss of a few branches would not be preferable to the unsightly browning which many of them, notably the first, carry for years. Passing from the grounds to the kitchen garden, we find all the green crops perfectly safe under their covering. Pits and frames containing Veitch's *Broccoli*, *Endive*, and *Lettuce* are rendered frost-proof without the aid of mats or other covering, and dwarf *Roses* are literally lost to view. In the fruit garden the sudden change is a real godsend, as buds of all kinds were getting much too prominent for the time of year. Peaches especially during the preceding fortnight had plumped their buds to an extent that was truly alarming, and, notwithstanding the fact that all well-managed trees are now unfastened and drawn away from the walls,

it is questionable if the bright sunny days which may now be expected will not yet force them into a very critical condition by the end of February. It is not wise to wash excitable trees in frosty weather, but advantage should be taken of the first break for getting all winter work in this department brought to a close. If this is neglected, the wash used must be weak in proportion to the state of the flower-buds, and the greatest care must be observed in its application and the manipulation of the shoots.

Eastnor Castle, Ledbury.

W. COLEMAN.

INDOOR GARDEN.

THE CROWEAS.

Two or three little evergreen shrubs are included by botanists in this genus of *Rutaceae* plants, and are placed in company with the *Eriostemons* and *Boronias*, as being closely related to them in botanical characters. Horticulturally, the affinity of these three genera is shown not only to be a resemblance in habit and flower characters, but also in their intergrafting as freely as if they all were forms of one species. This fact of grafting is not perhaps generally known by those few remaining admirers of Australian hard-wooded plants, and as, in relation to the *Croweas*, it is specially important, we wish to call attention to it. Mr. Culpin, the skilful propagator of hard-wooded plants in the Clapton Nurseries, was, we believe, the first to discover that by grafting *Croweas* on one of the strong-growing species of *Eriostemon* a marked improvement in the growth and floriferousness of the *Croweas* was the result. On their own roots these plants are seldom happy, their growth being slow and often weakly, the leaves yellowish in colour, and the flowers as a rule unsatisfactory. Grafted on the *Eriostemon* all these bad symptoms disappeared, and handsome little specimen *Croweas* became as easy to obtain as in the case of the *Eriostemons* themselves. An interesting question suggests itself here, namely, Why do *Croweas* when grown in English gardens require to be grafted on to plants of another genus before they will make satisfactory growth? The same thing occurs in relation to the delicate species of *Boronia*, *Correa*, and *Eriostemon* when grown in this country; they are always happiest when grafted on some other kind, although no doubt in their native haunts they thrive in perfection on their own roots. It is usual to distinguish two species of *Crowea* in gardens, viz., *C. saligna* and *C. latifolia*; but Australian writers, as well as herbarium specimens at Kew, show that *C. saligna* is a very variable plant, and that *C. latifolia* is merely a broad-leaved form of it. Our woodcut represents this form, which is a pretty little plant, with a branching habit, fleshy, *Daphne*-like leaves, and axillary flowers of a deep shining rose colour. The petals are fleshy, as in the *Eriostemons*, and they have the excellent quality of remaining fresh and bright coloured for several weeks. The second kind, known in gardens as *C. saligna*, has narrow foliage and smaller flowers, the colour paler, whilst the habit of the plant is less robust than in the broad-leaved form. It seems futile to speak of the cultural requirements of plants which are almost extinct in English horticulture. We are unable to find any satisfactory explanation as to the disfavour into which the majority of the beautiful plants of Australia have fallen among English gardeners, for whom a generation ago no plants had greater charms. We have gone back from big double *Dahlias*, *Fuchsias*, and even *Roses* and *Chrysanthemums* to take by the hand again the once despised single-flowered forms; there seems therefore some hope that before long that class of greenhouse plants known

as hard-wooded will again occupy a foremost place among favourite garden plants, which, as the older among us know, they once held for many years. To the few who have or want to grow *Croweas* we may say that they like an airy greenhouse at all times, except perhaps for about a month in April and May, when, after they have been overhauled and repotted, they should be placed in a close, warm house and syringed frequently during sunny weather. For soil, they prefer a mixture of peat, leaf-mould, and sand—plenty of the latter. B. W.

Coprosma Baueriana variegata.—The typical plain-leaved form of this *Coprosma* is a handsome evergreen shrub, especially remarkable for its beautiful glossy foliage. Its variegated variety is often used for bedding purposes, and is but seldom seen as a bush, though when it has attained such dimensions and is in good health few brighter objects from a foliage point of view can be found in a greenhouse. Neat little bushes of it are available for many purposes indoors, and the clear creamy white variegation of the foliage is very effective under artificial light. The most difficult part connected with the cultivation of this *Coprosma* is its propagation, which proves a stumbling-block to many. Failure in this respect chiefly arises from allowing the cuttings to flag, either when first put in or at some subsequent period. I have propagated great numbers of it with but little loss as follows: Having a few old plants kept specially for the production of cuttings, they were about the end of February shifted from the greenhouse into a structure kept at a rather higher temperature. The effect of this was to cause the plants to start rapidly into growth, and when the young shoots were about 3 inches long they were taken off as cuttings. The lower leaves having been removed, they were dibbled into pots of light sandy soil pressed down moderately firm, when, after a thorough watering (that is, sufficient to smoothe the sand at the top), the pots were placed in a close propagating case in an intermediate house. The after treatment consisted in giving air for a little time each day to dry up superfluous moisture, shading, and watering when necessary; but if the first watering is a thorough soaking, it will be a good while before another watering is needed.—T.

Hibbertia dentata.—Notwithstanding the fact that attention has been several times directed to the merits of this winter-flowering greenhouse climber, it seems to be but little known, or at all events but little employed, though in a collection of climbers in the greenhouse here it is by far the most attractive. It has a slender twining habit of growth and very effective foliage, deep green in the adult stage, but when young tinged with bronzy red. The bark of the young shoots is also of the same tint. The flowers, which are produced freely throughout the winter months, are about $\frac{1}{2}$ inches in diameter and bright yellow. This *Hibbertia* is a native of Australia. It can be readily propagated by means of cuttings made of the half-ripened shoots, and is in no way fastidious as to soil. Insect pests, too, attack it but sparingly, and they can be kept down by a free application of the syringe. There is another species (*H.*

volubilis), a stronger growing kind with large yellow blossoms, but they possess such a disagreeable odour, that it is seldom tolerated.—H. P.

NOTES ON BLANDFORDIAS.

BLANDFORDIAS are natives of Australia, and their comparative rarity in gardens is to be regretted, as their blossoms are very beautiful and remain long in perfection. They have a stoutish, fleshy root-stock, whence springs a tuft of grass-like leaves and an erect flower-stem, varying in height from 1 foot to 3 feet, terminated by an umbel of bell-shaped drooping blossoms of wax-like substance. In all the species the colour of the flowers is red and yellow in varying proportions. When in active growth they need plenty of water, but they dislike stagnant moisture. The best compost for them is about two-thirds of good open peat to one-third of fibrous loam and a liberal admixture of rough silver sand. The best time to re-pot is

In *B. Cunninghami* the foliage is about one-third of an inch in width and gracefully recurved, so that even when out of bloom it has a pleasing aspect; the flowers are bell-shaped, massive in substance, and about 2 inches in length. Their colour is bright red at the base, the mouth being orange. It is also known under the name of *B. grandiflora*. Of *B. flammæa* there are several varieties; the typical form has very rigid, nearly erect leaves; the blooms are smaller than those of the last named, but in colour they are much the same. The best varieties are *elegans*, said to be a hybrid between this species and *B. Cunninghami*; it has larger and more showy flowers than those of either parent, borne on a spike a yard high; in *principes*, another variety, the blooms are nearly 3 inches long and proportionately broad, while the spike is not much more than a foot in height; colour, bright orange-red, changing to deep gold at the mouth of the flower.

B. MARGINATA derives its name from the rough, almost toothed, edges of the leaves. Its flowers are of a yellowish red colour and arranged rather in a raceme than in that of a cluster at the apex of the spike, as in the other kinds. The flower-stem is tinged with purple and studded for some distance with greenish coloured bracts. *B. nobilis* when compared with other kinds is by no means entitled to its name, the whole character of the plant being less in keeping with such a title than that of some of the preceding. The leaves are long and weak, while the flowers, which are about the smallest of any, are red and marked with yellow around the mouth.

PROPAGATION is readily effected by dividing the plant in such a manner that each portion has some roots attached to it. When done in this way the different pieces should be potted and kept somewhat close and shaded till root action recommences.

ALPHA.

Seeds may also be obtained if the flowers are artificially fertilised, and when ripe they should be at once sown in well-drained pots of sandy peat and kept fairly moist till germination takes place. When large enough they must be potted off, and treated as just recommended.

Habrothamnus elegans.—This is a useful winter-flowering greenhouse plant. Two years ago I planted a young plant of it out in the open against a south wall. It made moderate growth during the summer of 1884, survived the winter, and produced very strong shoots during the past summer; but we had 12°, 13°, and 14° of frost during three nights in the early part of December, and I see so much cold has been too much for our open-air *Habrothamnus*, which appears quite dead. In a conservatory, however, where fire heat is only used to keep out frost, it always grows luxuriantly, and never fails to produce a large bunch of its bright tubular flowers at the end of every shoot. The place filled by brightly-coloured *Fuchsias* at midsummer is taken up by this



Flower-spray of *Crowea saligna* (colour rose-pink).

towards the end of the summer or beginning of autumn, as they then commence to root after flowering. The pots must be well drained with broken crocks, and after potting care should be taken not to over-water till the roots are in active operation. During winter new fibres are formed; early in spring the plants commence to grow, and in summer the flower-stems make their appearance. After flowering less water is needed, but at no time must they be allowed to become thoroughly dry, for unlike many bulbs the foliage is not deciduous. They are essentially greenhouse plants, and need to be shaded from the sun during summer; indeed, at that season they like a cool moist atmosphere. They do well planted out in a conservatory or greenhouse, provided a suitable place is prepared for them.

SPECIES AND VARIETIES.—In *B. aurea* the flowers are of a deep golden yellow, about $\frac{1}{2}$ inches long and narrower in outline than most of the others. The leaves are also very narrow, while the habit of the plant is by no means vigorous.

Habrothamnus now, and anyone who plants it out in their conservatory as a wall or pillar plant, or grows it in small pots like a *Fuchsia*, need never be without quantities of scarlet flowers at this season. It is easily propagated by means of cuttings put in during any of the spring months, and its after-culture simply consists in giving it plenty of rich soil to root into and abundance of water. It is not in any way liable to be infested with any kind of insect, and it is almost impossible to kill it either with kindness or ill-usage.—J. MUR, *Margam, Glamorganshire*.

Jasminum gracillimum.—Mr. Woodall's testimony as to the beauty of this plant is perfectly correct. Its graceful habit, when permitted to grow naturally, and the purity and delicious scent of its flowers, are not the least of its excellent qualities. If, when in full bloom, it be placed in a cooler temperature, it will retain its flowers much longer than when kept in a stove; when these are over the successional buds will quickly open by again replacing it in the stove, and so by having a few plants to work with an excellent display can be kept up. I have also found that a tiny drop of gum inserted in the calyx of the open blossoms tends to preserve them from dropping so soon as they otherwise do. This is quickly done, and on small plants for the drawing-room it is very convenient.—W. C. T.

Oldenlandia Deppeana.—Under this name we grow a very neat little plant about 8 inches high, which bears charming small white flowers, and mimics to some extent the white *Lobelia*. We find it useful at this season for keeping up a display in the greenhouse with other subjects. The temperature of an intermediate pit is all that it requires. It should be potted in a mixture of peat and loam made somewhat sandy. Spring is the best time to strike cuttings of it. It comes from Mexico.—H.

Iris reticulata at Christmas.—When a selection of bulbous plants to flower at Christmas is being made, this *Iris* should not be forgotten. It needs but little in the way of forcing to have it in bloom by the latter part of December. A frame or greenhouse in which there is a little heat is all that is needed; whereas *Tulips*, *Hyacinths*, *Narcissi*, and other bulbs of that sort require a good deal more. Imported bulbs of this *Iris* flower well, and half-a-dozen of them in a 5-inch pot are, when in bloom, highly attractive. From the time the buds show themselves till the flowers expand they should be so situated as to get all the light possible, otherwise the blooms will be pale and thin. After flowering they may be hardened off and planted in a suitable spot to recoup themselves. Another bulbous plant rarely seen in flower at Christmas, yet easy to obtain at that time, is *Scilla sibirica*, which, like the *Iris*, needs all the light possible in order to bring out its beautiful blue tints. This requires more forcing than the *Iris* in order to have it in bloom at the same time—indeed about as much as a *Duc Van Thol Tulip*. With regard to forcing bulbs, it is a singular fact that the *Snowdrop* can be advanced but little by forcing; indeed, very little heat suffices to cause all its blooms to go what is termed blind.—H. P.

Propagating the *Luculia*.—Of all sweet-scented flowering plants grown for the decoration of the conservatory, there is probably not one at this time of year which attracts so much attention as this lovely shrub. Although an old plant, having been imported from Nepal as far back as 1823, good bushes of it are seldom seen; and yet there is nothing difficult about its cultivation, if we except its propagation. Even small plants of it, such as one meets now in nurseries, flower well, although, when kept wholly in pots, they generally form but poor specimens. It is only when planted out in a house, with a temperature ranging from 50° to 65°, and in a border consisting of good fibrous loam and leaf mould in equal parts, with the addition of a good sprinkling of silver sand, that it shows itself in its true character, bearing at the extremity of each of its shoots noble heads of *Hydrangea*-like flowers. When grown in that manner, the plants, directly after flowering, should be cut back so close as to leave only one or two eyes on the young wood; from these a vigorous growth will be produced in the spring, and if not stopped later than the beginning

of June will cover itself with flowers during the following months. The difficulties attending its propagation are, after all, more imaginary than real. Cuttings of it do not, it is true, strike root so freely as those of soft-wooded plants; but the immense quantities of it annually supplied to the trade by an Edinburgh firm ought to be sufficient proof of the readiness with which it may be increased by means of cuttings, if properly and skilfully treated. Cuttings of it will not root easily if kept exclusively under cool treatment, and they will fail if put in heat directly at the start; but if allowed to get callused before they are subjected to heat, little difficulty will be found in getting them rooted. They should be put into an ordinary greenhouse, covered with a bell-glass, shaded, and the soil should be kept moderately moist until they have formed a callus, which will occupy say about a month; they should then be placed in a moderate bottom heat, and kept close and shaded to keep them from flagging. Cuttings in a suitable condition to strike may be procured soon after the plants have done flowering. Thus it will be seen that no insurmountable difficulty attends this part of its culture; but it should be borne in mind that at all times this handsome plant requires, and well deserves, a little more than ordinary care to bring it to perfection. Checks arising from cold draughts often destroy the blooms in their course of formation, and to that cause alone may reasonably be attributed many lamentable failures in the case of this plant.—S.

LATE CHRYSANTHEMUMS.

I QUITE agree with all that Mr. Molyneux says (p. 31) respecting the value of late *Chrysanthemums* both as pot plants and for supplying cut flowers. In fact, for the latter purpose, I consider them without an equal from the fact of their lasting so long in good condition. I have some at the present time that have been cut quite three weeks, and that have had the water changed and fresh foliage added several times, and they are still quite fresh-looking, while flowers of any kind that are forced into bloom by means of a high temperature are but short lived at the best. The means of getting a good supply of forced bloom at Christmas and the new year are not so universal, even in gardens of considerable extent, as is the demand made on them, and I feel sure it will prove one of the greatest boons to an over-taxed class of men to be able to get a full supply of bloom from cold houses. These late *Chrysanthemums* only need keeping free from being actually frozen, and they will go on expanding blooms until the lengthening days bring so many other flowers into bloom that they are really no longer required. We have at present a large orchard house from which hundreds of flowers were cut at Christmas, and it is still gay with blooms that look as if they would last until the end of February, and as we are within sight of the Isle of Wight, there need be no fear as to the possibility of retarding the *Chrysanthemum* in any part of the kingdom. Our varieties are nearly identical with the list given by Mr. Molyneux, but probably other sorts will soon be forthcoming now that attention has been directed to the value of what used to be an autumn flower for mid-winter work, and when we consider that summer-flowering zonal *Pelargoniums* are now grown by thousands for mid-winter work, it is no stretch of imagination to suppose that *Chrysanthemum* shows may, in a few years, be held in January as well as in November; but it is for supplying flowers in quantity for ordinary decorative purposes for which these late varieties are so well adapted. The late stopping is against the production of very large blooms, but there is really no difficulty attending their culture. The majority of our plants for supplying cut blooms have never been in pots at all; the cuttings were taken off the old stools last March, inserted in ordinary cutting boxes, placed

in cold frames, and kept close until rooted, when they were fully exposed to all weathers. They were planted out in beds 6 inches apart in ordinary kitchen garden soil until space could be found to plant them out at wider distances. Some were even planted out between rows of *Potatoes* like winter greens and treated in the same way. They were stopped twice, and during the drought plenty of manure water was given; when danger from severe frost rendered it unsafe to leave them out longer they were lifted with good balls of earth, and the best were potted for indoor decoration. All the rest were planted in the soil of a large orchard house, kept wide open except during severe frost. Where fruit houses are standing empty after the early *Chrysanthemums* are cleared out, they will prove an invaluable aid to floral decorators for storing a reserve of late flowering *Chrysanthemums*. Those who have not yet given them a trial should not lose another season without doing so.

Gosport.

JAMES GROOM.

Abutilon insigne.—Whether grown in pots with a view to decorate the conservatory, or trained up the roof of a stove or intermediate house, this is a grand old species. I admire it most when grown and trained over the roof of a stove, as under such circumstances its flowers, which hang in pendulous racemes, are seen to perfection. Our plants bear from six to eight blooms on a raceme; they are purplish crimson in colour, the veins of the petals being very dark and the petals themselves reflexed. It attains the height of about 12 feet, and has been in flower for some time. It comes from New Grenada, and is known also as *A. igneum*.—H.

Canarina Campanula.—This is a perennial, and bears yellowish, nodding, bell-shaped flowers; in short, it belongs to the *Bellworts*. It is in bloom with us just now in one of our cool greenhouses. The flowers appear singly at the ends of the shoots. The colours of the blossoms of this Order are generally purple, blue, or lilac, but in this they appear to be a departure from the rule. It has tuberous roots, which are said to be edible as well as the young shoots. On the whole, it is a very interesting plant. Should the flowers not give satisfaction, one can get rid of the plant by making a dish of its tubers. It is easy to cultivate; its requirements are, if grown in pots, good drainage, plenty of pot room, and a good loamy soil, with a good sprinkling of sand in it. It is benefited, when starting, if a little bottom heat is given it; after that it can remain in a frame or greenhouse, where it must have plenty of water while growing. It comes from the Canary Islands.—H.

Impatiens Hookeri.—This, for some reason or other, is what may be called a shy bloomer; it has thick succulent stems with a spur-like sepal. It is equally as fickle in ripening its seeds as it is in flowering in some cases, and, I believe, up to the present has set at defiance the many attempts of the busy hybridist to effect a cross or fertilise its flowers with success. It requires to be potted in a free and open compost with a fair amount of drainage in pots, using peat broken according to the size of the pot with a little leaf mould mixed with lumps of charcoal and sand. When the plants are growing they should be liberally supplied with water and placed in a position to catch as much sunlight as possible without scorching the leaves. It requires no assistance by way of pinching out the points of its growth; if this is practised, the results are not altogether satisfactory. After it has finished growing very little water should be given. Our plants, one of them a large one, bloomed in a house kept at nearly a stove temperature in the Botanic Garden at Cambridge. *I. Sultan* can be had in bloom during the whole year, and well repays all attention bestowed upon it. It will grow in almost any kind of soil, and should be kept near the glass to prevent it from being over-drawn up. *I. Episcopi* is similar to *Sultan*, and is said by some to be inferior, but it appears much brighter

than Sultani by lamplight. *I. flaccida* and its variety *alba* are both useful plants; the former bears purple flowers.—H.

KITCHEN GARDEN.

SEAKALE FORCING.

THE forcer of Seakale is more or less in the hands of the grower. If the crowns lack size and strength, the heads of blanched stalks, which under the influence of genial warmth will push out therefrom, must be small and spindly. The propagation of Seakale may be from cuttings made of the roots, or from seeds. The former method is generally preferred where large quantities of Seakale are grown. When the roots are lifted for forcing they are always trimmed a little, to permit of their being planted 3 inches apart in the forcing bed, and in most cases the portions trimmed off make very good sets for raising a new stock of roots. They should be cut into pieces 4 inches long, and then packed in sand, and have a little loose litter thrown over them till next March, when in most cases the crown ends will have commenced operations, as will be seen by the granular matter accumulated round the edges of the wound. They should be planted with a dibber, in well prepared ground, in rows 15 inches apart and 12 inches asunder in the rows, just covering the crowns lightly. Sometimes the old plants that have been forced are sorted over and the best planted again, but healthy young roots are better.

RAISING PLANTS FROM SEEDS is accomplished in much the same manner. Drills are drawn the same distances apart and three or four seeds are dropped in at intervals of a foot asunder. The soil is then pressed over them if dry enough to tread without adhering to the shoes. There is not much labour attached to the culture of Seakale in the open ground. If seeds are employed, watch the young plants closely as the seed leaves push through, and guard them from snails and slugs by dressings of soot and lime; a top-dressing of salt will be beneficial in June if the season should prove dry. Pinch away all indications of flowers and kill all weeds when small. As soon as the leaves drop away from the crowns in autumn forcing may begin, and before cold weather sets in all the roots intended for forcing during the present year should be lifted carefully, be trimmed in at the roots, and then be heeled in close together in a cool north border near to the forcing ground. This lifting and laying in by the heels in a cool site will tend to ripen them, and they will always be on the spot no matter what the weather may be. These cultural details refer only to Seakale taken up to be forced.

OPEN GROUND FORCING.—In many places the old-fashioned plan of forcing in the open ground under pots is still adopted, and very good Kale can be grown in that way, as I have proved over and over again; but there is a good deal of trouble attached to keeping up the beds to the requisite temperature, especially in severe weather, and under all possible care there is at times some uncertainty as to its succeeding; whereas, when forcing it in a Mushroom house, or a close frame or pit, there is no difficulty in maintaining a regular, steady, genial temperature just suitable for it. Seakale differs from Asparagus in this respect: it must not be exposed to light. To have it in prime condition, light must be totally excluded, and the atmosphere surrounding it when growing must be free from all impurities, as if grown under the gases of rank, fermenting manure it will frequently acquire a bad taste. Forcing in the open ground is carried on beneath

pots, and to meet this the plants are set out in clusters of three 6 inches apart, so that the pots will cover them easily. These clumps or clusters of crowns are sometimes planted in beds, two rows in a bed, the clusters of plants being about 2 feet or 2½ feet apart. The beds are intersected by alleys 3 feet wide for the convenience of taking on manure and gathering the produce. The beds are covered in succession, beginning as soon as the leaves drop away, and continuing till the last bed is finished, about April. Of course the last bed will need no forcing; only blanching materials need be used; ashes or sand will do very well, and the crowns may be covered with pots in the usual way, and the space between the pots filled in with a covering of leaves. In country places tree leaves play a very important part in forcing operations, the warmth which they generate being so sweet and genial. There need be no fear of any vegetable growth acquiring an earthy taste where leaves form one-half of the forcing beds. I have seen excellent Seakale, Rhubarb, and Mushrooms produced in a large underground cellar, the warmth arising from gentle fermentation, sufficient heat being thus obtained to carry on the forcing without fire heat; indeed, in such cases fire heat would be quite unnecessary as well as injurious.

VERY GOOD SEAKALE may be grown in an ordinary hotbed, such as is commonly used for forcing Potatoes, Asparagus, &c.; only the lights must be covered thickly to keep out the light. Small quantities may be easily brought forward by planting five roots in a 10-inch pot, filling as many pots at a time as may be required. The pots may be set under the stage in a greenhouse or in a forcing house, each pot of plants to be covered with an empty inverted pot of the same size, and the whole to be still further darkened by a covering of mats or sacks, so that the growth may be perfectly blanched. Seakale may be forced in deep boxes, with close-fitting lids on the top, to totally exclude light. A gentle temperature anywhere between 50° and 60° will do, but the less heat the slower the growth comes on.

E. HOBDAV.

Chou de Burghley. "W. I. M." does not speak too favourably of Chou de Burghley, the kind which I had and which I said at the time appeared to be identical with Mr. Gilbert's now well-known vegetable, though it was not of that stock. "W. I. M." asserts that it requires as long a season of growth as Broccoli, but that cannot be the case, as in its Cabbage form, and that is the form to which I have made reference, it is fit to cut at Christmas, some three months or even more before Broccoli is fit to cut. This vegetable, whatever it may be, is robust and stands drought well, while Savoy's suffer more and make less rapid growth. In that respect alone it is valuable as a market field vegetable, and merits attention. As to quality, my experience differs from that of "W. I. M.," but then tastes differ. I, however, prefer the tender sweetness and pleasant flavour of Chou de Burghley to that of coarse, white Cabbages and Drumhead Savoy's, but I think that it has its equal in the pleasant, soft, early Uhm Savoy; still, we don't want to be tied to one kind of Cabbage, and the cultivator who can put upon the table a vegetable that has the pleasant texture and flavour of the Chou de Burghley as a variation from the normal course of Brussels Sprouts, Savoy, or Colewort Cabbage merits praise rather than blame. However, the question raised was whether, in a season of comparative scarcity of green crops, a big piece of Chou de Burghley, thriving well in the drought and in an open field, as it has done with me, would not have proved a profitable crop to a market gardener, and I am still of opinion that it would. Field crops of these vegetables are, if less coarse, also perhaps more richly flavoured than are those grown in gardens fed with much rank manure.—A. D.

GARDEN HEDGES.

HAWTHORN or Quick hedges are largely used as boundary lines for out-of-the-way kitchen gardens, reserve grounds, and similar places. They are, indeed, everywhere in demand, and worthily so, as nothing excels them in rapidity of growth, durability, or effectiveness; but where ornament is required as well as utility, as, for instance, in parts of the pleasure garden that are often frequented, they are objectionable, particularly in winter when leafless. In some localities it is believed that they must be planted in double rows to make a hedge sufficiently strong to stand the wear and tear brought to bear on it, but that is a mistake, as a single row of Quicks will grow thick enough to make a thoroughly good fence. Very often one sees banks of soil raised and the hedge planted on the top. Except in wet localities, that is also a mistake; young Quicks especially often suffer in a dry summer when thus planted, but where the land is naturally wet the site should be raised somewhat above the ordinary level. Before planting a hedge on the level, thoroughly trench the ground, and the plants will succeed all the better if some manure can be added to it during the operation of digging. Procure clean, well-grown plants, about the thickness of an ordinary wood pencil, plant them 4 inches apart, treading the soil firmly as the work proceeds. Cut them down within 4 inches of the soil; this induces them to break into growth right from the bottom. When allowed to grow without cutting down the bottom of the hedge is apt to get bare, a circumstance to be avoided, as no after treatment will induce a supply of fresh branches; even if not cut right down or nearly so the shoots will not grow very long the first season, but they must be topped and the side shoots cut in, so as not to allow them to extend far at first. During the second season the shoots should be clipped three times; this constant clipping induces a branching habit, which is the all-important point aimed at in a young hedge. There are various methods of cutting Thorn hedges, but I think the wedge-shaped the best. Little room is thus taken up and the hedge looks always neat and trim. The ground for at least a foot wide on each side should be kept clear of Grass or other weeds; if allowed to grow, they soon injure the bottom branches. In allowing the points of the shoots to extend the side branches must be taken into consideration. If they show a tendency to grow strongly, then the leaders may be allowed to extend faster than would otherwise be the case till the necessary height is reached; but if the bottom growths are weak, then keep the top down in proportion.

HOLLY is the best kind of plant for making a evergreen hedge where shelter and strength are required. Its deep green foliage in winter, too, is very pleasant to look upon, particularly when plentifully covered with berries. Hollies will grow in almost any soil. When plentifully supplied with manure at planting time they grow fast, and assume a deep green colour, especially when the soil is strong and impregnated with chalk. In such soils they can be transplanted with certainty of success at almost any season, except when in full growth in summer. In strong soils the roots do not ramble far, and in consequence in moving more soil adheres to them than in soil of a lighter character. As I have said, Hollies may be planted at almost any time, but the best time is early in October. If the soil at that time happens to be dry, they should be well puddled in, which is done by pouring water on the soil during the operation of planting and treading the mould firmly about the roots. Afterwards give a good mulching of manure, which encourages surface-rooting and retains the moisture,

thus reducing the necessity of watering so much the following season; even if water is applied to the roots during summer, the mulching is an advantage. If planting is deferred till, say, February or March, and the plants have to be conveyed some distance, no matter how packed, some of the roots will be sure to get dry, and if exposed when planted to strong winds, which we often have from the east in March and April, they will be sure to suffer somewhat; therefore, for this reason I consider the time already named the best. I have tried both autumn and spring planting, and I have found spring to be much the worst time to select. Plants moved then do not die outright, but they often die down to the ground line, thus causing breaks in the hedge, which take years to mend. The plants best adapted for planting are those about 2 feet high; having previously trenched and manured the ground, they should be planted about 1 foot 6 inches apart—two in every yard. Holly hedges do not require cutting more than once a year. Upright sides with a flat top is a very good form for such hedges, or they may be wedge-shaped, according to taste. *Ilex Aquifolium*, or common Holly, is the best variety for hedges.

Yew, next to Holly, makes the most useful evergreen hedge. It will grow in almost any soil, and will bear clipping into any shape required. It affords capital shelter for Rose gardens, or for anything else requiring protection from east winds in spring. The best style in which to clip Yew hedges is perpendicular sides with a flat top—say about 1 foot to 1½ feet in width. The plants best suited for hedges are those about 2 feet high; they should be planted 1 foot 6 inches apart, in thoroughly prepared soil, trenched and freely manured. Early in October is the best time to plant, but, where circumstances do not admit of its done at that time, February or March will do, as Yews do not suffer from easterly winds to the extent which Hollies do. The common Yew makes the best hedge, and after being planted it should receive the usual amount of mulching.

CUPRESSUS LAWSONIANA forms one of the best of hedges where ornament is the chief attraction, its deep glaucous-green foliage rendering it very effective in winter. Upright sides with flat top is the best style in which to train it. It clips into shape easily, grows fast, and will stand any kind of weather or hardship. The best time to plant is early in autumn, and the plants should stand about 1½ feet apart.

THUJA OCCIDENTALIS is a fast-growing shrub, which, with the necessary clipping to induce a branching habit, quickly forms a thick hedge; its only objection is the rusty brown colour which it assumes in winter. It is very hardy, and will grow in almost any kind of soil and situation. It succeeds well planted at the same time as the Lawson Cypress, and the plants should be about the same size.

CRYPTOMERIA ELEGANS.—Where a thick screen is required in a sheltered position open to the sun, this *Cryptomeria* answers remarkably well. The deep russetty tinge which it puts on in autumn renders it attractive. It is easily propagated by means of cuttings taken off when half ripe in September, and inserted in a cold frame close to a north wall. They should be in sandy soil, and kept close till they have callused. They should be allowed to remain in this position till the following April, when they will be well rooted, and should then be planted on a border which previously had been well manured. They may be allowed two seasons' growth; then they will be well suited for planting in their permanent positions. If the summer is dry, they should, while growing, have plenty of water.

BERBERIS DARWINI, when intermixed with Hollies of the common type, makes a neat and ornamental hedge. Hollies afford it protection in very severe winters, which the *Berberis* will not stand unharmed. In autumn and spring each year, if clipped at the proper time, it produces in profusion its bright orange-coloured flowers, which are set off to advantage by the deep green of its own foliage, and also that of the Holly. As it grows rapidly, one plant every 2 feet apart will be enough, with a Holly about every 3 feet apart.

LAURELS make capital thick hedges or screens; no plants stand easterly winds better, and therefore they make good boundary fences for Rose gardens, or for anything that wants protection; they grow, if need be, to a good height, or they can be kept dwarf as may be required, narrow or wide, so amenable are they to the pruning-knife. Of course, the more they are cut the thicker they grow. They should always be pruned with the knife or pruning-shears; when cut with ordinary hedge-shears they look too stiff and smooth, and take some time to recover their natural appearance. The common variety is the best where a strong, high, or thick hedge is required; where a medium fence is needed, the Caucasian kind is very effective on account of its neat growth and dark green foliage, but where a dwarfer, neater hedge is wanted, the round-leaved variety (*P. rotundifolius*) is the best. When pruned its breaks again freely, and is dwarfer than the others. The deeper the colour of the foliage in this, and indeed in all the kinds used, the handsomer they look. This can always be effected by using manure at planting time and mulching afterwards, or by giving occasional doses of liquid manure during the time when the summer growth is being made. Laurels are not particular as to soil; they grow in almost any kind, from the strongest clay to mere sand, provided the former is not too wet. If this is the case, the leaves turn yellow at points in winter each year, particularly when first planted; the site, therefore, should be drained and thoroughly trenched, and when planting, some manure and soil of a lighter sort should be added. Sandy soil will need more manure as a mulching in summer to prevent evaporation when just planted than soil that is more retentive. Laurels are all easily propagated from cuttings put in in October; they should be taken off from 6 inches to 10 inches long with a heel, and inserted in rows 1 foot apart, and the plants should be 6 inches asunder on a north border. They will be ready for removal the following spring twelvemonth to an open quarter, in which they should be set at wider distances apart until the following autumn, when they may be transferred to their permanent position, keeping them well cut back to form a thick base. The Portugal kind answers admirably for the same purpose, except that it does not grow so fast as the common Laurel, nor is it so easily increased, but where a neat screen of any shape is required it is extremely useful.

THE OVAL-LEAVED PRIVET is another plant well adapted for hedges, being evergreen and easily clipped into shape and of quick growth. Where a hedge is required not wholly for strength it answers well, but if solidity combined with ornament is needed, plant a few Quicks here and there among the Privets. They should be clipped with the hedge-shears twice a year. This Privet is not at all particular as to kind of soil, but of course the better it is the more progress will the growth make.

PYRUS JAPONICA makes a good low hedge, and its bright scarlet blossoms, so freely produced early in the spring, enhances its value for this purpose. When closely spurred in, as is

the case when planted as a hedge, it blooms freely.

HORNBEAM, Beech, and Limes make capital hedges where much strength is required and shelter necessary. They are very effective in appearance also in summer; they are frequently used as divisions for quarters in nurseries much exposed to south-west and easterly winds, and for such a purpose they are very valuable.

Stammore Park.

E. MOLYNEUX.

GARDEN FLORA.

PLATE 527.

THE MAJORCA SANDWORT.

SINCE this little plant has been introduced to this country it has added interest and beauty to many a rock garden. No other plant can ornament the faces of the hardest rock with such delicate tracery as this *Arenaria* can. Although its home is in the warm islands of the Mediterranean—Corsica, Sardinia, and the Balearic Isles—it is, singularly enough, perfectly hardy with us, even surviving the excessive damp and cold of our worst winters. True, it gets killed in the least favourable spots in the rock garden, but then it is such a rapid grower, that it soon spreads over a large area. It thrives in either shade or sunshine, but grows most rapidly and densely in shade, though it does not flower so freely. On exposed rocks it flowers abundantly, just as represented by the annexed plate, which was drawn at Munstead in early summer. The tiny white starry flowers with their thread-like stalks are exceedingly pretty for weeks together, and it never looks so well when in flower as when it is doing its best to cover a rock, for then its growth juts out here and there so as, in spots, to show the stone. Though it seems most at home in the company of rocks, it grows anywhere, and it may be made to form a carpet in borders for bulbs and other plants, and extremely pretty effects can be made by planting hardy bulbs such as *Iris reticulata*, *Scilla sibirica*, and *Narcissi* and others in a carpet of this little Sandwort. There are other creeping *Arenarias*, but none so pretty as this one. The best of the other Sandworts are *Arenaria graminifolia*, which has Grass-like leaves and white flowers; *A. laricifolia*, also a dwarf evergreen perennial with white flowers; *A. montana*, a handsome spreading plant, producing white flowers in early summer; and *A. verna*, which flowers in spring; all these thrive in the rock garden in ordinary soil.

Mealy bug on Vines.—When I came here some three years ago I found several houses infested with mealy bug, some badly. One house contained old Vines, with spurs from 9 in. to 12 in. in length, thus affording scope for insect depredations. It may therefore be imagined what they were like. The Grapes had sometimes to be syringed before they were presentable, and, of course, were destitute of bloom. As far as I can ascertain, our houses have never been free from mealy bug for some fifteen or twenty years. Eradicating it was therefore not the work of one year. Although we had the houses painted and all plants cleaned the first winter, it appeared again in spring;



ARENARIA BALEARICA

we continued our cleaning through the summer, but not until the return of the winter could we do it thoroughly. After the second winter cleaning we saw very little of the bug. Paraffin oil we found to be most effective in destroying this insect, but it should be used with care and perseverance.—W. FORRESTER, *Beechwood, Rochdale.*

WORK DONE IN WEEK ENDING JAN. 12.

JANUARY 6 TO 12.

THOUGH daily memoranda of work done has been made as usual, there is such a sameness about the entire week's work, that for once we give a general *résumé* in preference to the daily repetition of the same. Such a heavy snowstorm as set in during the early hours of Wednesday, the 6th, is in this part of the country of no unusual occurrence, that it found us somewhat unprepared in the matter of covering up of pits and the housing of supplies of vegetables for use whilst the storm lasted; consequently we have had much difficulty and far from pleasant work to gather green vegetables and to dig up Parsnips, Horseradish, and Celery. Advantage was taken of the partial thaw of Friday, the 8th, to get up supplies, which we hope may last to the end of the storm. The Broccoli that was heeled in under the walls, with a view of both retarding and protecting the heads from frost, has proved of immense service during the dilemma of which the heavy snowfall was the cause. As regards the protection of bedding plants, Strawberry plants, Roses, bulbs, and forcing shrubs that are in cold frames, the snow was left on, and over it we placed a thick layer of long stable litter, so that we have no anticipation of injury from frost. The whole of our outside work can be summed up in a very few words. It has been grubbing up old tree stumps, and burning them with other brushwood, Brambles, Couch Grass, and the rakings up of leaves and sticks in the plantation that is being grubbed. All our wood-ashes and charcoal for manurial purposes are manufactured in this way. Manure heaps have been turned over, that most decayed being separated from the other, and will be used first, the longest being left till it is more decomposed. Snow-shovelling, and wheeling it out of the walks most used, constitute the whole of our out-door work. I may add that our snowfall register amounted to 0.72 inches, and the depth on the ground to 8½ inches; our greatest amount of frost was 16°, on the morning of the 7th. This day—12th—it is thawing rapidly, and the snow has nearly all disappeared. The work in the houses has been cleaning of plants, pruning and tying climbers in orangeries, and Camellias to trellis on back wall, the sponging of the leaves of the Oranges, and the painting of the stems with a strong solution of Gishurst to kill, or at any rate check, the spread of the small white scale that abounds on the stems. Potted a few of the scarcer varieties of single Dahlias to start into growth for propagation. Put in cuttings of Lobelias (being short of stock), and also cuttings of Iresine, for the very same reason. Examined roots of Cannas, cut off all rotten stems, potted part of the weaker roots, and placed them in Peach house to start them into growth. Potted up Fuchsias, that when lifted from flower garden were packed closely together in a cool shed. They are now potted in the smallest pots that the roots could be pressed into, and pruned into shape—pyramidal form—for use in flower beds and vases in the coming summer, and for the present are given space in ainery at rest. The various varieties of Abutilons we use rather freely in the summer flower garden, and usually manage to propagate a sufficient quantity in the autumn, the best time, but from some cause or other they were forgotten last year, and as young plants are much to be preferred to old ones, a quantity of cuttings taken from the old plants that were lifted at the end of October has just been put in. The old plants come in very well for the centres of large flower beds, or to mix with by way of eking out short supplies of subtropical plants. During the prevalence of such cold sunless weather, the temperature of forcing houses we allow to fall in proportion to the outside air, a rule that, having followed for years, we can safely recommend as being at once the most rational and most successful, whilst the gain in time of maturity of fruit is really very little, but the

permanent injury of Vines, Peach trees, and other fruits from hard-and-fast-line temperatures is great.

HANTS.

FRUITS UNDER GLASS.

FORCING ORCHARD HOUSE.

THE early forcing of Peaches and Nectarines in pots is not now confined to the amateur's garden, as many professional gardeners who are expected to supply good fruit from May to November husband the Peach house proper by starting a selection of suitable varieties about the end of November. Where established trees have been properly treated and a little fermenting material has been introduced, many of them will now be approaching the flowering stage, if some of the blossoms are not already open. If not previously fumigated, directions so often given must no longer be neglected, for, no matter how carefully the trees and structures may have been cleansed, green fly is sure to put in an appearance and do considerable mischief before the fruit is set. Two or three smokings of tobacco paper, at intervals of a few days after the flowers begin to show colour, will result in a clean bill of health, which will carry both Peaches and Strawberries over the most critical stage in their culture. The great secret of success in setting the fruit is gentle bottom heat, which will keep the roots in action, and a slight rise in the temperature with ventilation by day. The night heat may range from 45° to 55°, according to the state of the weather, as nothing is gained by undue haste during the hours of darkness, provided the flowers are kept dry and sufficient air is given to prevent condensation of moisture. The mode of fertilising the flowers is entirely a matter of taste. Some few successful fruit growers distribute the pollen by syringing the trees when the temperature has reached the maximum of 65° to 70° on bright days; others leave them to take care of themselves. But the majority pass a camel's-hair brush very lightly over the flowers when the pollen is ripe and fit for its office. When water is used, its temperature should be equal to that of the house; it should be applied with a steady hand, more in the form of a gentle spray than an insect-destroying deluge, and the operation should be performed sufficiently early for the trees to become dry before nightfall. The same rule as regards the temperature applies to the use of the brush, which should first of all be well charged with pollen from free setters like Royal George Peach and Elrue Nectarine; then with a light touch shy varieties may be operated upon. A few minutes each day will suffice for the operation and it must be repeated until the petals begin to fall. When the fruit is set, the trees will require good syringing once or twice every fine day and warm water must be regularly applied to the roots. Mulching or top-dressing plays a very important part in good culture, and it must be regularly renewed from the time the fruit is set until it shows signs of changing for ripening. The materials, consisting of rich calcareous loam, cow manure, a small percentage of bone dust and soot, should be mixed and kept in a dry shed some time before it is wanted for use. If it becomes too dry or shows signs of heating, turning over and spreading out thinly will prevent loss from fermentation, while a thin layer of fresh stable manure will keep it well charged with ammonia. When the fruit has thrown off the remains of the flowers, trees that were not shortened back at the time they were housed must now be pruned into shape, always provided there are plenty of active wood buds to prune back to, and the Peaches on the lower parts of the shoots are sufficiently plentiful to allow for thinning and dropping at stoning time. Some varieties, notably the old Noblesse, do not swell many wood buds, one at the point, another at the base of each shoot, and for this reason many experienced growers delay shortening back until they are on the move, as the loss of the point bud prevents all the fruit above the next wood bud from swelling to maturity. When trees in a dormant state are pruned, it is generally safe to cut back to triple eyes, the thin, elongated one in the centre being invariably a wood bud, which will break into a new shoot while the plump, hoary buds on each side of it develop into flowers.

Late and general houses.—Where a good crop of

fruit of the best quality is the primary object which the grower has in view, the early part of January is a good time to house and start the trees, and where only one house is devoted to the general culture of a mixed collection, the 1st of February is quite early enough. The trees should, however, be housed shortly after the turn of the year, when advantage can be taken of inclement weather for getting them cleansed and placed in position. Pot trees that are wintered out of doors generally receive plenty of moisture from the elements and the material in which they are plunged. This supply their removal to the floor of a cold, airy house entirely cuts off, and as the roots are never at rest, their progress must be steadily maintained by occasional supplies of water, otherwise the check will result in the loss of buds when they ought to be expanding into blossoms and shoots.

MELONS.

Once more the capricious Melon must be brought to the front, as ripe fruit will be looked for in May, possibly in April. In order to have really good Melons by that time, the structure in which they are to be grown should be light, compact, and efficiently supplied with pipes for giving top and bottom heat. The soil, rather heavy calcareous loam, cut from an old pasture last autumn and placed in an open shed, must now be moderately dry, mellow, and in good condition for immediate use. Last, but not least important, well worked fermenting material should be at hand for filling up the pits when the young plants are ready for turning out or plunging, should pot culture be decided upon. Lacking any of these essentials, the sowing of seeds may with advantage be deferred until the beginning of February, when the chances will run in favour of vigorous growth without a check, which is after all one of the cardinal points in successful culture. Assuming that an abundance of heat is at command, a few seeds may at once be sown in 3-inch pots and plunged near the glass, which must be kept clean, where the bottom heat will not be lower than 80°. In well-ordered forcing places, a small nursing pit is generally provided for raising and preparing the young plants, as this arrangement gives time for getting the fruiting pit in perfect order by the time they are ready for turning out. But, lacking this convenience, one light at the warmest end of the fruiting pit may be made available by building up a good bed of fermenting Oak leaves and plunging the seed pots in it. When the young plants have pushed through the soil and the seed leaves are well formed, they may be shifted into 4-inch pots and replunged in the bed, which must be kept well up to the glass to prevent them from being drawn in the struggle to get nearer the light. The soil for the first shift should be carefully broken up with the hand and well warmed before it is used, as the slightest check to the roots or pressure of the stems will most likely cause them to damp off just below the surface. The pots should be clean and warm, and, with the exception of a slight dewing over on bright days, water must be withheld until the new roots actually require it.

Planting out.—If planting out on ridges or hills formed over tanks or bottom-heat pipes is decided upon, their preparation should be commenced in time for the heat to pass through the soil before the plants become pot-bound. To insure perfect drainage the sods on which the compost is placed should be supported by a good layer of rough lime rubble or broken brickbats. The ridges should not be made their full width at first, as additional soil will have to be added when the fruit is set and the roots have reached their extremities. They must, however, be raised to their full height, as Melons are not improved by earthing up round the stems like Cucumbers; in fact, canker and sudden collapse when the plants begin to feel the strain of the fruit is frequently caused by covering the seed leaves with soil.

Pot culture.—Although many people object to the fruiting of Melons in pots from the idea that it is troublesome, there is no doubt that the system is preferable in many ways to that of planting out. It will be evident that a much less amount of labour is entailed in carting, preparing, and moving the compost, as so small a quantity is necessary in proportion to that required for the ridges or hills. The pots can b.

kept in a steady bottom heat of 80° from the beginning to the finish; the plants can be fed at the right time without difficulty, setting can be ensured by the withholding of water from the small quantity of soil which the pots contain, and good flavour can always be secured by checking the supply when the fruit begins to change for ripening. These advantages alone might be considered ample to prove that this system is calculated to attain the main aim of all growers—the production of Melons of uniform good quality. Others, however, may be added, if only to show that the constant use of fermenting material hastens the plants through every stage of their growth, and enables the grower to take three crops in one season, while by planting out he can only obtain two. Bottom heat can also be given to late crops just when brisk dry heat is needed by these natives of the east.

The compost for pot Melons should be rough, strong and solid, but quite free from animal manure; in fact, a good loam that will grow soft-wooded plants well will carry them past the setting stage. Stimulants will then be required, such as finely broken old cow manure, bone dust, or Standen's manure; but in the absence of one or all of these, good fresh loam applied as a top-dressing, and washed in with warm diluted liquid from the frame ground will produce Melons large enough and good enough to place before a Persian monarch. The details of pot culture having been so often given in the pages of THE GARDEN, they need not be repeated here.

CUCUMBERS.

Plants that have been divested of fruit to husband their strength for the period when Cucumbers are in profitable demand may now be allowed to carry a moderate crop to maturity. One of the great points in successful winter culture is sufficient space to admit of extension training through the dead months, when every shoot that is pinched or shortened back produces a slight check upon the plants which should be kept constantly growing. In many instances, the plants by being placed too closely together are greatly weakened, if not ruined, by close stopping, when steady growth would keep the foliage in health, and the bottom heat being satisfactory would tend to the production of roots capable of feeding a crop of fruit under a January and not unfrequently a sunless sky. Assuming, that the winter plants have been hitherto divested of all male and female blossoms, and a sufficient number of promising shows are present, male flowers must be allowed to expand for daily use where fertilisation is thought necessary. In houses under my own management fruits are never fertilised unless we want seed, and my common cause for complaint is a too heavy crop of fruit in various stages of growth. As the plants will now have to make up for time apparently lost, when fruit was of really little value, the bottom heat must be kept up to 80° or 85° by the frequent addition of fresh fermenting leaves little and often. The roots should be encouraged to break bounds by the addition of large pieces of light rich turf, which will soon become filled with hungry mouths ready to feed upon the warm diluted liquid and other stimulants prepared for them. It is rather early yet to commence earthing up the stems; but when days get a little more advanced and growth improves, turf may be placed close to them. In the meantime, pieces of charcoal will induce the formation of stem roots, and, being an antiseptic, will keep them in a healthy condition. As days increase in length the temperature may be raised to 70° at night, with external covering if possible, and to 80° by day. The syringe may also be more freely applied—the first time when the mercury begins to rise, and again on bright days when it has reached the maximum shortly after mid-day. If spider, green fly, or mildew make an appearance, no matter how slight or feeble, apply the usual remedies at once and persevere until the foliage is clean. Sulphur water, soap water, Gishurst compound, and dry sulphur are most frequently used; but recently I have applied sulphide of potassium, a most excellent preparation. It is easily dissolved, and in the proportion of quarter of an ounce to a gallon of warm water is a certain destroyer of spider and mildew, while its passage through the soil and plunging material, although perfectly harmless to the roots, means certain death to worms and other

underground marauders. Fly is rarely found where the plants are healthy and have a compartment to themselves, but the use of sulphide of potassium or tobacco smoke must not be neglected. The smoking of Cucumbers and Melons is, however, a very risky operation, and should, if possible, be avoided.

Spring plants.—If not already sown, a few seeds of Telegraph should now be put into single pots, and treated as advised in the raising of young Melon plants. The same nursing pit will answer for the two, and the plants will be found very useful for replacing fruiterers that have been in bearing through the winter. Where Cucumbers are grown all the year round in small compartments, it is a good plan to clear out plants that show signs of having become exhausted, and replant with vigorous stock from seeds or cuttings of a really good strain as early as possible in the spring. If the pits are thoroughly cleansed quite down to the drainage and a fresh start is made with new fermenting material and compost, it is surprising how quickly they can be grown into a fruiting state either in pots or planted on hills. Moreover, compartments so treated always offer facilities for growing a few surplus plants up to the fruiting stage, ready for transferring to other quarters as circumstances admit, when the system can be repeated until every house is refurnished without materially diminishing the supply of fruit.

The frame ground.—Where Cucumber houses are limited and an early supply from manure pits or pits partially heated with hot water is imperative, the materials should now be got together and well worked preparatory to their introduction for giving bottom heat. In days gone by I have known plodding growers who have cut fruit from McPhail frames on the 9th of March. No one will deny that the light was hardly worth the candle; but hot-water apparatus were then few and far between. Now, we have every facility for supplying our pits with warmth from hot water and fermenting material combined, and owners who study their own interests will see that a flow-and-return is provided, if only for the purpose of producing quick and safe returns from summer as well as winter fruiterers. The great drawback to ordinary pits and frames is having to open the lights in bad weather; this should therefore, if possible, be avoided by making a door entrance and a passage along the pit, if only 18 inches in width. By feeding and top-dressing good Cucumbers can be grown under limited root-space, and the pit must be very small indeed if this economical arrangement cannot be carried out. Stock for these pits, we may assume, will be raised and grown to a good size in the winter house; but where this does not exist, a manure bed, large enough for a one-light frame, must be well built and efficiently lined to serve as a nursing-bed both for Cucumbers and early Melons.

W. COLEMAN.

Eastnor Castle, Ledbury.

FRUIT GARDEN.

PEAR GROWING.

THE Pear conference recently held at Chiswick, and all that has appeared concerning it, are calculated to throw some light on the important question of what varieties best deserve cultivation and what are better avoided. But the table that has appeared showing the number of times that each of the different popular kinds were shown, if allowed to pass without comment, is calculated to mislead those who stand most in need of being enlightened, namely, those who wish to plant Pears, but are more or less unacquainted with the merits and demerits of all, except, perhaps, a few of the commonest sorts. With Pears, as it was with Apples at the Apple conference, the number of collections in which, a particular variety appeared must not be taken as an indication that its general properties are such as entitle it to preference before others shown in fewer collections. For instance, Beurré Diel, which heads the list, being represented oftener than any other Pear shown, is a variety that possesses enough good properties to entitle it to a place in

a collection of moderate extent, but it is by no means equal to several other kinds ripe about the same time that stand below it in the number of times in which they were shown; for example, Marie Louise, Louise Bonne of Jersey, Doyenné du Comice, and several others are much better sorts and better deserving of cultivation than Beurré Diel. The good looking, but very inferior, Beurré Clairgeau is higher in the list than Doyenné du Comice, which is one of the best and finest looking Pears in cultivation. Chaumontel, a fine looking Pear and, in some places, of fair quality, but in many, little better than a sweetened Turnip, is oftener shown than Glou Moreau and Knight's Monarch, both of which are good and reliable varieties. Seckel, one of the most delicious of Pears, and one of the freest bearers, is not included in the thirty-six varieties oftenest represented. It is evidently not big enough, or not sufficiently taking in appearance to induce the generality of exhibitors, as the fashion now runs, to show it. More might be noticed pointing in the same direction concerning the list published giving the number of collections in which the different varieties were shown; but I think that I have instanced enough to show that those about to plant Pears and who are unacquainted with the properties of even such varieties as are most commonly grown should not follow the list published implicitly in their selection.

THE GENERAL REPORT of the conference that is to appear may be expected to assist in showing the kinds most desirable to cultivate in the different parts of the country whence the collections exhibited came, especially the details of cultivation and the differences in the quality of the different varieties when grown on the Pear and on the Quince stocks; this latter is a matter of as much importance as the selection of varieties that possess properties requisite to make them worth growing. The question of which is the best and most desirable stock on which to grow Pears generally has frequently been mooted, with no better result than to show the wide difference of opinion that exists on this, as on many other matters connected with gardening. Those who pronounce in favour of the Pear stock on the score that the fruit produced by trees grafted on it is better in quality, especially as regards the absence of grit to which Pears on the Quince are so liable, are met by the advocates of the Quince stock with the objection that those who plant trees on the Pear stock have too long to wait before fruit is forthcoming. Something may be said on both sides of the question. Having tried most of the varieties of Pears that I should care to cultivate on both the Pear and the Quince, side by side in different parts of the country where the character of the soil is as different as it well could be to admit of Pears being grown at all, I am able to so far speak of the merits of the respective stocks.

THE PEAR STOCK.—In places where the soil is retentive and the rainfall also heavy it not unusually happens that only a limited number of varieties, and those not the best, will bear on the Pear stock in a way to make it worth while attempting their cultivation, whilst where trees on the Quince are used better success is attainable. Where the soil is of average good quality, such as admits of being described as suitable for Pears, both the Pear and the Quince stocks answer, with this difference that at the end of the first dozen years after planting the trees on the Quince will have given more fruit than those on the Pear; but at the end of a score of years the Pear stock will be far ahead of the Quince as regards quantity of fruit, and will continue to still farther distance its rival, as after

this lapse of time in many places trees on the Quince begin to fall off in condition; and at no period of their existence has the quality of the fruit been equal to that forthcoming from the Pear stock. After this, while trees on the Pear stock keep on improving in their yield those on the Quince usually get worse, and in the case of some varieties this occurs whilst they are in even a younger state than that just named. Some of the best Pears we have refuse to grow at all on the Quince in a way to make them worth planting. For instance, Marie Louise, so far as my own experience goes, will not do at all on this stock. Taking into account the unsurpassed quality of this fruit, its ability to bear well either when trained on a wall or an espalier, as a large bush or pyramid, or as a standard, coupled with its ability to thrive in any part of England wherever the commonest hardy sorts will succeed, it is in my estimation without exception the best Pear in existence. I have had Beurré Rance, Beurré Bosc, Josephine de Malines, Williams' Bon Chrétien, Seckel, Aston Town, and other first-class Pears on both the Pear and the Quince stocks in the same garden, and in the case of each not only was the fruit better, but the trees also did much better on the Pear than on the Quince. Where the soil is light and dry, fruit from the Quince stock, so far as I have had an opportunity of judging, has invariably been poor and inferior. On soils of any description any variety of Pear that is at all subject to become gritty will be much more so on the Quince than on the Pear stock, and as the trees get older I have found this to frequently occur to such an extent as to make them worthless. With the single exception of its inducing earlier fruitfulness, I fail to see anything in its favour compared with trees on the Pear stock. In regard to

THE EARLY BEARING of Pears on the Quince stock that is made so much of by those who seem to see all its merits and to shut their eyes to its defects, there is more that is apparent than real. I have never yet seen an example of these precocious trees within the first half dozen years of its being planted at an ordinary size with much fruit on it. The hackneyed saying about planting Pears for coming generations to eat the fruit is meaningless, except where the trees are left to take their chance after planting, in which case the result is neither better nor worse than that which happens with most things in a garden in which such matters are neglected. The course I have followed with young Pears on the Pear stock has been to select good healthy trees, and to encourage them to make all the growth they were capable of for half a dozen years, simply shortening in any shoots that were taking an undue lead and cutting away any that were wrongly placed. If pyramid or bush-shaped trees, at the end of the time named they will be 9 feet or 10 feet high and in a condition to have their roots pruned more or less according to the kinds and as their condition requires. If properly managed, two years afterwards they will bear and keep on giving a crop proportionate to their size, provided that due attention is given to their roots. Where the object is to get larger trees before checking their growth they may be allowed to go on a couple of years or so longer; but I cannot see that there is anything gained by following this course, as it is better to take the means that will bring them into bearing than to wait longer; the size can be regulated afterwards. What Pears are required beyond such as there happens to be room for on walls and espaliers I like to grow in large bush form—say, kept to within 12 feet or 14 feet in height. Trees of this description are less liable to have their fruit shaken off by strong winds than tall standards, and the produce of

such trees occupying a given space of ground is double that which is obtainable from the little 5-foot or 6-foot bushes that are often recommended. Moreover, trees of the size I advise on the Pear stock will maintain a healthy, fruitful condition for an indefinite time after the little stunted bushes on the Quince have become worthless. When the extent of top growth is regulated by the roots being kept within bounds, comparatively little shoot-pruning is required after the trees have attained the desired size, and with the branches confined to numbers proportionate to the strength of the trees their energies go to the support of the fruit, which consequently attains a larger size than such as are produced by unrestricted standards. Although the latter form of tree, in the case of those varieties that attain a large size and are heavy croppers, naturally produces the greatest weight of fruit, I have seen a tree of the old Autumn Bergamot, growing in a small garden not far from the coast in North Lancashire, that produced over 4½ cwt. of fruit in a season. Few kinds attain the size of tree that this does, and, needless to say, the fruit produced by standards is mostly smaller than that borne by trees restricted in growth, especially in the case of such varieties as reach the size of the tree instanced, consequent on which the produce of standards usually fetches a much lower price than that from trees confined to a limited size; though, so far as my own experience goes, the quality of the fruit of either standards or the big bush Pears is quite equal to, and in some cases better than that from wall and espalier-trained trees. That which holds good in Pear growing in private gardens is equally applicable in the case of those who grow for sale; and if I was about to embark in the latter I should go in for the medium sized trees I have described, keeping the ground amongst them occupied by Gooseberries and Currants, and not pinched for manure, the presence of which in the early stages of the young Pear trees' existence soon brings them up to a useful bearing size, and when they have arrived at this the heavier crops they carry the more manure they will stand, as a matter of course regulating the amount given by the nature of the land. From what I have experienced in the cultivation of Pears, I am satisfied that the fruit produced by trees that are well sustained is far superior in quality, and also in appearance, to that forthcoming from trees growing on land that is short of manure.

FORM OF TREE.—There is one important matter connected with Pear growing as there is with Apples; in the selection it often happens that enough consideration is not given to the suitability of the varieties for the form of tree required. Small growing sorts, like Seckel, for example, even when on the Pear stock, will bear all the encouragement that can be given them to attain size, either when in bush form or trained on a wall or espalier, in either of which cases the space to be covered requires to be much less than with strong growers that naturally attain a large size, such as Marie Louise and others of similar vigorous habit, which any attempt to confine to dwarf size is a mistake, against which they rebel by a continuous struggle to grow out of it, although they do well when allowed to reach medium dimensions. T. BAINES.

Wrongly pruned Peaches.—In his note on this subject (p. 8) "S." says: "It must, however, be understood that I do not condemn the system of (hard) pruning." If so, why does he head his article "Wrongly pruned Peaches"? And how does he account for the following statement: "The system adopted by our forefathers of hard pruning young trees for the purpose of filling up the bottom of the wall with young wood was altogether wrong." Surely

this looks like condemning the system. Climatic changes, &c., are now called upon to answer for the short life of our Peach trees. They may have something to answer for, but they have not, I should think, reduced the life of our Peach trees by three-fourths during these last thirty-five years. I am aware that "S." said nothing about the form of tree which did not last more than fourteen years. I suppose he would not have us believe that such trees as he recommends would last much longer, although he confesses that pruning has nothing to do with matters connected with short-lived trees. If pruning has nothing to do with the matter—and Peach trees, as a rule, are not supposed to last more than fourteen years—upon what ground would "S." claim a longer life for the trees which he recommends? I must decline to accept the cool houses to which "S." alludes as being a proof that our climate has become so much less favourable for Peach growing out of doors than it used to be. Such houses may be a necessity in the north, but in the midland and southern counties they often only give us fruit when we can get it from open walls at much less expense. I do not happen to have charge of any fifty-year-old trees, nor do I believe that many ever existed. I think the lifetime of a Peach tree lies between these two extremes—fourteen and fifty. I know of Peach trees twenty-five years of age and still healthy. Although treated on the hard-pruning system, we have trees here thirty years old which still produce good crops of excellent fruit. Perhaps some of the premature decay in trees which "S." is inclined to put down to climatic changes might be more properly put down to early and persistent over-cropping or some other form of bad management.—E. B. L.

Protecting the stems of fruit trees.—Rabbits and sheep often kill young trees by eating the bark off their stems. The protectors, if not constantly watched, are rubbed off by the animals rubbing against them or displaced in some other way. There are many ways of affording protection to newly planted trees, but the best with which I am acquainted is as follows: Select a number of stout 4-foot laths and two pieces of flexible galvanised wire. Take up a lath and 6 inches from the bottom, pass round it one piece of wire, bringing it round and giving it a twist once or twice. Another piece of wire is passed round the upper end of the lath in the same manner. Commence with the centre of the wires, so that the two ends may be of equal length for working round other laths, which should be joined on to the first one till a collar of laths has been formed, loose and flexible, and of sufficient size to fit the stem of the tree loosely, leaving plenty of room for the tree to grow. These collars look neat. They do not take long to make and they are lasting and not liable to become loose or displaced. For large park trees where cattle or deer exist stout roofing laths should be used, and they may be 7 feet or 8 feet long and the wires used should be of greater thickness and strength than those just named.—E. HOBDAV.

Cool house Vines.—In reply to "R. T. S.'s" question (p. 37) allow me to say that the Black Hamburgh is the best black Grape and Foster's Seedling the best white for an unheated vinery. I have also succeeded well with Buckland Sweetwater and Madresfield Court; but in the case of the two last-named, the border should be shallow and well drained. I should plant eight Vines in a house of the dimensions given, and if one or two show any marked superiority over the others (which sometimes happens), permit them to extend, and remove the least flourishing in order to give them room. In growing Grapes without fire-heat a good deal may be done by utilising to the fullest extent the heat of the sun. And to this end the house should be so constructed as to afford the maximum amount of light; and from the beginning of April till the Grapes begin to colour, the house should be as carefully managed as regards ventilation as if the Vines were being forced, which in reality they are. The reason why people fail with such Grapes as the Black Hamburgh without artificial heat is, they are careless about ventilation, and do not get so much warmth from the sun as they might on sunny afternoons. Closing early, and thus keeping in the sun's heat, on fine afternoons effects a double object: it not only pushes on the Grapes, giving size to bunch and

berry, but it adds strength to the wood, and foliage, and buds, and so lays up a store of strength for the next year's work. Unless the soil is on a warm limestone bottom, or the site is naturally well drained, the border should not exceed 2 feet in depth, and summer mulchings should be employed to keep the roots near the surface.—E. HOBDAV.

—“R. T. S.” (p. 37) should plant ten Black Hamburgh Vines, and as sufficient room must be allowed to admit plenty of light, keep the laterals pinched pretty close; also maintain a dryish atmosphere during growth, and inclose all the sun heat possible, in order to ensure success.—JAMES SMITH, *Waterdale*.

—I would advise “R. T. S.” (p. 37) to plant Black Hamburgh Vines, there being no other variety of equal merit that will succeed so well in an unheated house. Should the house be built with ordinary rafters at about 4 feet apart, one rod planted under each rafter will be sufficient; but if otherwise built, and the roof admits plenty of light, nine Vines at 3 feet apart will be most suitable, if grown on the restriction system.—W. C. T.

WINTER DRESSING PEACH TREES.

PEACH TREES are not grown so largely on open walls now as they were some twenty-five years ago, but there are still some gardens favourably situated in which they are grown even at the present day. A few words, therefore, as to their winter treatment may be of service. In the first place, let me direct attention to the importance of getting the wood well ripened, and nothing does more towards securing that end than unnailling the branches and letting them hang loosely from the wall. How early in the winter it is safe to do so depends a good deal upon the state of the wood in autumn. With a heavy rainfall and a mild autumn Peach trees in some cases grow late, and when they do so we may be sure that the growth is not thoroughly ripened. Unnailling such trees at any time before the commencement of the new year would be to incur the risk of the young growths being injured by frost. It may be said that the same risk attends unnailling later; but I maintain that injury is not then inflicted to the same extent, because the trees will have been exposed for several weeks to a gradually lowering temperature, if not to actual frost, and the protection of the wall during this interval will have made them secure from injury if a severe early frost should occur. But when the unnailling of the branches is deferred until later in the winter, it is clear that the wood must be harder, and therefore in a better condition to bear severe cold than it would be if taken off the wall earlier. I advocate the unnailling of Peach trees early in January, because I am satisfied that it is the proper thing to do in order to complete the last stage of ripening without unduly exposing the trees to harm.

It was a common practice many years ago to apply a winter dressing of some sort to the branches of Peach trees on open walls; many old gardeners had their favourite nostrums for this purpose, including weak solutions of turpentine and soot worked into a thin paste, and several other equally obnoxious mixtures; but although I have spent many days in painting the stems and branches with these compositions when a junior hand, I never could see that the trees were in any way benefited by such applications. Green fly and blister would attack them then, as they do now, and I am satisfied that the crop was never increased a single fruit by the process. Since I have managed trees on my own account I have never winter-dressed trees on open walls. In fact, I do not agree with the practice either indoors or out, and although under force of circumstances I am obliged to apply winter-dressings to Peach trees and Vines under glass as a preventive measure, I would not do so if I

could command the necessary labour at the proper season to prevent attacks of insects, because it never appears quite clear to me when applying the winter dressings how much injury I am doing to the trees. It is pretty certain that they cannot do them any good further than destroying any insects or eggs that may have found a lodgment about them. In speaking of the possible injury which such dressings may do, I have in view the possible effect that a coating of clay and Gishurst compound or any other similar mixture may have on the pores of the bark, and I feel that it would be something gained if we knew what that effect was; until that is understood I shall not vote in favour of applying winter dressings to fruit trees of any kind. J. C. C.

AMERICAN APPLES AND PEARS.

MR. HOVEY's remarks on American fruits in a recent issue of *THE GARDEN* are extremely interesting, but we think he errs in supposing (as he seems to do) that it is owing to indifference on the part of British cultivators in regard to the merits of American fruits that so few of them are to be seen on our exhibition tables or recommended in our nurserymen's catalogues. Judging from his remarks, Mr. Hovey seems to imagine that we have only to plant American varieties in order to produce fruit equal to that grown in America, and which, as he says, finds such a ready sale in Liverpool and other English cities. Now, the fact is that many American fruits, and especially Apples, have been tried in Britain, but our comparatively cold and sunless summers are so little fitted to develop their good qualities, that in most cases they have proved as disappointing here as British Apples tried by Mr. Hovey have proved in America. No doubt many other nurserymen have experimented with American fruits; at all events, in our trial grounds at Liberton we have tested the capabilities of many of the most approved American and Canadian Apples, including the following varieties: Baldwin, Newtown Pippin, Porter, Spitzenberg, King of Tomkins County, Rhode Island Greening, Wagener, Benoni, Melon Apple, St. Lawrence, Barossa, Swaar, Twenty-ounce Rambo, Saxon, Cooper's Market, &c. These we procured twelve years ago from reliable sources in America, and planted them out alongside our collection of British and Continental Apples. The trees have grown well enough, and most of them have produced fruit, but in nearly every case the fruit has been small and scrubby, devoid of colour or taste, and bearing hardly the most distant resemblance to American-grown fruits of the same varieties. An exception ought, perhaps, to be made in favour of Hyslop's Crab, which has proved perfectly hardy, and has borne good crops of beautifully coloured fruit. The result of these trials would seem to prove that few of the American Apples are likely to succeed (in Scotland at least) except on a good wall or in an orchard house. That fruits which were raised in America, and attain perfection there, do not succeed in our less genial climate is scarcely matter for surprise, but it might have been expected that some at least of our British Apples would improve so much under the more favourable conditions existing in America as to be found worthy of cultivation there.

Mr. Hovey's experience seems to prove the contrary, though the list of British Apples named by him does not strike one as a particularly happy selection for comparison with American varieties. Cockle Pippin, Pearson's Plate, &c., though excellent as regards flavour, are certainly deficient in point of size and colour, which are precisely the

strong points in most American and Canadian Apples. It would be interesting to know what success Mr. Hovey has had with such sorts as Blenheim Orange, Peasgood's Nonsuch, Hoary Morning, Cellini, Golden Noble, Worcester Pearmain, and Cox's Orange Pippin.

Even more remarkable than the failure in America of British Apples is the evident want of success with Pears of European origin. Many of the French, Belgian and German Pears attain the highest excellence in their respective countries, but though most of them seem to have been tried by Mr. Hovey and doubtless by other American cultivators, they have evidently been found inferior in America to varieties which have originated there. All this seems to prove the correctness of the theory which was held by Van Mons, and recently referred to in a contemporary, viz.: “That in trying to improve the fruits of any particular country better results, as a rule, will be obtained by raising and selecting seedlings from sorts which, though relatively inferior, are by their constitution adapted to the climate of that country than by introducing varieties, however fine, from countries where the climatic conditions are essentially different.” If this theory be true, what possibilities may not yet be in store for British fruit growing. It certainly speaks volumes for the energy, enterprise, and intelligence of American fruit growers that they have in a comparatively short time raised hundreds of varieties, both of Apples and Pears, which are better adapted to their climate than the best sorts brought from countries where fruit growing has been carried on for centuries, and growers in this country should be stimulated by their success to devote far more attention than they have hitherto done to the raising of improved varieties of hardy fruits which can be successfully and profitably grown in our climate.

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CEREUS GIGANTEUS.

THIS wonderful Cactus, its colossal proportions, and weird, yet grand, appearance in the rocky regions of Mexico and California, where it is found in abundance, have been made known to us only through books of travel, no large plants of it having as yet appeared in cultivation in this country. It is questionable if ever the natural desire to see such a vegetable curiosity represented by a large specimen in gardens like Kew can be realised, owing to the difficulty of importing large stems in a living condition, and even if successfully brought here they survive only a very short time. To grow young plants to a large size seems equally beyond our power, as plants 6 inches high and carefully managed are quite ten years old. When young the stem is globose, afterwards becoming club-shaped or cylindrical. It flowers at the height of 12 feet, but grows up to four or five times that height, when it develops lateral branches, which curve upwards and present the appearance of an immense candelabrum the base of the stem being as thick as a man's body. The flower, of which a figure is given here, is about 5 inches long and wide, the petals cream coloured, the sepals greenish white. Large clusters of flowers are developed together near the top of the stem. A richly coloured edible fruit like a large Fig succeeds each flower, and this is gathered by the natives and used as food under the name of saguaro. A specimen of this Cactus 3 feet high may be seen in the succulent house at Kew.

B.

Pelargonium Madame Charles Koenig.—This is one of the best of white-flowered Pelargoniums for winter

blooming; its trusses, too, are neat and compact, and look well in a cut state. The blossoms are pure white, except here and there a few faint pencillings in the throat. There are several other varieties, much in the same way, but for winter flowering this, as I have said, is the best.—H. P.

ORCHIDS.

ORCHIDS IN MID-WINTER.

THE sudden fluctuations of outdoor temperature just now experienced are very trying to the occupants of our Orchid houses. It is difficult to know how to leave the fires at night, as there may be 18° of frost at shutting-up time and none at all in the morning. Notwithstanding the changeableness of the weather, however, our Orchids are looking fairly comfortable. The cool house will get not a blink of sunshine until March; its position does not admit of it. Still, *Masdevallias* and *Odontoglossums* are opening their flowers quite freely. *M. ignea superba* is superior in colour to *M. Veitchiana*. *M. tovarensis* is laden with delicate white blossoms, while in most collections *M. polysticta* is now opening its clusters of small flowers spotted like *Odontoglossum nævium majus*. How active seems the small slugs at this season; we feed them on Carrots, but, nevertheless, they seem to prefer the juicy stems of unexpanded blooms in preference. The *Odontoglossums* seem to grow as freely now as at midsummer. Some plants are in full flower, others have passed that stage, and are growing quite freely. *Odontoglossum Edwardi* and *Oncidium macranthum* seem to like a low temperature; it is pleasant to see the young roots pushing out from the yet unformed pseudo-bulbs, through the live *Sphagnum* on the surface, and over the sides of the pots, instead of into the compost of fibrous peat, *Sphagnum*, and charcoal provided for them. The roots are as brittle as glass, and must not be touched. We have to watch diligently for slugs, as they will leave the young spikes pushing up between the leaves and pseudo-bulbs for these juicy roots. Someone wrote of *O. Edwardi* as being difficult to establish. I bought six plants of it at a sale about two years ago, and the whole of them are growing freely. I fancy I have been told that it was rather difficult to import. *Odontoglossum Halli* and the more richly coloured *O. triumphans* are both pushing up flower-spikes; the roots of these are more slender than those of some others, and they have not the same tendency to creep among the Moss and push out of the pots. The spikes must be carefully watched; if slugs are very plentiful and the plants of special merit, it may be necessary to twist a little cotton wadding round the base of the spikes. I do not, however, like to see a whole house decorated with bits of wadding; it is better to watch closely and destroy the slugs. *O. cirrhosum* is now pushing its spikes vigorously, but not in this house; I found that it did not get light or heat enough; it was therefore placed along with the *Cattleyas*, but at the coolest end; indeed the treatment given to *O. vexillarium* is that in which this beautiful species delights. Those, like ourselves, who find it difficult to keep pace with work during the late spring and early summer months will now begin to pot their plants, or, at least, such plants as really need repotting. Small or medium-sized

plants of *O. crispum* that have well filled their pots with roots should be repotted if starting to grow. Those that do not seem to be suffering from want of pot-room may as well be let alone for the present. All our small plants are suspended in pans or baskets near the glass—I mean by that small growing species of Orchids, not small plants of *O. crispum*, which take their chance on the stages.

Odontoglossum Rossi, *O. adpersum*, and *O. Cervantesi* seem to do best almost touching the glass. Indeed, some growers do not succeed with these three dwarf growing species in the cool house, but have been successful with them in the *Cattleya* house. Our plants, so far, do well in the cool house; they are grown in pots; the pots are placed in teak baskets, and as they are quite close to the glass they get all the light that is available. The variety *O. adpersum* is correctly



Flower of *Cereus giganteus*.

described in THE GARDEN (p. 37). There is, however, another form cultivated in some collections much resembling it, viz., *O. Humeum*, said to be a natural hybrid between *O. Rossi* and *O. cordatum*. To my mind neither of these hybrids are, however, as beautiful as *O. Rossi* or the pretty *O. Cervantesi*, although they might cost ten times as much money, owing to their being so unfrequently met with.

J. DOUGLAS.

Cypripedium insigne.—I agree with Mr. Muir that this is a very useful and easily grown Lady's Slipper. I have a plant of it which measures 3 feet 6 inches across now bearing ninety flowers (in some cases twin flowers); they have been open for a month, and have every appearance of remaining so for another month. It would be interesting to know what number of flowers has been borne on any one plant of this

Cypripedium. Perhaps Mr. Muir or some other correspondent will give us this information.—G. J. WARREN, *Balcombe Place, Sussex*.

ORCHIDS AT THE FIRS, SYDENHAM.

MR. DORMAN has here a grand collection of Orchids, in which he takes a keen interest, especially as regards their culture. He is not content to implicitly follow rule-of-thumb practice, but carries out experiments in order to test for himself the soundness of any particular point of ordinary practice. He finds out for himself the particular periods at which his plants need rest, either by subjecting them to a warm and dry atmosphere or a cool temperature, and thus, by intently observing results, he has accumulated a vast amount of Orchid knowledge during the many years in which he has grown Orchids. This is the kind of knowledge that is required by professional Orchid growers, who, as a rule, are apt to run too much in a set groove, and care little to launch out in a different direction from that in which they have steered ever since they first acquired the elements of Orchid culture. Each class of Orchids is grown at The Firs to perfection, but the glory of the collection are the *Cattleyas* and *Odontoglossums*, than which one could not possibly see plants in more perfect state. The houses are built with an eye to the particular requirements of the various sections; none of them too large, and skilful contrivances have been provided for adjusting the conditions of heat or coolness, moisture or dryness, sunshine or shade. Mr. Dorman seems to set his face against excessively high temperatures, except for certain kinds at particular periods of their growth. Therefore, at any season one may find in his houses a comfortable atmosphere, and the luxuriance of his plants affords sufficient evidence that a high temperature is not only not indispensable, but is prejudicial to the health of even East Indian Orchids, which one generally finds stewing in a reeking hothouse. The health and vigour of the *Cattleyas* and *Lælias*, the special favourites of Mr. Dorman, may be attributed to the close attention they receive, and more particularly as regards the management of their growing and resting periods, wherein lies without question the whole success of good *Cattleya* culture. This is no simple matter, seeing that all do not require the same treatment. One of the chief points which Mr. Dorman aims at in

his *Cattleya* treatment is in producing as strong growths as possible, thoroughly ripening them, and, above all, preventing them from forming second growths, which, as a rule, are weak. To finely adjust the conditions of treatment so as to bring about these results is not, of course, a simple matter, but then it is worth carrying out, for the difference between a well-managed *Cattleya*, such as one sees here, and one grown in a hap-hazard way is great. The production of sound roots, plenty of them, and the maintenance of strong and plump pseudo-bulbs are the points aimed at here, and are successfully attained. The same principles hold good in every section, and even experienced Orchid growers are astonished at the growths which Mr. Dorman is able to show.

In the large *Cattleya* house may be seen quantities of *C. gigas Sanderiana* at rest; these plants are kept perfectly dry, and will be so until

the end of February when they are again placed in their growing position in a rather warmer house and supplied with water once a week. There are great masses of *Laelia purpurata*, fine specimens of *C. exoniensis*, *labiata*, and the new hybrid *calumnata*, several big plants of the finest variety of *Laelia elegans alba*, and endless other *Cattleyas* and *Lælias*. Flowering among them are fine varieties of *Cattleya Percivaliana* and two beautiful forms of *C. chocoensis*, the one a pure white variety with yellow throat, and the other having a deep crimson blotch on the lip. What a fine and chaste *Cattleya* this is! Why so much despised by some amateurs we cannot understand, for although the flowers are somewhat tube-shaped the roundness and perfection of form in petals and lip is most striking.

In another house, solely devoted to *Cattleyas*, *C. Mendeli*, *Percivaliana*, and *Trianae* have made up big bulbs and sheaths, and in another fortnight a grand display may be looked for; *C. Walkeriana* and the pretty *luteola* were in bloom, also several fine forms of *Trianae*. An adjoining house is solely devoted to *Dendrobies*, and although few were in bloom, the pleasure in looking at the stout healthy growths was as great as almost the largest supply of flowers could have given us. Mr. Dorman holds perhaps the largest stock of *Dendrobium Cooksoni* and *nobile nobilius*; some fifty or sixty plants of *Ainsworthi* and *roseum* are suspended in baskets from the roof. Like almost all other Orchids grown here, the varieties of the various species have been chosen with care. In the first *Odontoglossum* house a bank of large plants of *O. vexillarium* is seen first, and fine they are; it is impossible to see a better and healthier lot anywhere. The opposite stage is filled mainly with *O. Pescatorei*, three very fine varieties being in bloom, one very round and large flowered, pure white, with a broad lip, another being rose-coloured with a heavily blotched lip, and the third having only one deep crimson large blotch in the centre of lip. The second house adjoining is almost entirely devoted to *O. Alexandræ* and their hybrids; deep green, short foliage and stout bulbs are seen in every plant; for many years past the very finest varieties have been gathered together and form now a uniform batch of excellent *Odontoglossums*. *O. tripudians Dormannianum* is in bloom, and the finest tripudians yet seen, sepals and petals very large and broad, of a deep copper-brown colour tipped with golden yellow, lip exceedingly broad, purple with light rose edge. Another fine thing in flower here is *O. triumphans splendens*, with large brilliantly coloured flowers. *O. Dormannianum*, probably a natural hybrid between *naevium* and *crocidipterum*, is a most lovely species; the flowers are pure white with deep purple spots all over sepals and petals. Some fine varieties of *O. Alexandræ*, among them a very large round-flowered variety with one big crimson blotch in the lip. The *Masdevallia* house promises to furnish a fine show presently, many plants throwing up their spikes.

Another house is devoted to miscellaneous Orchids, and in it we noticed *Laelia anceps Dawsoni*, *Sanderiana*, *alba*, *Percivaliana*, and others; *Zygopetalum Mackayi grandiflorum*, *Odontoglossum pulchellum*, the genuine *O. odoratum* in several fine varieties. How different the true *odoratum* is from *gloriosum*; the flowers are golden-yellow covered with crimson spots. Although called *odoratum*, this *Odontoglossum* has no scent, and its spikes are much larger than *gloriosum*. *O. ramosissimum* and the rare *O. undulatum* are also in bloom, several fine forms of *O. adpersum*, *O. Rossi majus* and *rubescens*, *Maxillaria Sanderiana*, and many others. In the *Phalenopsis* house a group of *Angraecum*

sesquipedale is at its best just now; the many long-tailed blooms hanging down from the massive looking plants form a group not easily forgotten. *Phalenopsis Schilleriana*, *grandiflora*, and *Sanderiana* are finely flowered. In this house the best *Cypripedium* hybrids have their quarters, and are well grown and healthy looking. *Paphinia grandis* is also well cultivated here. Several fine specimens have continued to flourish for some years. As soon as the plants have finished blooming they are shifted into a cool house, and kept perfectly dry until the bulbs shrivel, after which they are again placed in strong heat and moisture. Among the many other fine things in bloom just now at The Firs should be mentioned *Odontoglossum blandum*, *Masdevallia melanoxantha*, *Cypripedium Lceanum superbum*, *Celogyne Massangeana*, *Odontoglossum crispum Lehmanni*, and the chastely beautiful *Lycaste Skinneri alba*. At any season one may find some Orchids out of the ordinary run in this collection, and even during the dulllest time of year a true Orchid lover would derive enjoyment in seeing such excellent culture so well carried out.

AN ORCHID SOCIETY.

If a society of this kind sufficiently broad, practical, and comprehensive could be formed, it would without a doubt largely increase the culture of these most interesting plants, and at the same time lead to their being even more universally admired than is now the case. At present our real knowledge of these plants—I mean life-history and native associations—is very meagre, and one point to which a society might well devote some attention is the life-history and habits of these plants in their native wilds, as well as to the legends and traditions which the natives of the countries where they luxuriate possess concerning them. I was in a well-filled Orchid house the other day, and amongst others present was a modern *Lady Corisande*. "Oh!" she said, "I quite grant you that the loveliness of these plants when in bloom is superb, but they lack the associations and deep human interest which so many of my favourite hardy flowers possess." No doubt these plants, at least some of them, have really pretty native names and quite a wealth of poetry and legend, if our collectors were able to grasp and collect these for us, as well as the plants themselves. In civilised countries, east and west alike, Orchid flowers are largely used by the natives in their temples, as well as for personal adornment, and I remember one beautiful orchid-like simile used by Maudslayi in his translation of the Malayan story of "Indra Taksana." Indra is leaving his wife to go forth to battle, and asks, in case he falls in fighting, whether she will take the flowers from her hair and throw them on his grave. The princess (wife of Indra) upon this wept the more abundantly, and her arm embraced the neck of her husband as the Musk-scented *Epidendrum* entwines the *Angsuka* tree. I simply mention our lack of folk-lore in connection with Orchids, first, because it is a weak point with us, and our collections would gain immensely in interest if this want was supplied.

Special societies are sometimes apt to be started too narrowly; a dozen or two of specialists form a society, which might better be described as a "corner" or a "ring." Now, if an "Orchid society" is to become an accomplished fact, it must be both deep and broad. That all amateur orchidists and their efficient aides-de-camp, the practical Orchid cultivators, should be invited to join is a foregone conclusion. The leading spirits of both the amateur and the commercial growers must be invited to join the initial committee. A president, one to six vice-presidents, treasurer,

and secretary would be elected by this committee, and then the extent and scope of the work of the society could be settled in the usual way. The secretaryship would be practically a most important point, and perhaps two might be elected—one an amateur and one to represent the trade. The amount of work any society can effect is to a certain extent governed by the funds at its disposal, and my own plan would be to make such a society numerically strong—in other words, thoroughly representative in all ways, regulating the subscriptions according to the status of the members, the donations or special contributions, of course, being left to the generosity of the wealthier amateurs who cared to join.

The Royal Horticultural Society might or might not be able to do much in the way of aiding an "Orchid society;" but it seems clear that a broadly organised institution of this kind could effect much good by offering special prizes for plants difficult of cultivation, cut flowers of rare Orchids, essays on special subjects, original drawings, or in other approved ways, and, further, that such a society, without in any way risking its capital by holding expensive exhibitions of its own in London, Edinburgh, Manchester, or elsewhere, might nevertheless strengthen the hands of any metropolitan or local horticultural society with which it might work for the time being. Such a society should grow naturally, rather than be "formed," in the ordinary acceptance of the word, and I should say from 500 to 1000 members and subscribers could be obtained. Even if large money prizes were not offered, the medals and certificates of such an important body would prove laurels worth the winning, and these could be offered under special conditions in any locality, just as the medals of other societies and memorial bequests are now awarded. It will thus become evident that, without in the least way interfering or competing with any existing institution, such a society as has been proposed would be able to assist any other society with which it could be temporarily associated from time to time. This is an important point, and in this manner a thoroughly representative society would become efficient for good from the first day of its formation. No exhibition grounds or expensive officers or offices will be required—at least, such is my own idea. Apart from the orchidists pure and simple, the scientific element should be warmly welcomed, and its services utilised "to the utmost of our power." The botanist can teach us much in many ways, and the same is true of all scientific men. Geologists, entomologists, fungologists, microscopists, biological and physiological professors should be asked to join, especially if such men can possibly be found with a love for the Orchids already. In this way the committee or its secretary could refer any particular question or specimens to the specialist best fitted to deal with the subject. When we really think for a moment of the hundreds—I might say thousands, no doubt—of the isolated observers, amateur and practical growers, and gardeners scattered throughout the country districts, it seems a pity that there is no common centre worthy of their suffrage, and to which their notes of practice and observation could naturally flow. It seems most desirable to concentrate the Orchid interest into an association able and willing to cope with the difficulties of culture and nomenclature in a far broader and more enlightened way than is possible to any one individual. If any real want in this direction exists, no doubt this question will meet with all the attention and ventilation it deserves; on the other hand, if those most interested feel that such a society is unnecessary, the project will, for the time being, fall to the ground. Personally, believing that such a want really does

exist amongst us, I shall do all I can to promote such a society as that herein proposed.

AN ORCHID GROWER.

TREES AND SHRUBS.

THE BEST CONIFERS.

IN regard to the kinds of evergreen trees that it is advisable to select for most parts of this country a good deal of discrimination is needed, for out of the large number now in cultivation it is not too much to say that, except in the comparatively few places that are more than ordinarily adapted to their growth, there are as many that it is better to reject than to include in a selection that is required to produce the best effect collectively, or that will look the best individually; for although in planting for what may be termed decorative purposes it is well to secure as much variety as possible, still it is better to confine the kinds to such as may be relied on to grow in a way that will make them pleasing objects to look upon, not only for a time whilst the trees are in a comparatively young state, but that will continue to keep on in a healthy, thriving condition. The maintenance of health is an essential condition to observe, for if there is one thing more than another that the experience of the last thirty or forty years has shown, it is that a large number of the evergreen trees introduced within that period grow satisfactorily for a time, but afterwards fall off in a way such as to make them more of an eyesore than otherwise. Proof of this is afforded by the condition of not a few of the kinds of evergreen trees as they now exist in many parts of the kingdom where enough care has not been used in their selection.

Respecting evergreen trees, they so far differ from deciduous kinds, that some possess that which may be set down as the first essential to their succeeding in this country—sufficient hardness to enable them to bear our winters—nevertheless fail to continue to keep in a thriving condition; whereas the deciduous trees that have been introduced, when they turn out hardy enough to bear the climate, usually go on growing in a way that leaves little to be desired.

Needless to say that it is the Conifers that have caused the most disappointment, through their having been so largely planted in recent times, and generally in the most prominent positions in the grounds to which they have been introduced, where consequently the failures that ensued have been the more conspicuous. When new trees are introduced, those who take an interest in such matters naturally are disposed to possess them, and it is well that their ability to succeed should be as widely tested as possible. But until this is fairly proved it is a mistake to place them, as often done, in positions where they can least be spared. Amongst coniferous trees

The Pines

are the most important in planting for effect, as they are for the production of timber. Their merits generally are too well known to require much being here said about them further than pointing to a few that may be relied on as able to thrive and look well in any soil and situation fairly adapted to the growth of trees. In planting for effect,

P. AUSTRIACA (the Austrian Pine) holds the first place; it is as hardy as the Scotch Pine, a free-grower, even in the most exposed situations, and is not surpassed, if even equalled, by any tree in existence for use where a thick permanent screen is required, such as to shut out anything that is objectionable to the view, as when it is allowed enough room from the first, it assumes a dense spreading habit, producing strong side branches from the base that keep on increasing in size proportionate to the

growth of the trunk, not getting bare at the bottom, like most evergreen trees ultimately do. Its dark colour makes it a striking object in the landscape, especially when grouped in large masses near trees with lighter coloured foliage.

P. CEMBRA (the Swiss Pine) is a distinct and very effective species; its habit is just the reverse of the Austrian Pine, as the side branches are both light and short, giving the tree a partially cylindrical appearance; its foliage is much paler coloured than *P. austriaca*; it is hardy and free, but not a rapid grower, not attaining more than half the size that some of the genus do. It is best suited for planting in small groups, or single specimens, at a moderate distance from a dwelling where the largest growers would get too big.

P. EXCELSA (the Bhotan Pine) is another fine kind that grows freely almost anywhere where not too much exposed. Where it has plenty of room its lower branches spread moderately; its pale, drooping, glaucous foliage contrasts well with that of the darker kinds.

P. STROBUS (the Weymouth Pine).—In some respects this tree is not unlike the last-named in appearance; it is suitable for planting in wetter soil than many of the genus, as it may generally be seen doing better where the land is moist than in dry situations. Its leaves are pale green and silvery.

P. LARICIO (the Corsican Pine).—In addition to being one of the best of the Conifers as a timber tree, this species is equally deserving of planting for decorative use, especially where the grounds are extensive and a position can be given it at a distance from the dwelling. It is not over-particular as to soil or situation, providing the land is not very wet or very poor. It is the quickest grower of all Pines in this country.

P. SYLVESTRIS (the Scotch Pine).—This, although too common for those disposed to give preference to uncertain novelties rather than well-proved kinds, succeeds almost anywhere where trees of the hardest description can thrive fairly. Still, there is a vast difference in its appearance when growing where soil and climate are such as to afford all that it requires as compared with where the conditions are the opposite of these. Seen, as it may be, in places innumerable, it is one of the most effective of all trees, and should never be left out where there is enough room to admit of its being massed at some distance away from the principal points of view.

P. MONTICOLA has an erect habit, the side branches, like those of the Corsican Pine, not attaining so much length as those of most other Pines. The bark is paler coloured and smoother than that of most of the species. It is a fine hardy kind, that deserves to be more used in decorative planting.

P. BUNGEANA (the Lace-bark Pine) is a remarkable and very distinct kind. Its leaves are of a pale green colour. It has not been long enough in the country to show what its appearance will be when it has attained anything approaching its full size, but in its native country (Northern China) it is said to branch out near the base, forming a number of strong limbs, like *P. austriaca* and *P. insignis*, but the side branches assume a more erect position than in either of the last-named species. It differs from other Pines in the way that the outer bark, which is of a whitish colour, peels off in broad flakes like that of the Silver Birch, hence the name it often gets. There is little doubt of its being quite hardy, and a very desirable tree for ornamental planting.

P. INSIGNIS is one of the most beautiful of all known Pines, as well for its habit of growth as for its effective colour. Unfortunately, it will not stand our severest winters everywhere; but in those places where it is found capable of resisting the low temperature we sometimes get it should never be left out. In the west of England, especially on the Devonshire coast, it is one of the most beautiful trees imaginable. It also escapes injury from severe frost on much of the western seaboard, and the southern counties generally, when the land is of a character that favours a hard, well-ripened condition of the foliage and young wood, such as where the subsoil consists of rock or gravel, with a fair depth of good

soil above. These may seem too few out of the large number of Pines now at the disposal of the planter but for general effect they will answer all purposes as well as if the whole of the known kinds were used whilst their appearance individually leaves nothing to be desired.

The Spruce Firs (Abies).

These afford the decorative planter some of the most elegant forms existent in tree life to choose from.

A. EXCELSA (the common Norway Spruce) is too old and well known to require any description. In fact, the usage it oftener than otherwise gets now at the hands of planters would seem as if it was looked on as too old to be worth allowing an opportunity to show the all but matchless elegance of growth which it possesses when let to have a fair chance. Without any of the care and pampering often uselessly bestowed on trees newly introduced, the common Spruce will appear in a condition not surpassed by any tree in cultivation. When seen in good form, 50 feet or 60 feet high, with all its plume-like branches perfect down to the ground, it is not easy to imagine a more beautiful object, and all that is necessary to secure this is to give it enough room, a position not too much exposed, and a soil of fair quality, not water-logged, nor yet too dry. A good many forms of this Spruce exist, but at their best I have not seen any of them equal to the common kind.

A. ORIENTALIS.—This beautiful tree, although distinct in many ways from others of the genus, would not unlikely be set down by anyone unacquainted with trees as a less vigorous growing variety of *A. excelsa*; but it is more dense in growth, the branches thinner, not so feathery, and do not droop so much as in the common Spruce. The foliage is of a glossy bright green colour. The contrast between the golden coloured young growth in spring, when the tree is standing near any of the dark-leaved Pines, is very effective. It is quite hardy, a good, but not very fast grower, and is suitable for positions where the common Spruce would get too large.

A. SMITHIANA.—No one can look upon this tree when seen in its best condition without feeling sorry that it does not thrive everywhere, for when in its best form it stands unequalled for the peculiar elegance of its long pendulous shoots. I have never seen it injured through the cold in winter, but its disposition to push growth too early in the season causes it to suffer through the late frosts in localities subject to visitations of this kind late in the season. Where it does well it is one of the most graceful trees existent, on which account it deserves a place where it is found to succeed.

A. ENGELMANNI is a distinct tree, so far as can be seen, but it has not been long enough in the country to show fully what influence change of climate and soil may have on it. It seems to be quite hardy, which at all events is the first consideration. The glaucous form, *A. Engelmanni glauca*, is also well worth giving a trial in any part of England where coniferous trees generally thrive. The same may be said of *A. polita*, a Japanese species introduced about the same time as the last named. It is one of the most distinct in appearance of all the Spruces; the leaves are remarkably strong and almost as sharp at the points as pines. The shoots are strong and erect, similar to the leaves. So far the tree seems not to suffer in the least by the keenest frosts that have occurred since it came into the country, now over twenty years ago.

The Silver Firs (Picea).

These beautiful trees must ever be held in high estimation by those engaged in planting for effect.

A. PECTINATA (the common Silver Fir) is one of the most stately tall-growing trees we possess; it thrives satisfactorily over a wide range of the kingdom providing it is sufficiently sheltered and the soil is suitable. After it has attained sufficient age to show its true character, it forms a straight, massive trunk, but the branches generally get somewhat thin of foliage.

A. NORDMANNIANA.—This, which ranks as one of the finest of all the Silver Firs, is nearly allied to *A. pectinata*, yet it has so far shown no disposition to become thin of foliage, but quite the reverse, as it

retains its dense covering of leaves in a way that, combined with the deep green, healthy colour, renders it one of the most telling evergreen trees ever brought into the country.

A. NOBILIS.—Sufficient time has elapsed since the introduction of this grand Fir to prove its being hardy in most parts of England; the stout shoots are densely clothed with its much curved leaves, which are retained so as to keep the tree fully furnished.

A. GRANDIS.—A magnificent tree in its native country, and which has proved to be one of the finest of the Silver Firs in this country; its habit is not so dense as that of some others of the newer kinds of Silver Firs, to which in this respect it forms a contrast.

A. PINSAP.—In general appearance this differs considerably from the other species; the foliage is short and closely set on the shoots, which are so numerous as to give the tree an extremely dense appearance. It is a slower grower than most of the allied kinds, and does not get near so high. The foliage suffers from severe frost in some parts of England so as to injure the appearance of the tree for a time, but in localities where it is not thus affected it is a beautiful kind for a single specimen on a lawn.

The Hemlock Spruces.

Of these there are several that should not be omitted, particularly as their appearance differs considerably from that of other trees.

A. ALBERTIANA is a comparatively slender-growing tree that contrasts well with the stronger-wooded species; it has a pretty appearance when backed up by any of the closer-growing, more densely-furnished kinds.

A. CANADENSIS.—This well-known species does not attain near the size of most of the trees already named; the branches are thin and drooping, and it is more inclined to spread than to tower up in the way that many of the species grow. It is one of the hardiest of coniferous trees.

A. DOUGLASI seems to be more influenced by soil and locality than most evergreen kinds; in its native country it attains an immense height, and in some places here its slender stem mounts upwards almost as fast as any of the quickest growing Poplars, the leaves having a green, healthy hue, whilst in others it looks yellow and sickly without any apparent cause for the difference. It is a tree that is not likely to be seen in its best form in this country except where the conditions are more than ordinarily favourable, such as in a valley where there is plenty of depth of soil free from stagnant water, and where its head will be well sheltered.

Cedars.

Of the many fine trees that have been introduced to this country there are none that form such a distinct feature in the landscape as a well-grown example of the Lebanon Cedar. Where the situation is suitable and enough room from its infancy has been allowed, so that its wide-spreading branches have had room to extend, it becomes one of the most beautiful of trees; to its other good properties must be added its free-growing and hardy nature. *C. atlantica*, although not so markedly distinct in appearance from other trees as the Lebanon Cedar, is also deserving of being grown wherever the soil is of fair quality and the situation not too much exposed.

THE DEODAR (*C. Deodara*).—Since the introduction of this tree it has had a marked preference shown it by most planters over either of the first named species, to both of which it is much inferior in all except its appearance whilst young. In place of being planted in the numbers it has almost everywhere, it is a tree that should be introduced with caution, and not put in the most prominent positions, as it oftener than otherwise stops growing after a time and gets into a stunted condition.

LIBOCEDRUS CHILENSIS (the Incense Cedar).—This tree has several properties that make it an acceptable

addition to the evergreen species. From its unusually short side branches it requires much less room than any tree that I recollect. This, combined with its not attaining a height near equal to many of the Conifers, befits it for planting where trees of more spreading habit would be inadmissible. In addition, its general appearance is such that it forms a good contrast to other species. It is not so hardy as some of the kinds described; consequently it is better not to plant it in localities where the winters are exceptionally trying.

SEQUOIA (*Wellingtonia gigantea*).—There can be little doubt that the wonderful accounts given of the immense size this tree attains within the limited area in the New World, where alone it seems to have found conditions congenial to its existence, have been the cause of its being planted in this country indiscriminately, with apparently little thought about its thriving. The fact of the tree confining itself to such a limited tract of country might have caused doubts as to its succeeding in England. It is not likely

gets into in most places, have made it far from a satisfactory tree for general use. But in the localities where it does best its distinct appearance makes it deserving of a place. From the much better condition it continues in and the larger size it attains in the moister climate of the western counties, this *Araucaria* evidently requires more root-moisture than it gets in the south-eastern parts of England.

CYPRESSES.—Comparatively few of the various kinds of *Cupressus* long continue to thrive well in this country, except in the mildest localities; yet there are two species not surpassed for their singularly beautiful spiral habit of growth by any of the occupants of British gardens—*C. Lawsoniana* (the Lawson Cypress) and *C. nutkatensis* (*Thujaopsis borealis*). Of the last named there is several forms, whilst the former is represented by a over a dozen varieties. But for general purposes the type species of each may be looked on as the best.

C. LAWSONIANA is one of the hardiest evergreen Conifers ever introduced; the severest winters do not seem to affect it in the least; it is a good grower, thriving in almost any kind of soil, and in any locality where Evergreens do fairly.

C. LAWSONIANA ERECTA VIRIDIS, the most distinct in habit of all the varieties of the species under notice, can be used with good effect in positions where a small densely clothed columnar growing Evergreen is required.

C. LAWSONIANA LUTEA.—Of the many varieties of variegated and yellow-leaved Conifers that have appeared little can be said in favour of the greater portion except on the score of novelty, but this golden form of the Lawson Cypress is an exception, being a good grower and retaining its decided yellow colour all the year round unaffected by the weather.

C. NUTKATENSIS is in no way behind *C. Lawsoniana*, and superior to it in some respects, as it will grow in the poorest clayey soil where no other Conifer that I have met with can do more than exist. Not that the tree is indifferent to good soil, as the better the land the better it grows. In the earlier stages it is remarkable for its close, even growth; as it goes on and throws off its infantile garb the branches come further apart and not so dense, but it is even more elegant in this state, the head presenting quite a contrast to the base of the tree, which long retains its fresh, healthy appearance.

RETINOSPORA (Japanese Cypress).—Beautiful as the two distinct-looking kinds of *Retinospora* with their many varieties are whilst quite young, in most cases their beauty is short-lived, for as seen in the majority of places after being planted only a few years they get so thin and ragged in appearance as to reflect little of what they first promised to be. It is a pity that these trees, so distinct and beautiful when in their best form, and so far apparently quite hardy, should fail to realise what their early appearance led planters to expect. There cannot be much doubt that the land in most parts of England is too dry for them; in different places where I have seen them in deep peaty soil their appearance left little to be desired, notably in the Knap Hill Nursery, where there is one of the largest examples I have met with in faultless condition, not showing a trace of the falling off that is so general.

THUJA (*Arbor-vitæ*).—The Chinese, most of the American, and other *Arbor-vitæ* are amongst the commonest and best-known Evergreens, useful enough for many purposes, but in general appearance they do not compare with *T. gigantea* (Lobbi), which is a remarkably free growing tree that seems as if it would attain a large size in this country; its growth is spiral, the branches short, thin, and close for some distance upwards, but getting more straggling as the tree increases in height.

THUJOPSIS DOLOBRATA (the Hatchet-leaved *Thujaopsis*).—This distinct-looking tree seems as if it would turn out a real acquisition, as it so far thrives satisfactorily under varied conditions of both soil and climate; the natural disposition of the lower branches to spread out to an extent that gives the base a diameter almost equalling its height adapts it for



Waterside trees.

to be much planted in future. *S. sempervirens* is evidently a better tree in this country than its big brother, *S. gigantea*; in deep valleys where there is an abundance of good soil and shelter it is an interesting tree that grows at a great rate, so long as its head does not get so high as to be exposed to the wind, which, so far as I have seen, invariably stops its further extension—a fact which in itself is sufficient to indicate the places to which its planting should be confined.

ARAUCARIA IMBRICATA (the Chili Pine).—Differing so much in appearance as this tree does from all others that will live out of doors with us, it will doubtless always be a favourite; but the great difference in the conditions of its existence in this country, even in those situations that suit it best, as compared with those which it exists under in the high, moist mountain slopes of its native home is such, that we can never expect to see it attain anything like the proportions to which it grows naturally. Its inability to withstand the exceptionally severe winters we now and then have, and the stunted, unhealthy state it soon

planting in many positions where taller trees are unsuitable.

THE JUNIPERS (*Juniperus*) are widely distributed over both the western and the eastern hemispheres, and are found in several parts of Europe, including the United Kingdom, consequent on which, as might be expected, they present a marked difference in their appearance from *J. chinensis*, which, where the conditions are favourable, reaches to a height of 15 feet or 18 feet or more to the little alpine species that scarcely rises more than 12 inches or 15 inches from the ground. The most useful kinds are too well known to require much being said about them.

J. CHINENSIS (the Chinese Juniper) is one of the most useful Evergreens; its hardy constitution enables it to thrive where tender subjects are useless. For its many good properties it is likely to hold its own against many newer introductions.

J. OCCIDENTALIS (the Western Juniper) differs sufficiently in appearance from *J. chinensis* to make it a desirable tree, as hitherto it is deserving of the planter's notice.

J. RIGIDA.—This is quite distinct in appearance from most of the allied species through the shades of yellow and glaucous colour in the leaves in their various stages of development.

J. VIRGINIANA (the red Cedar).—Of this well-known representative of the genus there are several varieties differing more or less from the type and from each other; in addition to the common sort, *J. virginiana glauca* is worth growing amongst other things for its distinct metallic colour.

J. PROSTRATA.—Where a low spreading plant that keeps close to the ground in the way of the common *Cotoneaster* is required, this Juniper can be used with advantage. *J. communis nana* is also a useful plant for employing in the same way.

BIOTA (Chinese *Arbor-vitæ*).—Nothing in its way is more remarkable than a good sized example of the dwarf, bushy-headed variety of *B. orientalis*, *B. orientalis aurea*, often seen in shrubberies, or standing singly on a lawn. A well-grown plant which has reached a height of 6 feet or 7 feet, and as much in diameter, presents a contrast to other trees and shrubs; but in choosing a site for it a place should be selected at the corner of a clump of other shrubs, or some place where it will be quite free from the encroachment of everything else, and also out of the reach of cutting winds, for, unless its branches are perfect from bottom to top, its appearance is destroyed.

THE YEWs.—Few trees are more deservedly popular than the common Yew (*Taxus baccata*), although devoid of the lofty stature and elegance in form present in many evergreen trees that hail from other lands. Still, taking all its properties into account, this tree has few equals. It will grow exposed to the wind, but is more symmetrical when moderately sheltered; it also vies with the Holly in its ability to thrive under the shade of other trees. The common green kind is much the best for ordinary purposes, but one or two of the golden varieties that have sprung from it are deservedly prized for their colour. Of these *T. Barroni femina* is a beautiful plant, a good grower, with the yellow colour in the leaves brighter than the old golden Yew, which latter is a very effective plant.

T. FASTIGIATA (the Irish Yew), so generally known for its rigid, erect growth, used sparingly in association with trees of low-spreading habit, is seen to the best advantage. The gold and the silver forms of this Yew are alike effective when rightly placed amongst other trees with green foliage, or, like the golden varieties of the common kind, massed together in clumps where the grounds afford room enough for this style of planting. The Japanese *T. adpressa* differs from any of the foregoing, inasmuch that it forms a low, flat-headed bush, on which account it can be used in positions where a taller growing plant would not be so admissible.

T. BAINES.

The Buckland Yew.—In reply to "Taxus," allow me to say that I paid a visit to Buckland last September, after an absence of three years, and had the satisfaction of seeing this grand old Yew in much more vigour than before its removal. There is one

small female branch, and that was full of fine berries; twigs of both the male and female portions I took to Kew.—WILLIAM BARRON, *Borrowash, Derby.*

WATERSIDE TREES AND SHRUBS.

UNLESS soils are at least fairly drained few trees or shrubs will thrive in it, the choice of such being principally limited to Willows, Alders, and Poplars, but in a position that, though damp, cannot be termed water-logged, the choice is much more extensive, as many even among our commoner trees and shrubs will thrive well in such a spot. In making a selection of the most suitable for this purpose the following may be included in the list. Alders are recognised as being among the best trees for wet soils, and are ornamental as well. The best are the common *Alnus glutinosa* and its varieties, *laciniata* and *aurea*. The latter (the golden Alder) has beautifully coloured foliage when planted in a sunny spot. *A. cordifolia* is a handsome quick-growing kind, as also are *Alnus incana* and *rubro-nervia*. Of Willows there is a large number to choose from, and the following are worthy of especial mention. The white Willow (*Salix alba*) forms a quick-growing tree of a very picturesque appearance when old. *S. babylonica* is the well-known Weeping Willow, and as a curiosity may be added its ring-leaved variety *annularis*. The Duke of Bedford's Willow (*S. Russelliana*) is another handsome tree, and one of the prettiest "pussy"-bearing kinds is the Goat Willow (*S. caprea*). *S. pentandra*, with its large, glossy leaves, is desirable, and so is the bright, golden-barked *S. vitellina*, as it is a most conspicuous object during the winter, when devoid of foliage.

All the Poplars are handsome, quick-growing trees, many of which are grown for the sake of their timber. Of these there are *Populus nigra*, *fastigiata*, *alba*, *monilifera*, *tremula*, *balsamifera*, *tremuloides*, with *canadensis* and its golden-leaved variety, which latter is to be seen at its best in a sunny spot. The small tree-like *Magnolia glauca* is well suited, as a lawn plant, in a wet soil, and the Cucumber tree (*M. acuminata*) will thrive in a damper spot than the others. In the list must be included the different kinds of Ashes, English and American, and especially the Flowering Ash (*Fraxinus Ornus*, or *Ornus europæa*), which forms a handsome tree in dampish soil. *Liquidambar styraciflua* will grow well in such a spot, but the foliage in autumn is not so bright as where the soil is drier. Other trees are Birches, Planes, some Oaks, notably *Quercus rubra*, *palustris*, and *Phellos*, and the Tupelo tree, *Nyssa multiflora*.

Among shrubs better fitted than others for damp spots are *Rhododendrons*, *Azaleas*, *Andromedas*, and *Kalmias*, all of which do better where the soil is fairly moist than otherwise, as indeed do many other of the *Ericaceæ*, especially the *Vacciniums* (whose leaves are among the brightest tinted of any during the autumn), *Pernettias*, *Gaultherias*, and above all the *Clethrass*, which are never seen to advantage unless in a dampish spot, for if dry the foliage assumes a rusty hue before the end of the summer, at which time the flowers open. Most of the *Spireas* are moisture-loving subjects, and in a position that though in full sunshine the roots are never dry they flower quite as freely, and the blossoms are much finer than where less moisture exists. There are great numbers of *Spireas* now that prefer a damp soil. A few of these are—*S. salicifolia*, with upright spikes of whitish flowers; *S. arifolia*, with light feathery clusters of creamy white blossoms; *S. Douglasi*, with deep rose-coloured flowers, borne in dense terminal spikes; *S. hypericifolia* forms a large bush with long slender arching shoots that are

studded throughout their length with pure white blossoms, and when a good form is obtained (for individuals vary greatly) it is one of the handsomest of flowering shrubs. To the above *Spireas* must be added the pinnate-leaved *S. sorbifolia*, that flowers about July, and the large-growing *S. Lindleyana*, whose plume-like panicles of blossoms stamp it as one of the finest late summer or early autumn-flowering shrubs. *S. callosa* produces large flattened corymbs of deep rosy red blossoms, besides which the young shoots are suffused with crimson. *S. opulifolia* and its golden-leaved variety are both good distinct kinds. *Mahonia repens* and *Aquifolium* will hold their own almost anywhere, at all events under conditions such as many other shrubs would refuse to grow in, but where the soil is fairly moist they are seen to much greater advantage than in a dry spot. A great many of the *Barberries* succeed best under the same conditions, notably *Berberis vulgaris* and its many varieties, *B. aristata*, *B. Darwini*, and the handsome hybrid *B. stenophylla*, which is, perhaps, the finest of all. The *Tamarisk* will do well whether the soil is wet or dry, and will stand the effects of salt water better than most shrubs. The autumn-flowering *Hibiscus syriacus* or *Althæa frutex* is never seen to such advantage as when the soil is pretty moist, as then the foliage is retained in a perfect condition till the flowering season. *Hippophae rhamnoides* will do well just on the water's edge, and fruit freely in such a position, providing it is not too much shaded.

Of Conifers suitable for damp spots, the first place must be awarded to the deciduous Cypress (*Taxodium distichum*), which will thrive in swampy ground such as the Willows delight in, though it is by no means essential to its well-doing, as in a good well-drained soil it will grow away freely. It is a very handsome tree, especially conspicuous in spring, just as the young tender green leaves make their appearance, and again in the autumn, as the foliage dies off a reddish brown hue. Among the several species of Cypress, *Lawson's Cypress* (*C. Lawsoniana*), in fairly moist spots, acquires a beautiful deep tint, and *C. nutkaensis* does well under similar conditions. The white Cedar of the United States (*Cupressus thyoides*) in dry soils acquires a bare and sickly appearance, but in low damp situations it and the several varieties thereof all form handsome specimens. *Cupressus macrocarpa*, *Sequoia sempervirens*, and *Libocedrus decurrens* may also be added to the list. The red Cedar and its many varieties, with the different forms of the American *Arbor-vitæ*, are all moisture-loving trees, and in the same category may be included *Thuja Lobbi*, the *Cryptomerias*, and most of the Japanese *Retinosporas*, notably *R. pisifera* and *leptoclada*. The most suitable Pines would include *P. rigida* (which, however, never ranks high as an ornamental kind), *P. austriaca*, *sylvestris* and *excelsa*. *Abies canadensis*, *Douglasi*, *excelsa*, *Menziesi*, and *nigra* all thrive in moist spots.

T.

Oak coppice.—Oak copse is cut down at various periods between fifteen and thirty years, the rule being that the principal stems of the plants at 1 foot from the ground should not be less than 6 inches in diameter. In favourable soils in the south and west of England this size will be obtained in from twelve to fifteen years; but in the colder climate and in the inferior soil of the Highlands of Scotland, from twenty-five to thirty years are required. The cutting over of copse is performed at the same season as that in which full-grown trees are felled, when in both cases the bark is an object as well as the timber; but in the cutting over of coppice trees it is necessary to bear in mind that the stools are intended to shoot up again so as to produce another crop. To facilitate

this, they require to be cut over smoothly, so as not to lodge water, and close to the ground, in order that the shoots for future branches may proceed at once from the roots, and not at some distance over them, in which case they would be liable to be blown off.

FATSIA (ARALIA) SIEBOLDI.

It is surprising how much effect and how much pleasure may be obtained from very slender materials, if only they escape being commonplace, and it is some compensation for many fruitless struggles to win success when one realises that a garden with a market characteristic may be more satisfactory than mere variety. In many parts of the kingdom there is such an *embarras des richesses*, that the very fact of there being so great a mixture somewhat confuses the effect, and so we lose the thing we sought for. Some years ago, when riding by the sea in Japan, not far from Yokohama, I noticed how well this *Aralia*, or, as is perhaps more correct, *Fatsia Sieboldi*, grew under the shade of trees when so exposed to the sea winds that they themselves were much cut by storms. As a window plant that will endure much hardship, we all appreciate its value in England, but as an outdoor plant it has not as yet its proper value, for it is generally planted in some sunny and sheltered situation where it will not thrive. On returning to England I took the first opportunity of planting any old stumps that had been exhausted by ill-usage indoors under the shade of trees, and, spite of the intensely severe winters of 1879, 1880, and 1881, I was pleased to see that they pushed out healthy new leaves that withstood both winter storms and nipping frosts that they had to endure.

In a garden where Hollies not unfrequently drop most of their leaves after severe gales, and refuse to live under trees where fully exposed to the salt blast, where no Conifer, Laurel, or Yew will even exist through two winters, is just the place where this leathery-leaved shrub should be planted. It enjoys a strong and moist soil, and dislikes the full exposure to sun and frost as much as the most delicate lady could do; but planted in shade more or less deep, the vigour of its handsome, Fig-like leaves is quite striking, and it is most welcome, as being the only satisfactory alternative to the too ubiquitous *Aucuba*, also a native of that quarter of the globe. It is much to be regretted that, owing to this *Fatsia* soon suffering both from sun and frost, it has not been considered sufficiently hardy for general seaside planting, and no one who gives it a fair trial will repent his experiment.

Iris fetidissima, a native evergreen *Iris* that grows abundantly on the south coast, and is well known there for its handsome capsules full of bright orange berries that glow in the winter sunshine, thrives and fruits just as freely under cultivation on the north-east coast, and makes a very pretty edging to a bed or plot of *Aralias*. Used as a hedge to keep off salt winds from low-growing plants, it is especially welcome as being ornamental as well as useful. There is a variety with clear silver variegation running all down the leaves, which is very pretty, particularly in the shade, and as it never berries like the wild form, one loses nothing by planting it in such situations. This variety is useful also for winter bedding, and looks extremely well with some dark shrub behind it and lilac Primroses in front.

There is also a very handsomely variegated form of the *Fatsia*, with creamy white blotches and irregular edgings, which is larger and more massive in foliage than the type, and stands

better in the open than it does, but it is not so healthy in deep shade, so that there is a place for both. Combinations of these materials with shrubby *Veronicas* and yellow winter-flowering *Jasmine* are exceedingly bright and pretty in mild seasons, and give a winter effect quite as pleasing in character as more extended plantations could accomplish.

E. H. W.

Copper Beech hedge.—There is growing at Ashwellthorpe Hall, Norfolk (the seat of the Baroness Berners), a hedge of Copper Beech. It is about 70 yards long, 7 feet high, and from 3 feet to 4 feet thick. It divides the kitchen garden from the pleasure grounds, and is both useful and ornamental. It requires but little labour to keep it in order, as it only needs trimming once a year. It was planted fifty-two years ago, and to all appearance will last another half-century.—T. B. FIELD.

Fremontia (p. 36).—Others besides Mr. Frank Miles have been puzzled at the sudden death of *Fremontias*. I believe the explanation to be that it is naturally a short-lived shrub. Plants, like ourselves, have their allotted time of life. But perhaps some one who knows the plant in California could tell us something.—H. N. ELLACOMBE, *Bilton*.

THE YEAR 1885 IN CHESHIRE.

THE year just closed was comparatively dry, but very changeable. The rainfall of the first seven months was rather less than that which fell during the same period of the preceding year, but it came at a time when it was more likely to benefit growing crops; therefore, although we had less rain, vegetation did not suffer to such an extent from want of water as it did in that year. The total amount which fell during the year was below the average and in excess of that which fell in 1883, one of the driest years on record. The dry weather which occurred early in the year greatly assisted the fertilisation of the flowers of both wild and cultivated fruits. The crop of fruit in some instances that resulted where not thinned or properly secured was so great as to break off the branches. In consequence of its having set so abundantly, it has generally been undersized. Holly and Yew trees have been literally covered with their bright red berries. January was bright and seasonable, with sharp frosts and comparatively little rain. The principal out-door flower of the month was *Helleborus angustifolius*. The early part of February was very mild for the season, and without the east winds which we occasionally experience at that time of year. On the 16th there was, however, a sudden change, and we had a week of cold, stormy weather. The thermometer on the 19th registered 17° of frost, which was the lowest temperature reached during the winter. Snowdrops, Crocuses, Scillas, and *Saxifraga Burseriana* and *oppositifolia* were in flower. March was very changeable; frost occurred on seventeen nights; the lowest temperature recorded was 20° on the 13th. We had only three or four really fine days during that month; vegetation, therefore, was very much retarded, being quite three weeks later than usual. *Saxifraga cordifolia* and various kinds of *Narcissi* were in flower. The first half of April was cold for the season, the prevailing winds being easterly. Vegetation made but little progress from the middle of February to the 17th of this month, when we had the first really fine day of the year. Frost occurred on nine occasions, the most severe being 11°, on the 4th. The highest temperature registered was 69°, on the 17th. *Rhododendrons* and several kinds of fruit trees were in flower. May was very changeable. The highest temperature registered was 77° and the lowest 26°, accompanied by north-east winds. Frost occurred on six nights, and on one occasion was followed by severe snow storms. The Plum crop in this neighbourhood was ruined on the 14th by 5° of frost, both flowers and embryo fruit being saturated with water. June was very favourable for the growth of vegetation. The rainfall was nearly up to the average. The highest temperature of the year was reached on the 4th, and this was the only month during the year in which we had no frost. During July the weather was very dry and the variations of temperature extreme; the highest recorded was

84° and the lowest 36°, on the 4th, when, although the thermometer did not register any frost, there were unmistakable indications of it from the injury sustained by tender plants. August was somewhat similar to July, viz., the rainfall of each was much below the average and the variations of temperature extreme. The highest recorded was 83° and the lowest 32°, on the 15th. This was 4° lower than was reached in the preceding month, yet it did not cause so much injury to tender plants, owing to their tissue having become hardened by exposure. September was an exceptionally wet month. Rain fell on twenty-three days, the total being above the average. Frost occurred on four nights. The highest temperature registered was 77°, on the 13th, and the lowest 27°, on the 28th. In October we had the heaviest rainfall of any month during the year. The highest temperature registered was 57°, on the 16th, and the lowest 25°, on the 30th. Frost occurred on four occasions during the month. The weather during the greater portion of November was bright and dry, with an almost total absence of fogs. An excellent opportunity was thus afforded for taking up and storing root crops. The highest temperature recorded was 57°, on the 2nd and 12th, and the lowest 20°, on the 16th. Frost occurred on nine nights. December was characterised by an unusual number of dense fogs. Frost occurred on fourteen nights, and on lakes and meres the ice was sufficiently strong for skating. The highest temperature registered was 47°, on the 14th, and the lowest 15°, on the 8th. Total rainfall for the year, 29.50 inches; average amount for the last five years, 33.41 inches.

Wythenshawe.

W. NEILD.

Hellebores as cut flowers.—It has been most disappointing to many besides Mr. Woodall (p. 32) to find that while the Christmas Roses, or the *H. niger* section of *Helleborus*, endure fresh and fair for weeks when cut and placed in vases of water, those of the *H. orientalis* and *viridis* groups droop and are quite flaccid an hour or two, perhaps sooner, after they are cut from the plants. I have not examined the sepals and flower-stalks of these plants under a magnifier, but should expect to find that in the *H. orientalis* group there is an increase in the size and number of the stomata, or transpiration pores, in the outer skin (epiderm) of the sepals and stalks. Be this as it may, if their cut blooms be placed in vases as soon as cut, and a glass shade is then dropped over them on to a plate half full of water, so as to prevent evaporation, they endure quite fresh, and the young buds continue to open. The only drawback to the glass shade is this, some admiring friend may tell you "how natural" the flowers are, thinking them to be wax models.—LEX.

Rose cuttings.—I have recently been engaged in dibbling in cuttings of Roses on a south border and in light soil. The plan is simple enough, and, as I have previously proved, quite as efficient as if more trouble were taken with them. Growers in a small way often bestow on their gardening work far more pains than is needful, and with no better success than attends those who do the same thing in a large way and with comparatively little trouble. In a small garden, for instance, the greatest amount of care is lavished upon the putting in of a couple of hundred cuttings of Gooseberries or Currants. A grower of these for sale digs, or perhaps only ploughs, a piece of land deeply, has it harrowed down neatly, and then has perhaps 20,000 cuttings dibbled in with the help of a long line, and if a good open spring follows he finds that 90 per cent. of them will grow. In the matter of these, Gooseberry, and similar cuttings, far more depends upon the character of the wood than on anything else; it should be firm and well matured. Something also depends on how the cuttings are made. Moreover, a good deal of the after success when rooting is accomplished depends upon the nature of the soil, which should be not only deeply worked, but should have some short manure buried in it to promote quick early growth. The future of the plants depends very much upon getting a good start, for whilst weak growth the first year seldom develops robust growth later, on the other hand, the first year's wood may be too strong, and thus fail

to ripen firmly. This latter result, however, seldom happens; good growth as cuttings soon makes good established plants.—A. D.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 12.

THERE was but a small number of exhibits at this meeting, owing no doubt to the cold weather, but there were more Orchid flowers than we expected, and among these there were some of exceptional interest. For instance, Baron Schroeder sent from his garden at Egham a whole series of varieties of *Lælia anceps*, numbering seven of the finest and most distinct. There were the superb Dawsoni, which is unquestionably the queen of the series; Barkeri, the large-flowered variety, with intensely deep coloured flowers; the true alba, the flowers of which are pure white, except a yellow crest on the labellum; Williamsi, like alba, but having dark pencillings on the side lobes of the lip; rosea, with the flowers of a delicate rose-pink; Hilliana, paler than rosea, the sepals being almost white; and the new Sanderiana, which excited more interest than all, inasmuch as this was the first time it had been seen in bloom. It is most comparable with Dawsoni. It differs in having broader flowers, but with rather narrower lateral sepals, all pure white and with the lip not so heavily blotched with colour. It is a superb variety, and those who are the possessors of large masses are fortunate. All the spikes shown by Mr. Ballantine from the baron's collection were grand specimens of good culture, and a cultural commendation was accorded to him. Mr. De B. Crawshay also sent some varieties of *L. anceps*, including Williamsi, Stella, with white flowers pencilled on the tip, and blanda, a lovely form with rosy-flushed sepals and a deep coloured lip. From Rosefield, Sevenoaks, Mr. Crawshay also sent flowers of the new *L. Crawshayana*, which is supposed to be a natural hybrid between *L. anceps* and another. The flowers are smaller than those of *anceps*, somewhat different in shape, and highly coloured, the lip tints being extremely brilliant. Mr. Crawshay has besides a fine white form of *Odontoglossum crispum* called Stella and another named aureum, which latter, however, did not seem to be sufficiently developed to show its true character. Mr. Dorman sent from The Firs, Sydenham, several choice Orchids, including *Odontoglossum Inseayi* splendens, several fine varieties of *O. triumphans*, the pretty little *Promenæa stapeloides*, *Cypripedium insigne* Dormannianum, a handsome form with the lateral sepals more profusely spotted than usual, but not nearly so distinct as the variety Wallacei, which Mr. Dorman also possesses. A fine specimen of *Lælia anceps*, alleged to have been subjected to the pruning system for the last seven years, was shown by Mr. Blandford, gardener at Haselfoot, Moor Hill, Southampton. It was indeed a fine plant, carrying about a dozen flower-spikes and crowded with strong, healthy bulbs, each bearing a spotless leaf of that luxuriant green which indicates rude health. There was but one leafless bulb; the others had been cut away as soon as the leaf decayed. As to whether the health of this plant could be attributed to pruning or not we cannot risk an opinion, but as an example of good culture it was unusual, and the committee acted wisely in according to Mr. Blandford a cultural commendation. Another remarkable Orchid shown was a splendid variety of *Odontoglossum crispum* named Bonnyanum. This came from Baron Schroeder, and is remarkable for the fine form of the flowers and their rich markings, which consist of a heavy blotch of cinnamon-red on each sepal. A first-class certificate was awarded to Mr. Dorman for

ODONTOGLOSSUM TRIPUDIANUS SUPERBUM, which, without doubt, is the finest variety of this species that has yet been exhibited. The flowers are as large as those of *O. triumphans*, with the sepals much the same in colour. The lip is remarkably broad, and is coloured with plum-purple and purple, hence is very attractive.

A few other things of interest were shown, but none more remarkable than the cut blooms of the new American Tea Rose Sunset, which Messrs. Paul, of

Cheshunt, exhibited. This Rose is superior to others of its colour, which is similar to that of Madame Falcot. The perfume is delightful, and the foliage of that beautiful coppery hue which harmonises with the flowers so well. The half-expanded buds are borne plentifully on long slender shoots, which renders them so well adapted for cutting. Messrs. Paul give this new-comer unqualified praise as a winter Rose. A bronze medal was awarded to Messrs. Veitch for a large group of Chinese Primulas, including a choice selection of single sorts, among the best being The Queen, Chiswick, and the so-called Improved Blue, which will persist in remaining a slaty purple. Messrs. Cannell showed samples of their numerous beautiful sorts of Chinese Primulas, and Mr. Walker, of Thame, sent a few cut blooms of *Chrysanthemums*.

Fruit.—The committee for fruit and vegetables devoted their attention chiefly to a large collection of stewing Pears which Mr. Barron had brought up from the Society's gardens at Chiswick. The collection included not only those sorts which are generally known as stewers, but a large number of others which few ever heard of in this country, some bearing unpronounceable foreign names; there were some fine fruits of such as Catillac, Uvedale's St. Germain, and we noticed a dish of weighty fruits of the rather new Directeur Alphonse. We believe the committee intended to still further enquire into the merits of these cooking Pears. It is quite evident that some shown are but ill adapted for the kitchen, and it would be well to know what sorts could be advantageously added to the list of standard sorts now grown for the cook. Mr. Allan, of Gunton Park, sent samples of a seedling Apple, which he proposes to call Lady Suffolk. It is a good-looking sort, of medium size and pleasant to look at, but we have tasted better Apples at this season. It is said to be an abundant and sure bearer. It deserves to be brought into notice, no doubt, if a good gardener like Mr. Allan thinks so highly of it. Mr. Walker, of Thame, sent a sample of his fine strain of Exhibition Onions, and these were the only exhibits among vegetables.

Scientific committee.—Among the subjects of general interest discussed were the following:—

Hybrid Potatoes.—Mr. W. G. Smith forwarded specimens of hybrid Potatoes obtained by the method of introducing plugs with eyes of one sort into other sorts. Dr. Masters observed that both botanists and gardeners had questioned its possibility, but that his own experiments, as well as Mr. Smith's, had completely disproved the assertion. Mr. Henslow remarked that a gentleman in Warwickshire twenty-five years ago had tried it by binding together two halves of a red and white Potato, and that the resulting produce was intermediate in colour. Mr. O'Brien said that the attempts to unite bulbs of Lilies had as yet completely failed.

The climate of Cornwall.—The Rev. Geo. Henslow drew attention to a communication from the Hon. and Rev. J. T. Boscawen in which he alluded to the great variations of temperature and the corresponding differences in the effect upon vegetation in his garden at Lamorran. Mr. Henslow observed that the peculiarities could be at least partly explained by a study of the distribution of cold in England. Mr. Boscawen compared that of Lamorran with the temperatures of Kent, Sussex, and Liverpool. It will be found that isotherms of 30° or 20°, as the case may be, often ran closely parallel with the coast line; or else, running parallel from Cornwall to nearly the meridian of 0°, it then turns abruptly northwards, cutting the east coast at Newcastle. Hence it not unfrequently happens that Kent and Sussex are just without the isotherm which includes Cornwall. Similarly, following the isotherm round the west coast, an indentation occurs around Liverpool in consequence of its being on the great western plain (continuous with the Severn valley). The next point to be observed is that the internal distribution of areas of low temperatures correspond with the more elevated tracts, showing that the lowering of the temperature is due to radiation. One of these local centres always occurs over the elevated region of Cornwall and Devonshire. As the Cornish tableland extends far down towards the Land's End, the effects of this cold area are doubtless felt at Lamorran. On

the other hand, the S.W. coast reaps the benefit of the Gulf Stream, so that in ordinary winters Fuchsias, Escallonias, Hydrangeas, &c., are not cut at all. Lastly, individual causes of influence, such as depressed spots, where temperatures will be lower than on adjacent heights, exposure to W. or E., as the case may be, &c., as well as differences of soil, in addition to the character of the subjacent rock, which may be a good or bad conductor of heat. Taking all the above facts into consideration, Mr. Henslow suggested they were amply sufficient to account for the anomalous features of Lamorran.

Mr. Boscawen forwarded shoots and leaves of various shrubs, *Camellia*, *Hydrangea*, &c., more or less blackened by the late frost at Lamorran.

Macrozamia Denisoni.—A fine male cone of this Australian plant (about 2 feet high and 8 inches in diameter at the base) was sent by Mr. H. James as the first instance of its flowering in this country.

NATIONAL CHRYSANTHEMUM.

JANUARY 13.

IT was a bold experiment on the part of this society to hold a show of Chrysanthemums so late in the season as the second week of January, but the display which was made at the Royal Aquarium, Westminster, on Wednesday last fully justified the proceeding. The show was in every way excellent, having regard to the circumstances, the promoters themselves seemed much surprised at their success. They have done good without doubt; they have shown that the Chrysanthemum flowering season is not of such short duration as many imagine, and, what is most important of all, they have endeavoured to bring into prominence late-flowering varieties which are not to be had in first rate condition at the time when the Chrysanthemum shows are held in the middle of November. Seeing that December and January are the duldest months in the whole year for the conservatory, the importance of encouraging late-flowering Chrysanthemums cannot be over-rated, and if raisers would concentrate their efforts upon the production of late sorts, they have an open field, the harvest from which would yield bountifully. This is the more desirable now that we have such a plethora of sorts which flower in November.

The present show was never expected to be large, and only six classes were scheduled. These were for twelve incurved blooms, six incurved blooms, twelve Japanese blooms, six Japanese blooms, twelve blooms of any sort, and collections of cut blooms.

Exhibitors came from far and near, and one sent all the way from Peebleshire a gathering of Elaine and Lady Margaret, which were considered to be the best bloom in the show. The Elaines were so pure, that snow would have darkened their florets. Why such fine blooms of this variety, which is among the earliest to bloom of all, could be sent in such perfect condition could only be answered by the grower, but no doubt it was a good deal owing to its being so far north. In fact, the best blooms in the show came from the north, not about London. For instance, the first prizes, both for twelve Japanese sorts and twelve of any sort, came from Mr. Falconer Jameson, of Hesse, near Hull. These blooms were indeed excellent, and some would have done credit to prize stands in mid-November. The twelve Japanese blooms which Mr. Jameson showed consisted of *Triomphe de la Rue du Châtelet* (4), *Sceptre de Toulouse* (yellow), *Mdlle. Augustine Gantheut*, *Bend Or*, *Mons. Comte* (2), violet-purple, *Japonaise* (yellow), *Boule d'Or* (2). Mr. Lister, Lord Brooke's gardener at Easton Lodge, Dunmow, was second with *Triomphe de la Rue du Châtelet*, *Grandiflorum* (2), *Comtesse de Beauregard*, *Thunberg* (2), *Meg Merrilies* (2), *Mad. C. Audiguier* (pale), *Fanny Bouchardet* (2), all fairly good blooms. Mr. Bettsworth, gardener at Burton Grange, Cheshunt, was third with *Ceres* (four good blooms), *Meg Merrilies* (four good blooms), *Fanny Bouchardet*, *Mad. Cabrol*. An extra prize was taken by Mr. Sullivan, gardener at Downshire House, Roehampton, for a collection which included good flowers of *Mdlle. L. de Reydellet* and *Baron de Prailly*.

The class for twelve incurved blooms was not so

good, there being but one collection, and this was only awarded the second prize: this was shown by Mr. Bettesworth, who had eight blooms of Miss Maréchaux, white with outer surfaces flushed with pink, and four medium sized blooms of Princess of Teck. The best six blooms of Japanese sorts were shown by Mr. Sullivan, who had Mad. Auguste Tezier, Ceres, Meg Merrilies, Mdle. L. de Reydellet; and Mr. J. Walker was second with Elaine, Fair Maid of Guernsey, Peter the Great, Ethel, and White Venus. In the third set, from Mr. Bettesworth, were three good blooms of Sunflower, a yellow, large Anemone, Fanny Bouchard, Miss Maréchaux, Duchess of Edinburgh. An extra prize went to Mr. J. Walker, who also had a pretty collection of cut blooms set up with foliage. Mr. G. Bolas, gardener at Hopton Hall, Wirksworth, was second, with a capital dozen blooms prettily set up with foliage—L'Incomparable, Elaine, M. R. Larios, Oracle, Golden Empress, Lady Buller, Mad. C. Audiguier, Bronze Jardin des Plantes, James Salter, Mons. C. Hubert, Fleur de Marie, and Source d'Or.

There was a good display in the class for twelve blooms of any variety. Mr. Falconer Jameson showed the best dozen. He had three good blooms of Golden Christine, Souvenir de l'Ardenne, Marquis of Lorne, Triomphe de la Rue du Château, Jeanne d'Arc (pink tinged), Pink Christine, Mad. Cabrol, Mons. Comte, Mad. B. Peniny, and Roseum superbum.

Among the collections of any sorts, Mr. Bolas showed Source d'Or, Pink Pearl (small, reflexed white, pink tinged), Elaine, Oracle, Mons. C. Hubert, James Salter, Mad. C. Audiguier, Marquis of Lorne, M. R. Larios, Fleur de Marie. Mr. G. Sinclair, East Linton, Peeblesshire, had the best blooms of Elaine in the show. Mr. Storrock, Withington, Manchester, sent three good blooms of Boule d'Or; and Messrs. W. & G. Drover, Fareham, showed Syringa, a white Japanese, which will no doubt become prominent.

The non-competing class was as important as the competition exhibits, and indeed the finest blooms were shown in it. A large and attractive display of well grown blooms was shown by Mr. J. Lowe, who had three dozen fine blooms of Princess Teck, also of Lowe's Late Bronze, a beautiful new bronze-red Japanese in the way of Mons. Lemoine, and Grandiflorum (three dozen). Mr. Lowe also had a collection of other sorts, the most prominent among them being Lady Margaret, Elaine. Mr. Owen, Floral Nursery, Maidenhead, also had a good collection, consisting chiefly of Boule de Neige, the pretty new white sort recently certificated at South Kensington—a large number of this sort was shown; Belle Pauline, Beauté des Jardins, Ethel, Sarnia, Mdme. Deveille, Etoile Fleuri, Colibri (deep red), Nuit d'Automne, L'Incomparable, Mrs. Mahood, Fair Maid of Guernsey, M. Délaux, Golden Queen (good yellow), and Fanny Bouchard. Mr. E. Beckett, gardener at Alderney Park, Elstree, had a capital collection, including some extraordinary fine blooms of Japanese sorts, particularly of Ceres, Agréments de la Nature, Ville de Toulouse, Mons. Astorg, Triomphe de la Rue du Château, Mrs. Mahood, and The Daimio. Mad. Eugénie Langelet, a neat little Anemone-flowered sort of a bright yellow, and Perle Margaret, a purple and white centred Anemone, were also shown by this exhibitor.

The following are the sorts among the whole of the exhibits which seemed to us to be the most desirable for late flowering, that is they looked fresh and seasonable; whereas, many of the others had the appearance of having been retarded too much. The best of the white incurved sorts was Miss Maréchaux, which, though similar to Princess Teck, is much superior, the white florets tinged with rose being very pretty. Golden Empress was well shown, but it does not look like a true, late sort. Among the Japanese sorts the best were Grandiflorum, Lowe's Bronze Queen, Ceres, Triomphe de la Rue du Château, Thunberg, Elaine, Mons. Astorg, Golden Dragon, and Meg Merrilies. The best large Anemone-flowered sorts were Fleur de Marie, Sunflower, and Virginal; the latter was surprisingly fine. Among the Anemone pompons, none were so fresh as the golden yellow Mad. Langelet.

Messrs. Cannell, of Swanley, had an attractive

group, consisting chiefly of Chinese Primulas, all of which were the perfection of first-class culture. A choice selection of the best sorts were shown, among them being the lovely Swanley Improved White, which is unquestionably the finest of all the pure single white sorts. There were also the strange-looking Swanley Blue, the glowing crimson Dr. Denny's Improved, The Queen, Delicata, a most lovely pink, and Princess Beatrice and Swanley Giant, the largest of all the red-purples. A dozen pigmy Orange trees, also in the Swanley exhibit, attracted a good deal of attention.

NOTES OF THE WEEK.

The Turner Memorial fund.—A meeting of the committee connected with this movement was held at South Kensington on Tuesday last, but was adjourned owing to the fund at present obtained being insufficient for the intended purpose. A sum of £162 has been subscribed, but it is considered that at least £200 will be required.

The Percival Orchid collection.—We learn that the rich collection of Orchids formed by the late Mr. R. P. Percival, of Birkdale, Southport, will be offered for sale shortly by the Liverpool Horticultural Company. The plants are being removed to the nurseries of the company, where they may be inspected about the 20th and 21st inst. It is intended not to sell them by auction.

The American Exhibition.—It is announced that this exhibition, which was to have been held in London this year, is postponed until next year, when it will be opened on May 2. This course has been adopted in order to avoid the American exhibition clashing with the Colonial and Indian exhibition to be held this year at South Kensington.

Lectures on forestry.—A series of ten lectures on forestry will be given by Mr. G. S. Boulger, at the City of London College, White Street, Moorfields, E.C., on Wednesday evenings, from 6 to 7 p.m., commencing January 13. The subjects treated on will include: Climate and Trees—Land suitable for Arboriculture—The draining and other preparation of the Land—Nurseries and their Management—Planting Operations—Thinning and Maintenance—Felling and Barking—Timber Measurement—Exploitation and Management of Coppice—The distinctive characters of the various British Timber Trees. Practical demonstrations in the country will be given during the spring.

Lælia anceps Stella.—The first flower of this white aneups has just opened with Mr. Ingram, Elstead, Godalming, and it is a beautiful variety, the sepals and petals of which are pure white, the lip being of the same colour, with a deep yellow crest, and the side lacinia are finely pencilled with deep purple. It is near Williamsianum, the lower half of lip, however, not so broad. It is gratifying to notice that both Lælia anceps Sanderiana, now in bloom with Baron Schroeder, and Stella are fully up to the expectations formed by purchasers when sold by auction. The difference between Sanderiana and Dawsoni is that in the latter the throat pencillings are far more numerous than in the former, and the side lacinia is finely spotted, this falling quite away in Sanderiana; the petals of Dawsoni are also by far the broadest and roundest of the two.

Forced Rhododendrons.—I send you trusses of R. Watereri cut from plants that were brought into bloom for Christmas. Several of these plants bear from four to five dozen trusses of blooms equal to those sent. We have forced Rhododendrons into bloom for the Christmas season every year for these last eight years, and they improve annually. I need scarcely say how beautiful they are, and Watereri is a sort I would strongly recommend to all who are in need of winter flowers. It takes scarcely any forcing when well managed to get it in bloom at this season. What a valuable class of plants the Japanese section is, particularly such sorts as Taylori, Duchesses of Connaught and Edinburgh, Prince Leopold, Maiden's Blush, Princess Royal and Princess Alexandra. Everyone who values good flowers should grow these greenhouse Rhododendrons; they are not only beautiful, but continue so long in bloom.—J. CROOK.

Masdevallia Crossi.—All the praise that was bestowed upon this new Orchid when it was first introduced a year or two ago was not in the least exaggerated, as the plant has proved itself to be quite a gem, even in the beautiful genus Masdevallia. Some plants of it are now flowering in Messrs. Shuttleworth and Carder's nursery at Clapham, where it flourishes admirably in the cool Odontoglossum houses. The colour of the flowers excels that of the brightest forms of M. ignea, and though not so large as the flowers of that species, they are borne several together on a spike. The dried specimens in the possession of Mr. Shuttleworth bear as many as twenty flowers on one spike! They vary in colour from a bright orange to a glowing scarlet, and in all the sepals are lined with deeper streaks, as in M. ignea. When the plants become sufficiently established to bear even a dozen flowers on a spike, it will be one of the prettiest Orchids in English gardens, and this we may reasonably expect to see at no distant date, as the plant proves to be a rapid and vigorous grower. The peculiar triangular form of the flowers renders it distinct from all other species, and, being of firm texture, they continue in perfection for an unusual time.

Cypripedium Schlimi.—It may not be generally known that of this charming Lady's Slipper Orchid there are two distinct forms—distinct in growth and constitution, and natives of two widely separated localities in South America. One form, that most often seen in gardens, is a weakly grower, a shy flowerer, and particularly liable to become infested by thrips, which seem to paralyse the growth of the plant. The other is a strong grower, always seen with long healthy leaves, and flowers much more profusely. The blooms, moreover, are larger and of better colour. This is, therefore, the form to be sought after. Instead of being a "miffy" plant to deal with, it seems to thrive under quite ordinary treatment. There is a grand specimen of it, bearing several spikes of flowers now in perfection, in Messrs. Sander's nursery at St. Albans, and yet it is growing in company with C. insignis, and apparently receives the same treatment. There is also growing in its company an extraordinary specimen of C. Sedeni. It is in a huge pot, and cannot be less than a yard across. It is just now bearing a large number of flower-spikes. The variety is the deep purple-red so much admired.

QUESTION.

5149.—**Pear Doyenne du Comice.**—Will this Pear succeed in the south of Scotland on a wall, and must it be a south wall? Perhaps some of your readers will kindly answer this question.—L. B. G.

LATE NOTES.

Royal Horticultural Society.—We are informed that the 9th February is the date fixed for the dinner of the Royal Horticultural Society at the "Albion," Aldersgate Street.

Calanthe Veitchi (J. Crook).—An excellent variety, one of the deepest coloured we have seen. You are, no doubt, aware that pure country air and light influence the colour of this Orchid greatly. Flowers of the same Orchid grown about London have been pale generally this year on account of the dull weather.

Vanda Sanderiana (H. D. H.). We consider the flower you send an excellent variety as regards the form, colour, and markings—one of the best, in fact, we have seen, but in point of size it may improve as the plant becomes better established. Your plant must be a very fine specimen from your description. The Odontoglossum nebulosum flower represents what is known as the variety candidulum, a very rare and extremely beautiful form.

Dracæna beetles (J. S. Stirling). The beetle which eats the leaves of your Dracæna is the black Vine weevil (*Otiorhynchus sulcatus*), a most destructive pest, both in the grub and beetle state. The former eats the fleshy roots of various plants, Primulas, Cyclamens, &c. The beetles destroy the foliage of Vines, Dracænas, and many other plants; they hide themselves during the day and come out after dark to feed. The best means of catching them is to place white cloths or sheets under the plants, and then when it is dark enter the house quickly with a bright light, which will generally cause the insects, who feign death when disturbed, to fall; if it does not, tap the plants sharply, and, as a last precaution, search the latter well over.—G. S. H.

Names of plants.—*J. Crook.*—*Salvia Heeri.*—*R. G. G. Rend.*—1. *Panemum milicæum*; 2. *P. Crux-Galli.*—*E. T. P.*—*Dendrobium Wardianum.*—*E. L. Brown.*—The flower sent does not represent an unusual variety, certainly not distinct enough to merit a varietal name. The monstrosity is curious, and we do not remember having seen it before.

WOODS & FORESTS.

NOTES.

THE TIMBER TRADE.—If, as "Yorkshireman" says, Oak poles and saplings are delivered in Manchester at 26s. per ton of 40 feet, the price is so small, that scarcely anything can be left to the grower. Has not his informant made the error of naming 40 feet to the ton instead of actual weight? If this was so, the figures would be more explicable. There is another point, too, I cannot understand, and that is where the circumstance of timber growing almost at the pit's mouth being rejected in favour of foreign is referred to. If there is anything in this, it must be because the wood grown on the spot is unsuitable. I know it is a fact that now the facilities for obtaining foreign wood are so great, owners are more particular in selecting what home-grown timber they buy than was the case when it was practically what home-grown was to be had, or none at all; but when really suitable stuff is offered, I have found no difficulty in obtaining an outlet. The real truth about this alleged preference for foreign wood may be in the fact that the exporters of the material study the wants of the colliery owners, and what is unfit is left at home in the forest, whilst here the bad and good, or very likely the bad after the good has gone, is offered to this class of consumer. There are obviously two sides to this, as to everything else, and a little judgment and care should be exercised that a market is not spoilt in trying to pass off what is really unfit for the work.

TIMBER GROWTH.—Without for the moment entering into the theory of this interesting subject, I think that "Yorkshireman" will concede that the greatest amount of timber can be produced on a given area when there is only a small amount of leaf surface, or, in other words, when the trees are growing thickly. In fact, his closing remarks imply as much; therefore, between these opposite "truths" where are we to draw the line? Perhaps it is that science would lead us to grow wood in the shape of branches, which when produced would be of little value, whilst experience teaches us that to raise the greatest quantity of marketable timber trees should be grown as closely as is consistent with their thriving properly.

HOME-GROWN v. FOREIGN TIMBER.—I am more and more convinced that the more extensive use of the home product, *i.e.*, in something like the proportion its qualities deserve that it should be, is one of the most important things in practical forestry, and one which cannot be too frequently reiterated. I am quite aware that it may be objected by some that this is a question which lies outside of what ought to be considered as forestry, but with this I cannot agree. If timber growers and timber users were two different sets of individuals, there would be some weight in the argument, but in this country it is not so, as, taken as a rule, the grower is also the consumer, although under existing conditions he grows the timber to have no profitable sale for it, and buys material not more suitable or durable from abroad. This is "boycotting" himself with a vengeance.

LIME AS A TIMBER PRESERVER.—The interesting particulars with reference to the use of a solution of lime for preserving home-grown wood given on p. 40 are opportune, and as the process is simple and cheap, it is at least worthy of a trial. It is for the classes of work contemplated by Mr. Borough that the bulk of the foreign wood purchased for estates is used, and if there is any difference in durability, imaginary or real, in favour of foreign Fir, this treatment of home-

grown wood seems calculated to overcome it. As I understand the description given, it is unseasoned wood which it is purposed to treat in this way. If so, and the treatment is successful, the drawback of waiting a considerable length of time for seasoning is removed. D. J. YEO.

Lynch in, Wilts.

THE SILVER FIR.

THE common Silver Fir (*Abies pectinata*) is, I believe, up to the present time the loftiest-growing Conifer which we have in Britain. It is a majestic tree either singly or in a clump, and when planted sufficiently apart to allow its branches full development, it becomes feathered to the ground. Its habit is symmetrical, pyramidal, and very formal, particularly when young; when old it presents a greater variety of form and exhibits many picturesque features. The liability of this tree when young to start into growth very early in spring and lose its leading shoots from the effects of frost has often proved disappointing to nurserymen and planters; probably on this account it has not been so extensively planted as the Larch and the Scotch and Spruce Firs, neither has it ever been so cheap and plentiful in the market as the two latter, owing no doubt to its being so difficult to rear when young; when older and fairly established in its permanent quarters it will withstand the severest winters and will thrive on the most exposed sites. In many localities it is a tree but seldom seen; indeed, in some parts of the country it will not succeed, and again in others it is the most prominent tree, towering high above its compeers and breaking the level outline of wooded hills. The timber of this tree is less valuable than the Larch; under ordinary circumstances it sells at about the same price as the Scotch and Spruce Firs, and is used for similar purposes. A few years ago its timber was in some request for making suites of bedroom furniture, but I do not think it is now in so much demand, apparently having been superseded by the Pitch Pine for that purpose. The Silver Fir thrives well on a variety of soils and subsoils; where lime and chalk abound perhaps it succeeds the worst, but as a rule it flourishes best in rich loams and clays.

OLD FORESTER.

Effect of trees on climate.—In a recent discussion on field and hedgerow trees it was argued by one class of writers that, because their roots required a certain amount of nourishment and their branches shaded the ground, this race of trees should be got rid of. Such views are very narrow and short-sighted, as they make no allowance for the great advantages gained by the presence of trees. As a mere question of profit in the shape of hard cash there is little doubt that fairly good land in this country may be better occupied than by growing timber; but this is only part of the facts of the case, as in the views of the best authorities the presence of timber is absolutely necessary in the sense of amelioration of climate. Further than this, these views are not merely matters of opinion, but of experience and fact. What has followed in the wake of forest destruction in many countries is well known to most who have studied the subject, and the corresponding return to the normal condition of affairs, when re-afforestation has been carried out, has been repeatedly demonstrated. That in these islands rivers, for instance, will be affected in the way they have been in many other places, from the physical features of country, is perhaps unlikely; but in a less marked way, the retention or destruction of trees will have its effect upon the soil. Beyond the broad principles from which conclusions have been drawn, actual experiments show that the presence or absence of trees produces a great difference in temperature both at the ground level and below it; and whilst this is not so great in summer where shaded as in the open field, it is more favourable in winter, and therefore on

the whole more uniform. The conditions with respect to moisture are still more important, and must have a great effect upon vegetation. In forests, or where trees exist, there is always a greater degree of moisture, and, what is more, the soil always retains it longer. The appreciation of this is especially valuable in elevated situations, for if, as has been proved, the relative moisture where trees grow is greater in summer than at any other season, and at all seasons the difference is considerable, the drawbacks of a deficiency of rain and consequently water may be greatly lessened. In elevated positions, where in actual quantity the rainfall may be sufficient under normal conditions, it does not work out so, as where trees are absent it disappears almost as rapidly as it comes, as there is no agency to retain it. So great is this difference in the matter of evaporation, that it has been demonstrated that where in the open field a hundred parts of water evaporate, where trees exist only thirty-eight parts on uncovered soil are lost in the same time, and where the soil is covered by leaves, Moss, &c., only fifteen parts evaporate. This proportion would, of course, be on lands entirely covered by trees, and where field or hedgerow trees only grew the difference would be smaller, as indeed it is essential they should be. It is, however, clear that the property of retaining moisture, to say nothing of collecting it, is incomparably greater where such agents as trees are present, and that to argue that trees, because they occupy space, are worse than useless, does not say much for the judgment of those who essay to do so. Animal or vegetable life cannot exist without moisture, and this, too, is the great cause of the air retaining a portion of the warmth of the sun's rays. In deserts, where the atmosphere is almost devoid of moisture, the days are scorchingly hot, whilst at night it often falls below the freezing point. The destruction of trees greatly tends to bring about these undesirable conditions, and this the advocates of their extinction must reckon with.—WOODMAN.

SOWING v. PLANTING OAKS.

WHETHER Oak plants or Acorns ought to be used in forming Oak plantations is a question respecting the answer to which planters are not fully agreed, though, upon the whole, we believe plants are preferred. A doubt, it is probable, would never have been raised on the subject, had it not been found that, under ordinary circumstances, the Oak suffers more by transplanting than the Elm, the Ash, the Beech, and other similar trees; which is partly owing to its natural delicacy, and partly to its depending, when young, chiefly on its tap-root, and from its not producing for some years many lateral roots, unless forced to do so by art. When, however, the Oak has been two or three times transplanted in the nursery before its final removal, it will produce a sufficient number of lateral roots to insure its growth if carefully removed; and for this reason, we should, in almost every case, prefer using strong transplanted plants to Acorns. We have already remarked that Oaks, after they have attained a certain size, are more successfully transplanted than seedlings of one or two years, a fact which will be found to hold good with all trees whatever which have tap-roots of extraordinary dimensions when young. One reason which some give for preferring Acorns is, the alleged injury which Oak plants sustain by the loss of the tap-root, which, it is said, they never regain. This opinion, however, is well known to be erroneous, it being as natural, in the case of seedling Oaks, for that part of the plant which is under ground to reproduce a leading or tap-root when that has been cut off as it is for the part above ground to reproduce a leading shoot after that has been removed. It is also equally well known that the tap-root is only found in Oak and other trees when in a young state; and that no Oak or other tree when cut down was ever found to have anything like a perpendicularly descending main root in any

way comparable to the perpendicularly ascending trunk of the tree above ground. The consequence of sowing an Acorn where it is to remain, and not cutting through the tap-root, is that it remains a longer period before putting out any lateral roots; but whether these lateral roots are put out sooner or later can have very little influence on the growth of the tree under ordinary circumstances, and certainly none on the value of the timber which it produces. It is easy to conceive that if the surface soil on which an Acorn is planted is much richer than the subsoil, something in rapidity of growth will be gained by cutting off the tap-root, so as to force the plant to send out lateral roots sooner than it would otherwise do; but, though something is gained by this, something also will be lost, because the supply of water, so essential to all plants which have naturally tap-roots in a very young state, will be considerably diminished. In warm climates, therefore, and in all cases where a saving of first cost is an object, we should prefer Acorns to plants; but in tolerably moist climates, and in deep alluvial or marly soils, or where the surface soil is rich, and where the object is to produce Oak trees as soon as possible, we should recommend strong plants.

Oak trees diseased.—I was staying lately at a place in Kent celebrated for its beautiful Oak trees, and was grieved to see that a number of them were being killed, apparently by some insect, which seemed to be gradually eating its way through several of them. In some I could see the mischief just commencing; the bark being eaten away in many, the hole had reached the timber, and in others there was a cavity right through the trunk. Can you say what is the cause of this sad mischief, and if there is any remedy for it?—HORSMONDEN.

* I can hardly say what insect is attacking the Oak trees in Kent mentioned by "Horsmonden" without seeing the trees or portions of them. If the trees are in Horsmonden parish, I will try and find them out, as I shall be in the immediate neighbourhood of that village for a day or two at the end of this week.—G. S. S.

Draining old plantations.—In draining old plantations over thirty years old, containing hardwood trees, says Mr. Lewis Bayne, in an essay he wrote on the subject, great care must be taken in selecting the more open parts, and laying out of the drains to avoid cutting the roots of the trees as far as possible, even should the drains not be equi-distant or in altogether straight lines. Again, in cases of extreme wetness it is advisable to drain the ground moderately at first, and to deepen the drains at different times afterwards until the desired effect is attained, as it will be found that, after the trees have been growing a length of time in extreme wetness, a sudden change in the moisture and temperature of the soil, caused by draining off all the water at once, would injuriously affect them. The difference between drained and undrained land is very remarkable during very wet seasons, when even the best made drains are taxed to the utmost, and well-drained land is not too firm or dry, while undrained land inclined to be wet becomes a regular marsh. When trees are planted on undrained wet land they soon become sickly and covered with Lichens; the Fir and evergreen kinds become yellowish green, stunted in their growth, and covered with cones—sure signs of premature decay and disease, sooner or later followed by the death of the plant.

Preservation of trees.—One of the most desirable things to be done for the welfare of a country is to disseminate everywhere information in regard to trees and their uses, so that the people shall come to regard them somewhat according to their real value, to look upon them, not as something to be got out of the way whenever personal interest or personal feeling may so dictate, but to be cherished as friends; not to be recklessly destroyed, but to be held in trust for future benefit and for those who are to come after us. The words of Baron Von Mueller deserve to be borne in mind as expressing the true view of this subject.

He says: "I regard the forest as an heritage given us by Nature, not for spoil or to devastate, but to be wisely used, reverently honoured, and carefully maintained. I regard the forests as a gift, intrusted to any of us only for transient care during a short space of time, to be surrendered to posterity again as an unimpaired property, with increased riches and augmented blessings, to pass as a sacred patrimony from generation to generation."

SEASONABLE WORK.

PLANTING.—Take advantage of mild, open weather to push forward planting operations as vigorously as is consistent with the proper execution of the work. All dry, warm soils should be planted in autumn, but stiff clayey land and deep peat bog which retains an excess of moisture had better not be planted till spring. On such situations Black Italian Poplar, Goat Willow, Huntingdon Willow, Bedford Willow, Alder, and Birch may be planted with success, and as there is always a demand for this class of timber, it soon turns into money. Such being the case, proprietors of waste bogs that produce nothing but Heather and Bog Myrtle should have them drained and planted at once, and in doing so they would only be consulting their own interest and that of their family.

As the different plots of ground are cleared of young trees, lose no time in having the ground dug into rough ridges, which will not only keep it dry, but also expose it to the influence of frost, which will renovate and prepare it for the next crop. In places where the soil is of a poor, thin nature, take advantage of frosty weather to cart and apply a dressing of good loam, in order to improve it. Turn over compost and manure heaps, so that they may be ready when wanted.

THINNING AND FELLING.—The cutting of underwood, if not already done, should be finished as soon as possible, after which thinning the timber must be proceeded with, care being taken to mark all the inferior, unhealthy, or badly shaped trees that are likely to interfere with the full development of the better ones that are intended to stand permanently. In cutting young plantations for the first time, great care should be taken to use only good cutting tools, and to finish off the work well. In thinning screen plantations, the workman must, to a great extent, be guided by the depth or thickness of the belt. When it is narrow the removal of any considerable number of trees would mar its effect; but when its extent will permit of such treatment, the best way to secure a permanent screen is to keep the front trees well thinned out from the commencement, so as to allow them to branch low. By such means also a gradual increase in the height of the trees from the front line to the centre is secured, as those in the interior, from being more crowded, are the more rapidly drawn up.

In felling heavy timber, which should be one of the principal occupations of this month when hands can be spared, the cross-cut saw should be used in preference to the hatchet, which will not only prevent unnecessary waste of timber, but also give the timber a better and more marketable appearance when put up for sale.

GENERAL WORK.—Cutting and cleaving cord wood and grubbing hedges or levelling banks are operations that can be done when the ground is covered with snow. Young plantations and ornamental trees and shrubs should be gone over to see that no injury is done by ground game, and any plants that have been nibbled or barked should be "bushed" by tying Heath, Birch spray, or Fir boughs round the necks of the plants; this will be found a safeguard against further injury for two or three years. Even if the planta-

tions or specimen plants are protected by means of wire netting they will require attention to see that rabbits have not made inroads, as they frequently do during frost and snow, by scratching holes underneath the fence, and when pushed by hunger they frequently bite holes through wire netting. Nursery work, lifting and planting trees and shrubs, making and planting cuttings, digging ground that has been cleared of a crop, should now have attention.

Now is a good time to scour out all open ditches in plantations, and to distribute the soil evenly among the young trees, as by this means the fallen leaves are at once fixed, so that they decay on the spot, instead of drifting and filling up the watercourses, or choking pinnocks or culverts. New ditches should also be cut where required. Though great attention is paid to letting off water from young plantations, the ditches are often allowed to fill up as the wood gets older, but as the roots of trees penetrate deeper into the soil the necessity for removing stagnant water increases, and instead of the watercourses being allowed to fill up, they should be gradually deepened. This is more especially the case with plantations of Larch and Spanish Chestnut. Unsoundness of timber is frequently caused by the presence of too much water in the soil in which it grows.

As the buds of the Hawthorn expand at an early time of the year, no time should be lost in finishing the formation of new Quick hedges, and filling up blanks where necessary, before the buds begin to swell. Finish planting ornamental hedges as soon as possible; any of the following list of plants are suitable for such a purpose, and may be used according to taste: Holly, Yew, Berberis Darwini, Cotoneaster buxifolia, Evergreen Privet, Portugal Laurel, common Laurel, Laurustinus, common Box, Arbor-vitæ, Sweet Bay, and Sweet Brier.

NURSERY.—When the weather is dry and open, seeds of most hardwood trees may be sown in the nursery, choosing a piece of well-worked pulverised soil for the purpose. Young seedlings of Elm, Oak, Ash, Sycamore, &c., may be transplanted from the seedling beds into nursery lines, and cuttings of all deciduous trees should now be put in. Gather cones of the Larch and Pine tribe, which as a rule are generally ripe at this season. The cones of some Pines, such as Scotch, Austrian, and Corsican, are improved by being subjected to hard frosts before gathering. The seeds may be extracted from the cones during weather that is unsuitable for outdoor work, and kept in a dry place till wanted in spring. In collecting Larch cones it is a matter of importance to gather only such as are produced by fine, well-developed, healthy trees, and any small cones less than medium size should be rejected, as the seeds of such are small and produce inferior plants. In the case of newly-planted trees, protection should be provided in a time of hard frost; a few branches stuck in round the plants will often prove invaluable in severe weather.

Fencing against rabbits.—Some suggest laying a piece of wire flat on the ground in erecting wire fences against rabbits. This is a good plan, but it is better to bend a piece of the upright sheet of wire out than to put down a separate piece, as holes are apt to be made at the junction. Such a fence is better than a stone wall. Rabbits are sometimes very troublesome in orchards during severe winters, gnawing the bark off the stems of the trees and killing them. In such cases, when the trees are not over numerous, wrapping the stems round with paper, just a little higher than the rabbits can reach by standing on their hind legs, will be found an excellent and perfectly effectual preventive. The paper should be tied on pretty securely, otherwise the winds and rains will tear it off.—D.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

THE PEAR CONFERENCE.

SINCE the publication of my remarks on this subject (p. 625) I have read Mr. Barron's excellent report (p. 624, 1885), and I am tempted to make a few additional notes, suggested after reading that report, because, as I have already stated, I am quite surprised to find the name of but one American variety (Clapp's Favourite) in the three lists. The old Seckel is not even named. Mr. Barron first gives a list of the thirty-six Pears exhibited the greatest number of times, beginning with the Beurré Diel, 194 dishes, and ending with the Baronne de Melo, fifty dishes; the larger part of the Pears in this list are among our best and most popular varieties. The kinds among them which we have found comparatively worthless, on account of some deficiency, either as to size, vigour, productiveness, or excellence, are as follows: Passe Colmar, wants extra care; Beurré Ronce, the same; Beurré Capiaumont, too small; Chaumontel, wants extra care; Comte de Lamy, too small; Knight's Monarch, never ripens well; Ne Plus Meuris, too small; Van Mons Léon Leclerc, tree cankers or cracks. The Seckel, as I have said, does not appear in the list, and, to our astonishment, the Williams' Bon Chrétien, the best known, the most extensively cultivated, and the most in demand of all Pears in this country, is not named.

Next we have a list of sixty of the most prominent varieties of Pears exhibited at the conference. All these have been fruited by me, exhibited, and nearly all described in the *Magazine of Horticulture*. The larger part are, as Mr. Barron says, amongst the most prominent varieties grown by our cultivators; the exceptions I have previously noted. Of the modern Pears though not new, the committee made a selection of fifteen varieties, but among them L'Inconnue (Van Mons), Duchess of Bordeaux, and Passe Crassane are hardly considered worth growing here. Amongst the five varieties recommended by the committee for growing for market purposes appear to be two local varieties I do not see in catalogues and which are unknown here, viz., Beacon and Fertility; Souvenir du Congrès is too coarse and ill shaped; Marie Louise d'Uccle goes too quickly at the core; De Tongres has not so far proved a profitable market Pear, though it is handsome and first-rate in quality. It does not keep well. But Mr. Barron's remark, that "the cultivation of good Pears is not confined to any particular climate or district of country," is the most important information in the whole report, and worthy of the attention of every fruit grower. We have recently heard so much said about particular fruits being only adapted to particular soils and climates, that it is refreshing to hear one so well able to give an opinion as Mr. Barron refute this modern idea, from the best of all evidence—the specimens before him. It is singular how such notions become prevalent in the face of all facts. The Red Astrachan and Gravenstein Apples grow in the same perfection in Russia, England, and America, covering with us an extent of 25° of latitude, and 58° of longitude in a climate where frost is unknown, and in another where it is often from 10° to 25° below zero, and from the sea level to 8000 feet above it. The Black Tartarian and Elton Cherries grow to perfection in the same countries, and so do the Williams'

Bon Chrétien and the Seckel Pears. I have never seen finer Seckels than those sent me from New Orleans in July. The Red Dutch Currant and the Fastolf Raspberry are at home in the same places. Even Hale's Early and the famous Grosse Mignonne Peaches are just as good in England as America. Keen's Seedling Strawberry is just as fine around Boston as at the place of its origin, around London; and Hovey's Seedling is the same in Louisiana as it is in Canada. The Greengage Plum is still the same unsurpassed and luscious fruit here as it is in England and France.

That there are a few varieties which seem to require greater or less heat than some localities afford is possibly true; but the number is too limited to be taken into account, and we have not sufficient evidence that they have ever been skilfully cultivated to lay the fault to the variety rather than to proper treatment or soil. Certainly, says Mr. Barron, "nothing contributed so much to these successful results as good and careful cultivation," notwithstanding, he says, "the magnificent examples from M. Cornu, of Jersey. As the result of good and careful cultivation we have their equals, produced by Mr. Haycock and by Mr. Thomas in Kent, and closely followed by Mr. Wildsmith, in Hampshire, and Mr. Breeze in Sussex." Even those from cold Scotland "were probably the most meritorious of all." Is any more evidence needed? Why, California, with its wonderful climate and long summer, cannot produce a Bartlett Pear nearly equal to the cultivators around Boston; but it has produced the grand old Easter Beurré far better. Yet few or no attempts have been made to my knowledge by our Eastern men to bring out the superb qualities of this Pear. That it does like a long season there is no doubt, and I know one cultivator who has accomplished this by a little extra labour, and the results were quite up to the Californian standard. To sum up, I again quote Mr. Barron: "As a general rule the best fruits are produced where the greatest care is bestowed."

As not inapplicable to this question of intelligent culture I may instance the Concord Grape raised by Mr. Bull, and introduced by me in 1854. Previous to that time we really had no good Grape which would surely ripen in our cool north-east climate. Everybody planted an Isabella, then a popular variety, sometimes in clay, sometimes in a swampy place, sometimes in good soil, and sometimes in sand, just where there happened to be some vacant spot. If the fruit did not mature it was of no great consequence, as its vigorous growth and ample foliage, scrambling over the piazza or arbour, gave a grateful shade from our tropical sun, and its blossoms exhaled their delicious odour. With no pruning and no care a few bunches on the sunny side would acquire sweetness enough to be palatable, but the rest would do for jellies or jam and other culinary purposes. Such was hardy Grape culture at that period, and is so still in thousands of gardens. Consequently, when the Concord was planted and treated in the same way it was only a little better, that is, it was a fortnight or more earlier than the Isabella, and a pretty fair crop of Grapes was always obtained, though not sufficiently good to redeem the Grape from the odium of prejudiced and too often ignorant cultivators, so that for a time it was pronounced unworthy of culture—fit only for jellies. Even so recently as this very year editorial cultivators have publicly stated in their columns that they should "cut them down." But soon after its introduction one or two very intelligent men who recognised the great merits of this variety in their northern clime set about its

culture in the way a Grape should be grown; and what has been the result? Four of these cultivators sent to Boston market the last autumn (1885) 60 to 100 tons of Concord Grapes, and not only last year, but every year. One of these cultivators, residing as far north as New Hampshire (60 miles north of Boston), wrote me under date of December 16 last: "I have made the Concord Grape a specialty on my place. I have raised from 10 to 30 tons annually for sixteen years past." This certainly shows that we should first know how to cultivate a fruit before we condemn it, and that we should not give any currency to the absurd notion that every town, and every city, and every state must have a fruit made on purpose for each locality. Take, for instance, our best Apples, natives of New England, viz., the Baldwin, the Roxbury Russet, the Hubbardston Nonsuch, and Rhode Island Greening, which are shipped in such quantities for the supply of the London market. In the wide extent of country from Maine to California, and from Canada to Virginia, they are equally fine; larger, coarser, and more watery from the warmer clime, and not keeping so well; solid and crisp from the colder one, and keeping up to the coming summer.

The good results of the late Pear conference are yet to be seen; that it may awaken the attention of lovers of fine fruit, lead to better modes of cultivation, and benefit the whole people is my sincere wish, and I have no doubt that will be the outcome of such a display of the bounteous products of the cultivator's skill. The general detailed report will be looked for by us with great interest.

C. M. HOVEY.

Boston, Mass.

NOTES ON RECENT NUMBERS.

ROSE QUEEN OLGA OF WURTEMBERG (p. 28).—When M. Narbonne gave me a plant of this Rose he praised it so highly that I expected great things of it, and until it began to show its special characteristics it looked as if it would prove most disappointing. It must be allowed to grow great strong shoots, 8 feet or 10 feet high, in a spot where it will have room, and then flowers may be expected. The young buds are very lovely, and the rich clear colour of the open flowers stands out well from the handsome foliage. I had a plant last summer which remained fresh and green in spite of all the aphid and all the drought, when scarcely any other Rose in the place could boast a decent bit of green, and even now, after all the cold and frost, the leaves are fit to gather to bring into any room; and I remember that last year it was practically evergreen, and did not shed its old foliage till late in the spring. Let everyone who cares for Roses, other than as an exhibitor, learn by heart the last paragraph of "T. W. G.'s" article.

MISUSE OF FLOWERS (p. 42).—It is to be hoped that there are many who share "G.'s" contempt at the misuse of our favourites, but it is to be regretted that we cannot all explain our contempt with the same common sense and forcible language that "G." does; still, there are many who can learn a lesson, though they cannot teach it, and they will assuredly appreciate such clear speaking. The next worse thing to misusing or misapplying plants and flowers is the neglect, when you have them, to use or apply them at all; one potful in a position where it is of decorative value is worth a whole row side by side on a greenhouse shelf, like a set of teacups in a housekeeper's cupboard! One may bed out, as it were, one greenhouse with Cyclamens, one with Cinerarias, one with Amaryllises, &c., and though they may be a wonderful sight when in full bloom

and of a certain interest to the florist proper, the general effect is disappointing compared with the mixed border of a conservatory or well placed specimens in a house. It is not always an easy matter in a room to find the position which will best suit the plant, whatever it may be, and where it will best suit its surroundings, but when once established the amount of pleasure to be derived therefrom is great. Perhaps it is not to be wondered at that many private gardens strike one as resembling to a great extent a well-kept nursery, when one considers that the gardeners have often had nothing else but a trade establishment from which to develop ideas, where from the very necessities of the case the use to be made of the plants is, to say the least, limited. In a private garden a flower has something else to do besides grow, bloom, and die; it has or ought to be useful, and, of course, the same may be said of cut blooms and foliage plants. It is not to be supposed that anyone would grow a whole stoveful of *Eucharis* merely for the sight that they would be all together in full flower; the pleasure derived from seeing them thus would be anticipation of the use to be made of them in one way or another, and so it should be of many other things. The truth is that every plant ought to be grown for a definite purpose, other than that of sale, with a certain object in its life for it to fulfil. C. R. S. D.

Sussex.

NOTES OF THE WEEK.

The Blue Netted Iris.—A flower of the blue-tinted variety of *Iris reticulata* has been sent to us by Mr. Ware, of Tottenham, where it began to bloom before Christmas. It differs from the type only in colour, which is a clear sky-blue; it is named *cyanea*.

Angræcum sesquipedale at Waddesdon.—There are at the present moment some fine examples of this quaint and showy species in flower at Baron Ferdinand de Rothschild's garden at Waddesdon Manor. One plant particularly is very grand, bearing sixteen of its gorgeous flowers on five spikes, the plant itself not being higher than 20 inches. Mr. Bradshaw rests his *Angræcums* after flowering in the same house in which they grow, as, indeed, should be the case with all East Indian Orchids, and after some eight weeks of rather dry treatment he again pushes them into growth.

Early Daffodils.—The first Daffodil blooms we have received this season, with the exception of *pallidus præcox*, are from Mr. Hartland, of Cork, who sends fine blooms of two large, deep yellow sorts, called respectively *spurius* and "Big Irish" *spurius*. Both seem to be forms of *spurius*, and that named Big Irish (not a good name) is identical, we believe, with one Messrs. Barr have growing in their grounds under another name. Mr. Hartland thinks highly of it, as it is so fine in size and colour and so early, being earlier than the Tenby Daffodil, potted at the same time—the first week in October. Messrs. Collins and Gabriel also send us flowers of the pretty sulphur-yellow *N. Bulbocodium Grellesi* and *N. triandrus*.

Royal Horticultural Society.—The annual meeting of the Royal Horticultural Society will be held at South Kensington on February 9. The business to be transacted will comprise the reading of the annual report, the appointment of officers for the year, and the election of gentlemen to fill vacancies on the council. The following are nominated as officers: President, Sir Trevor Lawrence, Bart., M.P.; treasurer, William Houghton; secretary, William Lee (Leatherhead); auditors, John Lee, James F. West, and W. Richards. The vacating members of the council are G. T. Clark, F. Du Cane Godman, F.R.S., and Sir P. Cunliffe Owen. The following are recommended to fill the vacancies on the council for the ensuing year: Sydney Courtauld, A. B. Mitford, C.B., and Baron Schroder.

A crimson Calla.—Mr. Peter Henderson gives the following account of a crimson *Calla* in the *American Florist*: "Of this *Calla* (*Arum palæstinum*) I

became the fortunate possessor a few years ago. A lady called on Messrs. Young & Elliott, seedsmen, of New York, and stated that she had a crimson *Calla* in bloom, and she wanted to sell it to them for £20. Mr. Elliott suggested that she bring it down to one of his auction sales and let it be sold there. This she agreed to do, and down it came in full bloom, crimson sure enough. Mr. Elliott expended a wonderful deal of eloquence in trying to get someone to bid £20 for it, but was obliged to take my first bid of 4s, which was gradually run up to £2, and I became the possessor of the crimson *Calla*. I then secured all the remaining stock from the lady, consisting of about a dozen small plants, and grew it till I obtained over a hundred plants, but in some way by running against the grain I lost the whole stock of it. I do not know to-day if there is a plant of the crimson *Calla* in the country, although if it could be grown easily it would be a most interesting plant. It is of a rich crimson-maroon, nearly as large as the flower of the dwarf *Calla*, and, unlike most other plants of the *Arum* class, it has a rich fragrance, somewhat similar to the Violet."

A new late Nerine (*N. Manselli*).—A short time since a spike of a beautiful new variety of *Nerine* was sent to us by Mr. Mansell, of Somerset Terrace, Guernsey. It was so different from other sorts of a similar type, that we at once concluded it was new. It appears that it is so, and it is proposed to call it *N. Manselli*. Mr. Mansell received it, he says, from Messrs. Henderson some six years ago under the name of *N. cinnabarina*, but it is clearly not that variety; it is probably one of the seedlings raised by Mr. James O'Brien when at Messrs. Henderson's. It belongs to the *N. sarniensis* section, and produces spikes as large as any of the varieties in cultivation. The flowers have crimped sepals and are of a uniform rose-pink, as delicate in tint as the *Belladonna Lily*. Besides being so distinct in colour, it is the latest of all to flower, and on this account alone it is a valuable addition. Mr. Mansell in a letter respecting it says: "I find this *Nerine* very free in blooming. The pot I have contains six bulbs, all of which have bloomed this season. The largest bulb has bloomed four years in succession. The flower-heads contain from ten to eighteen flowers, borne on strong spikes about 2 feet high. The flower-spikes show themselves when the foliage is about 6 inches long. The leaves are long, broad and abundant, and slightly glaucous. The bulbs are large and strong. Comparing the foliage and considering its lateness of blooming, I believe its most likely parents to be *N. flexuosa* and *N. corymbosa* major. It blooms in December, and lasts until after the new year sets in."

A GARDEN OF ANNUALS.

PROBABLY the best gardens of annuals to be found in this country are seedsmen's trial grounds. These, however, can hardly be called gardens in the true sense of the word; hence a garden of annuals would be a real novelty. Sowing in big patches or in formal rows would hardly answer the purpose. Such a style of culture might be all very well where the object is simply to obtain plenty of flowers for cutting, but there is no beauty in such an arrangement. There is without doubt a certain degree of prejudice against many even beautiful annuals on the ground that they are weedy. The need for having plenty of flowers for cutting and the common requirements of gardens in the production of showy masses of flowers militate strongly against the culture of many annuals that are scarcely suited for either purpose; therefore there are numbers of this family of plants seldom seen in gardens. It would be a misfortune, however, both for the annuals and for the intending cultivator were he to enter into their growth decoratively in other than a spirit of love and full of anxious desire to make them afford as much of pleasure and beauty as possible. It is happily the case that the larger portion of annuals can be raised from seed sown in the open ground; hence, if a plot of land be set apart and

properly prepared, a large portion of the work incidental to the furnishing of the annual garden may be performed in the month of April by the simple process of sowing seeds. But then the question is, how shall they be sown? If the garden, for instance, consisted of a couple of broad borders with a path running through the middle, perhaps the first impulse of the cultivator would be to make a back row on each side of some of the taller climbing varieties. These, if mixed, would look very pretty, but the effect still would be stiff, because a straight line could produce none other. But if these climbing kinds, such as Sweet Peas, *Tropeæolums*, *Convolvuluses*, and similar things, were sown in small patches and in distinct colours, the patches alternating in kind, a very beautiful effect might be produced, if cones and fans of branches were employed as training ground for these climbers. Naturally, the taller kinds of annuals would have to be sown at the backs of the borders, for some degree of uniformity could not well be avoided, but this would be more than compensated for by the infinite variety of form in plant and colour in flower which would result. Most seed lists, give the height of the respective kinds and season of blooming, so that arrangement would not be difficult to anyone not otherwise conversant with many kinds. It would be a misfortune were any such garden limited to the commoner well-known sorts of annuals. The object should rather be to introduce many forms little known and possibly of exceeding beauty. Tender annuals might easily be raised in frames and be transplanted, and it would add to the interest of the experiment were some good biennials transplanted from seed beds and added to the garden. Perhaps some day someone will favour us with the sight of a beautiful annual garden. A. D.

A VIEW IN KEW GARDENS.

SOME of the most pleasing views in the Royal Gardens at Kew are those where the grand old exotic trees are associated with the miniature temples and alcoves which are studded about the place. These appear to have been erected by Sir William Chambers during the last century when Kew was a royal residence. The illustration on the opposite page (from a photograph taken by us last summer) shows the building known as the Sun Temple, the classic design of which associates admirably with the noble tree growth that surrounds it. Just at this spot there is a group of very fine old trees, including a huge oriental Plane, a spreading Turkey Oak, a picturesque old *Acacia*, with a *Koeleuteria*, a Persimmon tree (*Diospyros virginiana*), a towering Lebanon Cedar, and a group of young trees of *Cedrus atlantica*. It is the Cedars principally that harmonise so charmingly with the Sun Temple, and it is also interesting to see the Cedar in youth and old age growing side by side. The broad, open lawn on the side on which our photograph was taken enhances the view, and it would have been better had there been in other parts of the garden trees planted in connected groups, with broad lawns intervening, instead of young trees scattered about in an incoherent way, as they are in various other parts of the grounds.

QUESTIONS.

2450. **Tuberose.**—Will some of your readers kindly inform me if Tuberose are good for any purpose after flowering? They are, I believe, generally thrown away, but I am under the impression that they might be induced to flower a second year. Am I right in my supposition?—E. C.

2451. **Carnation Souvenir de la Malmaison.**—Will any successful grower of this *Carnation* be kind enough to give me a few hints on growing it so as to get blooms 5 inches and 6 inches across? I should also like to know what artificial manure is best, and when it should be applied.—F. B. N.

BUTTON-HOLE BOUQUETS.

GREAT divergence of taste is displayed by those whose duty it is to make, and in a lesser degree by those who delight in adorning themselves with these little bouquets. Some there are who seem to know exactly what is wanted, and what is equally as much to the purpose are able to fix the materials together to the best advantage. One thing, however, should always be kept in view, and that is they cannot well be too simple. Hundreds during the Rose season daily enter the city of London bearing one or more Roses in their button-holes—not buds, but blooms equal to many that are exhibited. They are conspicuous, it is true, but after all not incongruous, as there are no unnatural mixtures. But what suits these city men will not please others, who, instead of a nearly full-blown Hybrid Perpetual Rose, generally prefer a partially-expanded bud of some kind of Tea Rose, such as Safrano, Devoniensis, W. A. Richardson, Amazone, Sunset, Grace Darling, or Niphetos; this may be accompanied by a tiny bud of the same variety just showing colour, and a small, but matured, Rose leaf at the back. A rather stiff wire ought to be passed through the fleshy tube of both bloom and bud, and they should be neatly fastened together with binding wire. The latter, or wires of any size, can always be procured from the nearest florist, and on no account should button-hole bouquets be fastened with matting of any kind, this being much too conspicuous.

GARDENIAS are great favourites with most people, and one of these wired and backed with about three of its own glossy green leaves is simply perfection. We separate ours from the plants without any foliage or wood-growth attached, and mount them on neat sprays of Escallonia macrantha, which affords an excellent substitute for Gardenia leaves. Tuberoses are by some preferred to Gardenias, and three blooms, with a neat frond of Maiden-hair Fern or, better still, Adiantum mundulum, are neat and effective. If some colour must be added, a small piece of either Forget-me-not, pink Erica, or Oncidium flexuosum might be mixed with the Tuberoses if the latter are small, but if large, one bloom, neatly backed with some of the above, or pips of pink semi-double zonal Pelargoniums or Bouvardias, pink or red, will answer the purpose. Bouvardias are among the best flowers for bouquet-making, a single truss of the double white Alfred Neuner or pink General Garfield being suitable for a bouquet having either a Fern frond or leaf of scented Pelargonium at the back of it. A neat mixture of single white B. Vreelandi and either Hogarth (red) and delicata (pink) are also suitable. Pips of Stephanotis may be employed in the same way as

the Tuberoses, but a whole truss of bloom is too much for a bouquet. Carnations do not mix well with other flowers; in fact, one good-sized bloom ought to be sufficient for a button-hole. Pink Miss Jolliffe is a favourite sort with some, and so is Souvenir de la Malmaison. Many prefer such white sorts as Purity, White Swan, Emperor of Germany, and La Belle—Belle Rose, A. Alégatière and Lucifer being good coloured sorts. The new yellow Pride of Penhurst makes a charming button-hole, and Andalusia is also useful. A small bunch of Violets makes an acceptable button-hole. The Czar is now completely eclipsed by the Neapolitan and Marie Louise, the colour of the latter being very bright and the scent agreeable. The newer Comte de Brazza, pure white and free blooming, ought to

buds partially opened, a bunch of late Chrysanthemum blooms, three spikes of white Roman Hyacinth, a bunch of Lilacs or Staphylea colchica, Carnations, semi-double zonal Pelargoniums, forced Azaleas, Roses, four or five Allamanda blooms, and three Eucharises, all accompanied with appropriate greenery. Button-hole bouquets should, however, be principally white flowers, of which there are usually plenty to select from. No heavy greenery, such as zonal Pelargonium and Chinese Primula leaves, should be used, but a spike of Mignonette and a single leaf of scented Pelargonium are always welcome. Rather more than the required number should be made, and all are best sent to the drawing-room for selection. In some instances it is the duty of a daughter of the house to hand round the bouquets, and, it may be, to assist in fixing them, this being a great improvement on the old plan of placing them either in specimen glasses or napkins. W. I. M.



Young Atlas Cedars and old Cedar of Lebanon around the Sun Temple at Kew.

Basket Ferns.—Among the best Ferns for baskets are the Adiantums, notably assimile, cordatum, lunulatum, Moorei, and farleyense, and even the tuft-pointed A. cuneatum grandiceps does well thus treated. Most of the Davallias may be advantageously treated in this way, as well as many kinds of Pteris, of which special mention must be made of P. serrulata Dixonii, a crested form of the common P. serrulata, in which the fronds droop to a very great length. The New Zealand P. scaberula is also seen to the best advantage when suspended in baskets. The delicate Gymnogramma schizophylla needs to be raised up to see it at its best, and large bold kinds suitable for this purpose are the Goniophlebiums, especially subauriculatum, Woodwardia radicans, and the stronger Nephrolepis. Of these latter, davallioides furcans forms a handsome specimen, and the new N. Bausei will be a decided acquisition. For furnishing the lower parts of baskets in cases where Ferns are not effectual several of the Selaginellas may be used, especially creeping kinds, such as Kraussiana, serpens, and concinata, or cesia, as it is commonly called in gardens.—G.

become a great favourite with button-hole makers and wearers.

BUTTON-HOLES FOR EVENING WEAR are generally in great demand, it being customary whenever "company" is entertained to furnish each guest with a bouquet. The old-fashioned plan of placing these in the artistically folded dinner napkins still exists in many places, but the sooner it is changed for a more rational plan the better. For ordinary dinner parties no elaborate sprays are required. At this season of the year a spike of Cœlogyne cristata or the point of a Calanthe, either pink or white, as may be preferred, backed with a strong frond of Maiden-hair Fern, is always appreciated. So also are sprays of Euphorbia jacquiniæflora, a white or pink Camellia and

PAMPAS GRASS PLUMES.

THESE we value highly for room decoration at this time of year, and when properly dried and tastefully arranged they have a very pleasing effect. The right time to cut them is as soon as the plumes begin to show themselves at the top of the sheath. They must not be allowed to burst before being cut, or the plumes will be spoiled by wind, rain, or possibly snow. We cut them with a stem from 4 feet to 6 feet in length and hang them up in a dry room, keeping them in the same position as that in which they grew by tying pieces of string to their tips and attaching them to an iron frame fixed to the ceiling. Thus treated, they develop gradually and become very graceful. The way in which

they look best is when arranged in large vases, or something similar, say, from five to seven in each vase. Ten or twelve such masses of plumes give a large room a cheerful look; they also effect a great saving in the way of plants, and to those who have not the means to provide plants or cut flowers in sufficient quantity, plumes of the Pampas Grass must be doubly valuable. With us they are produced by plants that do remarkably well in what may be best described as a bog. They are planted a little above the ordinary level by the side of a trout stream. Many of the clumps have produced close upon one hundred plumes this year, and the foliage, which spreads widely, has by no means a bad appearance. In order to show that the Pampas Grass is not so tender as some imagine, I may mention that the plants under notice passed through the severe winters of 1879, 1880, 1881 with very little injury; they had no more protection than that afforded by their own foliage. G. MERRITT.

Kimpton Hoo, Weylyn.

ROSE GARDEN.

ROSES FROM CUTTINGS.

WHETHER or not Roses on their own roots are best is a question into which I do not intend to enter at present. Suffice it to say that I have found some varieties raised from cuttings to answer remarkably well in our soil, which is strong and retentive, resting on clay and stones with an under stratum of chalk. On this, with the necessary manuring and mulching, Roses grow strongly and bloom profusely. Baroness Rothschild, La France, Magna Charta, Duke of Edinburgh, Charles Lefebvre, Victor Verdier, John Hopper, Marquise de Castellane, Prince Camille de Rohan, Paul Neron, and Captain Christy succeed well grown from cuttings. Weak-growing sorts, such as Elie Morel, Emilie Hausburg, and a few others, do not thrive so well as stronger growing kinds. Cuttings may be struck in various ways. The quickest way is to take them from plants that have been forced in February and March. By April the wood of these will be partly ripe; it should be taken off in lengths of about 4 inches and inserted in 3-inch pots, putting about five cuttings in each pot. The soil used should be loam and leaf-mould, in about equal proportions, with a free admixture of silver sand. Plunge them in a gentle hotbed or propagating case, shade carefully, so as to prevent them from flagging, and they will soon emit roots. When this takes place, pot them off singly in small pots, and replace them on bottom heat for a short time until they commence to grow, when they should be gradually hardened off in cooler quarters. They may then be at once transferred to their permanent quarters in beds or borders wherever required, or if potted on they will bloom freely the following spring. This, when such cuttings as those described can be had, I consider the speediest way of getting up a stock of plants. Striking cuttings in a cold frame is another excellent mode of increasing one's stock of Roses. Early in August select shoots from outside plants that have bloomed in June and July, the wood of which will have become firm. Cut them into lengths of from 4 inches to 6 inches, preserving to each a piece of heel. Insert them firmly in sandy soil in the frame, give a good watering, shade, and keep them close until they have callused; then gradually give air, increasing it as the plants commence to make growth. By March or April the following year they will be well furnished with roots ready for planting where required and if a little good soil can be given them a planting time so much the better. During the

same summer most of them will produce some good blooms. Such cuttings may also be struck in a north border. Early in October procure the best ripened shoots of the summer's growth; cut them into lengths of 6 inches, insert them firmly in rows 9 inches apart and 4 inches asunder, using a small quantity of sand to assist the rooting process. The great point is to tread the soil firmly about them so as to prevent wind-waving.

E. MOLYNEUX.

Swanmore Park, Bishop's Waltham.

MILDEW ON ROSES.

THE destruction committed by this pest might, I think, be somewhat alleviated if we ceased to grow such Roses as are most liable to its attacks. It is pretty well known that it infests some Roses more than others, and therefore by abstaining from planting those ascertained to be a prey to it, we might save ourselves much disappointment, especially in places known to favour the growth of the disease. All gardens much enclosed are more troubled with mildew than such as are more exposed. If I were asked to name half a dozen Hybrid Perpetuals that are more subject to mildew than the rest, I should say they were Madame Lacharme, Duchesse de Vallombrosa, John Hopper, Mrs. Baker, Violette Bouyer, and Marie Finger. Amongst climbing Roses I find that Cheshunt Hybrid and Reine Marie Henriette are particularly liable to be attacked, but no doubt soil and position have much to answer for with regard to mildew. A poor, dry soil will so weaken the plants, that they become an easy prey to not only it, but other diseases. As regards positions, the worst is where cold currents of air pass over the plants; every year where the north wind sweeps over some climbing Roses through ventilators that cannot be closed, these Roses are attacked with mildew, or rather I should say the two climbing varieties just named, and no applications of any kind will prevent its spreading. What is, however, noteworthy in connection with this subject is the fact that there are plants of Gloire de Dijon and Duchess of Edinburgh growing under exactly the same conditions, and these are never attacked with mildew to any appreciable extent.

MILDEW-RESISTING ROSES.—The power of some varieties to resist the attacks of mildew is remarkable. So far as my observation goes, I find that kinds with shiny leaves are seldom attacked. It matters little, therefore, whether any particular variety is hardy or not, inasmuch as its power to resist mildew seems to be the leaves; but, taking a wide view of the subject, I am inclined to believe that extremes of temperature constitute one cause of mildew attacking Roses in the open air, and the attack will be lessened or aggravated in vigour according to the degree of moisture there may be in the soil, for even in a widely fluctuating temperature the disease will not get a strong hold of the plants if the roots get all the moisture they want. The most favourable climatic conditions for the spread of mildew are a dry soil, a low night temperature, and hot, bright sunshine during the day. Under such circumstances mildew spreads at a rapid rate, and the only remedy is activity in growth by supplying the roots with the needful moisture, and if it contains an active stimulant the sooner it will arrest the progress of the mildew. It has occurred to me on many occasions that it is quite possible to drain our Rose beds too much, as when that is the case the plants suffer from want of root-moisture in times of drought. I do not consider that positions for Roses of any kind or form of growth require to be drained, unless the sub-soil is clay, and even in that case there should be a depth of 2 feet of

good soil above the drain, for if we would avoid mildew, our Roses must have not only a moderately rich soil, but a deep one.

ALL MILDEWEY LEAVES, Mr. Worthington Smith, in "The Rosarian's Year Book," says, should be destroyed. "It is obvious," he adds, "that the fungus is preserved during winter on decaying Rose foliage, and that for every infected leaf of autumn that is burnt, some hundreds of living spores or seeds will be destroyed at the same time. It is, no doubt, impossible to destroy or deeply bury all infected leaves; but, nevertheless, the more decaying material that is either burnt or deeply buried, the less spores there will be to invade the Roses of the following summer. Rose mildew can never be prevented whilst infected autumn leaves exist. It can be destroyed on the leaves in its early or oidium state by syringing with water, soft soap, and sulphur. The mixture should consist of five gallons of cold water, half-a-pound of the best soft soap, and a handful or two of flowers of sulphur, the whole to be left for a few hours for the soap to thoroughly dissolve. Two dressings of this will generally remove all traces of the fungus. Pure water to be afterwards used. Roses in houses can be easily reached by sulphurous fumes. Simple soap-suds have been recommended; also, soft soap dissolved in water, a piece the size of a hen's egg to three gallons of water, or two ounces of soft soap to one gallon of water, and, whilst the leaves are still wet, dusting the affected parts with powdered sulphur. Some use the following: One pound flowers of sulphur, one pound powdered quicklime, and sufficient water to form a paste; add a gallon of cold water, put the whole into an iron vessel and boil for 20 minutes; when cool and settled, pour off the clear liquid, store in bottles, and use it at the rate of a half-pint to six gallons of water. Jean Van Volxem has recommended a two-thousandth part of corrosive sublimate, deuto-chloride of mercury, in water. The best way to prepare this is, he says, to have the corrosive sublimate in a strong alcoholic graduated tincture, and to dilute it with the necessary amount of water when wanted for use. Fir-tree oil is also recommended. A copious supply of liquid manure to the roots is often beneficial. During the last few months a weak solution of sulphide of potassium has been strongly recommended by Mr. Edward Tonks as a remedy against mildew. The material is made by dissolving half-an-ounce of sulphide of potassium in a gallon of water—the solution to be applied with a syringe, spray-disperser, or immersion."

J. C. C.

KITCHEN GARDEN.

FORCING ASPARAGUS.

I HAVE cut Asparagus from forced roots as early as the middle of November, but in order to obtain good Asparagus thus early the roots and crowns must be very strong. The best plants for early forcing are those which have been grown on from seeds unchecked and uncult till they have reached such an age and strength as will render forcing profitable. Sometimes the permanent beds are forced and new beds made annually to take their places, but the best plan is to keep such matters separate; if we want a given number of roots for forcing, raise that number annually, as young plants force better than old ones. In order to obtain very early Asparagus the tops should be cut down by the middle of September; the growth will not be ripe by that time, but it will be finished, and as the roots will be thrown away when the crop has been gathered, the future need not concern us. The forcing bed, if fermenting material be used, should be made up early

in October, and as soon as the right temperature has been reached the roots should be lifted carefully, packed in thickly, and covered 3 inches deep with light rich soil. Then give the whole a good soaking with tepid manure water. If blanched Asparagus is wanted, a greater depth of soil is necessary.

THE HOTBED SYSTEM, where plenty of convenience exists, is an excellent one, and relays of beds can be brought on every two, three, or four weeks, as required. If the means are ample, the supply may be practically unlimited. The only disadvantage which the hotbed system has is, in winter, if the weather is bad, there is a difficulty in giving the produce sufficient light and air to flavour it, and without this light and air for a week or two after the heads are through the soil the produce will be deficient in flavour. Anyone can make up a hotbed that will produce Asparagus, but the flavouring requires care. After the roots are in, the frames in which they are placed may be matted up till growth is forcing itself through the soil; then light must be admitted gradually, and a little air given at the back, both air and light to be daily increased if the weather is favourable till the heads are fit to cut. The temperature of the bed should be about 75° in order to enable this to be done without checking growth. If any check takes place, the Asparagus will be less succulent than it should be. To obtain

ASPARAGUS AT CHRISTMAS, the tops need not be cut down till they ripen in the usual way. The hotbed should be made up in the second week in November, and as tree leaves are at that season plentiful, leaves to the extent of one-half, *i.e.*, if the manure is fresh, will be an advantage. As soon as the bed has been got into a genial condition put in 2 inches of soil, then the roots; water and mat up till the young stems are seen to be pushing through the soil, when careful ventilation will be necessary. If the weather should be very mild and the Asparagus come too soon, a little more ventilation will improve its quality and check its growth a little at the same time. There are many ways of forcing Asparagus. Sometimes the plants are planted in permanent brick pits, fitted with a hot-water apparatus. This system answers very well for forcing after Christmas, and the plants need not be annually destroyed, as is inevitable when they are lifted and forced in hotbeds. Permanent beds are sometimes forced by means of linings of manure placed between them, the beds being covered with movable glazed frames. In short, Asparagus may be forced anywhere, provided the requisite temperature can be maintained. It will force very quickly in flat baskets, such as are used by nurserymen to pack plants in, and such baskets are easily moved from place to place. If young plants having strong and numerous crowns are employed, a basket 4 feet over will hold a good number. Place 6 inches of old Mushroom manure in the bottom; on this pack the roots as close together as possible, and cover 3 inches or 4 inches thick with light, rich, sandy soil. The baskets may stand in the Mushroom house till growth is moving; then take them to a light house, such as a forcing vinery or Peach house, or any house in which forcing is going on. This is a makeshift way of forcing, but there is little labour or trouble connected with it; and where only small dishes are required this is an excellent way of raising Asparagus. It will succeed very well in boxes a foot deep; those 3 feet long and 1 foot wide are as large as can be conveniently shifted about. Asparagus may also be forced in pots, and if not required for cutting it may be left to ornament the conservatory. As a background plant and as a foil to bright flowers it is certainly not without its uses.

RAISING YOUNG PLANTS.—I like to sow the seeds in drills thinly in March, the drills to be 3 feet apart, and the plants to be singled out on the principle of allowing the strongest to survive till they stand 12 inches apart in the rows. If the treatment is liberal, in three years' time the plants will be strong enough to force, though they will be better to remain unforced till four years old if very fine heads are required. A situation sheltered from severe winds is best, as the wind has great power over the dense growth, and will do much damage if unsheltered and unsupported. Sometimes the strongest stems are supported by stakes, but where much is grown this takes a good deal of time. Plants raised from seeds and not transplanted seem to get a firmer hold of the ground, and suffer less from strong winds than transplanted plants do. E. HOBDAV.

White Plume Celery.—I seem to have been less fortunate than most of your correspondents with this Celery, for having given it a fair and rather extensive trial, I must confess that I am utterly disappointed with it. Although satisfactory as regards growth, I am well within the mark in saying that not above one in a score came with me white. Valuable acquisitions to those who have to grow Celery for early use are such varieties as White Gem and Ivory White; these, on account of the small space which they occupy, the little earthing up required, and early maturity, are well worth attention.—J. R.

Sprouting Potato sets.—I like to get Potato sets which are to be forced in pits or frames sprouted before planting. It is a decided gain to do so, as if the sets are planted in boxes of soil, and placed in a heated house, they are making progress while the hotbeds for them are being made up. By the time the sets are sprouted the beds are ready, and then the plants get the full benefit of all the heat; but if the sets are not sprouted, it will take them a fortnight before they get as far advanced as sprouted sets usually are at planting time. I therefore reckon that sprouted sets get a fortnight's longer heat than the others, and that is no little advantage in the month of January, when the heat from fermenting materials quickly declines. Where there are pits heated with hot water it may not be so necessary to have the sets sprouted before planting.—J. C. C.

Broad Beans.—When "A. D." (p. 14) tried Leviathan, Aquadulce and Seville Longpod Broad Beans, and found "absolutely no difference in them," he could not have had the right sorts. I have invariably found Seville Longpod to be ten or twelve days earlier than Leviathan; the pods, too, are some inches shorter and narrower than those of Leviathan, and in this respect the two are most distinct. Leviathan is also more robust in growth; in short, they bear no resemblance to each other. The Aquadulce of which I spoke so favourably (p. 637, Vol. XXVIII.) is a stock which has been selected for half a dozen years or more here, but the original type of this with us, although more prolific than Leviathan, was not so long or uniform in size of pod, and Aquadulce is a weaker grower. The Aquadulce here begins podding so near the ground that many of the first pods push their points into the soil before they are anything like full grown, and although Leviathan produces a pendulous pod, it is borne further up the stem. Altogether, I have never considered them the same, and evidently others are of my opinion, as in some scores of seed lists I have just been looking over, I find the three varieties offered under different descriptions and at different prices.—J. MUIR, *Margam*.

Early Radishes.—New Radishes in February and March are very acceptable, and from a market garden point of view profitable. They are the easiest and quickest forced of all vegetable productions. Sometimes in making up Potato beds a few Radish seeds are sown amongst the Potatoes, and some of them which germinate bulb, but many more are only forced to make a leafy top and no root worth looking at. This is the objection to mixing Radishes up with other things in early hotbeds; they ought to have, and deserve, a bed to themselves. A bed sufficiently

large to hold a one-light or a two-light frame will produce a grand lot of Radishes, and they will come in in such a long succession, that their owners will soon conclude that Radishes form one of their most satisfactory spring crops. The forcing of them may begin at once. Make a good, firm bed of fermenting material not less than 2 feet 6 inches high at the back and 2 feet at the front; on this place the frame, and then fill up with more material inside, allowing space for soil to the depth of 8 inches. The surface when finished need not be more than 4 inches from the glass, that being sufficient to allow the tops to develop. When close to the glass they grow much dwarfer than in a deep place, and they also bulb better. The seed will germinate in a very short time after being sown, and on fine days a good deal of air should be admitted, as the object throughout is to secure dwarf growth. As soon as any of them are ready for gathering that should be done, as it affords more room for those remaining to develop. Sutton's Earliest Red Forcing supersedes French Breakfast, which has hitherto been our best Radish for forcing.—J. MUIR, *Margam*.

SIZE V. QUALITY IN VEGETABLES.

WEIGHT of produce and a fine appearance now hold the first place in the market grower's calculations, quality being quite a secondary consideration. When anything like this big vegetable mania springs up there is generally some cause or causes that have been instrumental in bringing it about. In gardening matters with many in this country there seems to be an insatiable desire for novelty, and when this extends to vegetables and fruit it becomes mischievous, for with the so-called improved vegetables, as with other things, demand begets supply. If there was not an immense number of people ready to buy the host of novelties in the form of new vegetables that each year brings forth, they would not appear. As it is, each season there comes a fresh lot, accompanied by glowing descriptions as to the wonderful properties which they possess. If the innumerable buyers who go on year after year growing all the new vegetables that appear would take the trouble to count how many of these novelties have come up to the descriptions accompanying them, as compared with those that have fallen short, it might induce them to consider whether what they have thus far got was worth the cost incurred.

ANOTHER CAUSE that has helped to bring about the present state of matters has been the way in which prizes have often been, and still are, awarded to vegetables at exhibitions. How frequently does it happen that the collections in which Potatoes, smooth and handsome, but waxy; big-podded, flavourless Peas; Beans with immense pods, yet tasteless, and others to match, are placed before collections competing in which the things shown are much better to eat, although less taking to the eye. So notorious has this become, that numbers of new varieties of vegetables have been brought out in which the highest point claimed for them was that their fine appearance constituted them first-class exhibition sorts. No one is likely to object to vegetables because they are shapely in appearance; but their legitimate use is wholly utilitarian. The object in exhibiting them should be to draw attention to varieties that are best for use. To allow a handsome appearance to have any weight in making up for shortcomings in the requisite edible qualities is as inconsistent a proceeding as could well be imagined, yet in vegetable competitions it is no unusual occurrence to see this done. Horticultural exhibitions have now become so general, that nearly every town and village has its show, and I have always held that these competitive displays have an influence in promoting a taste

for gardening to an extent that nothing else can. But when a course of procedure creeps in that gives preference to appearance before usefulness in things such as vegetables that there is no object in encouraging the cultivation of except for their use, then the exhibitions so far become harmful.

From the first of the big soapy sorts of Potatoes, fine-looking, flavourless Peas, and other vegetable wonders making their appearance I have repeatedly urged their worthlessness, and by doing so have incurred the criticism of interested parties. But I must so far remain an obdurate sinner as to repeat what I have said before respecting vegetables, that, if not good to eat, they are good for nothing so far as the consumer is concerned.

POTATOES.—In regard to the description of Potatoes which those who live in London now have at command, there is no question about their being much worse in quality than they used to be. And those who often express a wish for the kinds they used to have may console themselves with the prospect of their being still worse. For there is another cause at work which is the reverse of calculated to effect an improvement. Speaking a few weeks back with a large dealer, who probably stands second to none in the extent to which he supplies private families with Potatoes, he told me that he had this season a large quantity of the best Dunbar Regents he had ever met with, but he could not sell them, for no other reason than that they were difficult to boil; on this account preference was given to softer kinds like *Magnum Bonum*, that will stick together like a Turnip. It is often said that the average English cook cannot boil a Potato as it should be done, and it seems as if the attempt has been given up in despair, except in the case of such kinds as do not require an exercise of care and common sense in the cooking. To give up the best Potatoes on account of their being difficult to boil is about on a par with the individual (p. 659, Vol. XXVIII.) who has discontinued sowing the best flavoured Peas on account of the birds eating them, now confining his cultivation to inferior flavoured sorts which the birds are too good judges to molest. Verily, if this kind of thing is to go on, it might be well to start afresh and try to get a race of vegetables that cooks cannot spoil, and of which birds or other marauders will leave us in undisputed possession. T. B.

Market prices.—An interesting piece of evidence as to the uncertain character of prices obtained for garden produce sent to the London market was furnished on Saturday last, Jan. 16, when, as I am informed, the returns were most disappointingly low. On the previous Saturday, owing no doubt to the snowfall and severe weather, green crops obtained so good a price, that a remote grower of Savoy Cabbages was tempted to send a large quantity of these 250 miles to London, with the result that they realised, because of the thaw which had followed, prices so low, that the venture must have been a losing one. The market rates incidental to farm produce, corn and meat especially, have the me it of being, if low, at least fairly reliable from week to week. It is very different indeed with garden produce, for the sale of that is governed by many considerations; and there can be little doubt that as to many of our town people vegetables have to be regarded pretty much as luxuries in hard times, so the recent hard weather so much affected work and wages, that amongst the poorer classes the demand for garden produce was greatly reduced. Then to this cause must also be added the common one that a temporary rise in price produced, in alliance with the general thaw, a large influx of vegetables into the market, and for the moderate demand it was comparatively glutted. Those who gauged the expectant prices of Saturday last with those of a week previous

would, therefore, commit a great error, whilst those who committed their produce to the care of the salesmen would be naturally much dissatisfied with their returns, and yet most unfairly. Old market men learn to regard the ups and downs of prices with considerable equanimity, having become pretty well accustomed to them, but that sort of philosophy is not common to all growers.—A. D.

INDOOR GARDEN.

POINSETTIAS PLANTED OUT.

INDEPENDENT of the value of Poinsettias as pot plants, they are amongst the best of all subjects for growing on the back walls of warm houses. Amongst stove climbers there is a lack of variety. We have *Allamandas*, *Bougainvilleas*, *Stephanotis*, *Clerodendrons*, and similar plants almost everywhere, and all excellent in their way, but such plants need not be used to the exclusion of others equally effective. Poinsettias on the back walls of stoves can be so managed as to cover large spaces perfectly, as by annually cutting back the shoots at different heights young growth can be secured each season that will occupy the whole area evenly. Though strong growers, these plants do not require very much root room—a moderate sized bed is sufficient; but as they may be expected to keep in good condition for a good many years, it is necessary, in the first instance, to see that the bed is well made and the soil such as will last; in the bottom there should be 3 in. or 4 in. of rubble, clinkers, or something of a like description for drainage. To prevent the soil getting down into this, there ought to be a layer of turfy material—good turfy loam, with a moderate amount of rotten manure added, and sand in proportion to the more or less retentive nature of the soil; about 12 in. of this above the drainage will suffice. A bed so made, and about 18 inches in width by 6 feet long, will be large enough to support a large specimen, and proportionately larger if more than one plant is intended to occupy the position. The plants should be strong—such as have been well grown for a year or two in pots are suitable; in fact, the larger they are the better, as their heads will get more light from the first, thus securing the lower part of the wall being furnished.

THE BEST TIME TO PLANT them out is just before they start into growth in the spring; any loose soil should be removed from the balls, and the roots ought to be loosened so far as can be done without injuring them. The soil must be pressed moderately firm over the roots, and it should be in right condition as to moisture, neither too wet nor so dry as to require much water being given for a few weeks more than that which it will get in syringing the plants once a day, which they will require to help them to break; the syringing should be continued through the summer until growth is nearly completed. As soon as the shoots begin to move give a little water; but it is necessary to be careful that the soil is not made too wet, as until the growth has made some progress and the roots have got fairly into motion they are not in a condition to take up moisture. These, in common with other cultivated *Euphorbiaceous* plants, are impatient of having the soil about their roots in anything approaching a wet state at any time, and still more so when there is little top or root-growth going on. When the shoots commence to extend freely they must be secured in the required positions, but should not be pinned in too closely, leaving the extremities so that they can turn to the light; as they extend further again tie them in, continuing to thus secure them until the season is so far advanced that the growth will be slower. The light will naturally cause the

tops of the shoots to curve out from the wall so far as the ties will allow them.

AS THE BLOOMING TIME draws near the extremities should stand out about 2 feet from the wall, which will admit of the heads of flowering bracts being seen to advantage. If the plants were strong, as advised when planted out, and they have gone on satisfactorily, they will be effective the first season, but the well-known habit of these plants is such that it is only in the second and subsequent years that an idea can be formed of the gorgeous effect which a wall when well furnished with Poinsettias presents. After the flowering is over the soil should be kept considerably drier until growth again commences, previous to which the shoots must be shortened. It is at this time that a little forethought is required in cutting the shoots back, so as to have them of different lengths with a view to dispersing the coming season's growth evenly over the surface, otherwise they will be all too near of a height when the time of flowering arrives, which, as will be easily understood, is not desirable. Just as the plants are about to again break into growth as much of the old surface soil of the bed should be removed as can be done without disturbing the roots, replacing it with new to which has been added a liberal quantity of manure; previous to putting this on, the bed should be well watered so as to make it fairly moist to the bottom. It is necessary to be particular about this, as with all other plants similarly placed, otherwise the surface may be wet enough through the season, whilst the soil lower down may be so dry that healthy root action is impossible. All that is further needed is to again secure the shoots in the positions required, as the season goes on distributing them evenly so far as possible over the space to be covered.

DURING THE SECOND AND SUBSEQUENT SUMMERS manure water may be given freely after the plants have got fairly into growth. By pursuing the course of treatment advised, the plants, as already intimated, will last for many years, each season for many weeks affording a display such as few things can equal. T. B.

Winter Gloxinias.—I send you a few blooms of Gloxinias cut from plants that began blooming some two months ago, and these will be succeeded by a fresh lot by the time they are past their best. I find that Gloxinias can be had in bloom the year through by proper management. During the last five years we have never been without them a day.—J. CROOK.

** Excellent blooms, large and of bright and varied colours.—ED.

Ruscus androgynus.—This is a useful pillar plant for large structures, a fact well exemplified by the grand specimen of it in the Crystal Palace, at Sydenham. Its vigorous shoots attain in a few months a length of from 40 feet to 50 feet. The leaves, which are pinnate, measure from 18 inches to 2 feet long. They are of a leathery, dark green texture and droop slightly and regularly, thus forming an elegant pillar or palisade of handsome foliage. Its flowers are small and insignificant, but, from a scientific point of view, most interesting, being produced on the edges of the leaves; at first they appear to be of the size and shape of a small pin's head and are sulphur white. As for seeds, I never could find any; I should, therefore, be indebted to anyone who may be able to state the best practical way of propagating this beautiful *Ruscus*.—J. HANETER.

Schizostylis coccinea.—If this plant has been well grown during summer, it will now be making a good display in the conservatory. When done flowering it should have six or eight weeks' rest in a cool, dry house or pit. In order to rest it properly water must be given sparingly; but never allow it to become dust-dry. After resting shake thoroughly away all the old soil; then carefully select the

strongest suckers, pot them in light, rich loam, putting twelve or fourteen plants in 6-inch pots. Water thoroughly and place them in a cold close frame until they have become well established; they may then be gradually hardened off and plunged outside in coal ashes. I recommend plunging because this plant is a lover of moisture, and if the pots are covered to their rims there will be no danger of the roots becoming shrivelled through being exposed to the burning rays of a midsummer sun. While growing they will also be benefited by giving them now and then a liberal supply of liquid manure, and a good watering over-head after bright sunny days. Thus treated they will make strong growths and flower profusely by the end of October or beginning of November.—J. T. F.

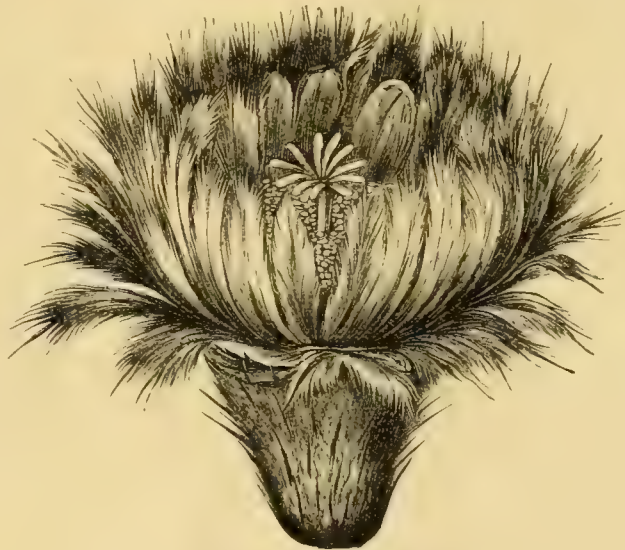
ECHINOCACTUS TEXENSIS.

THE group of Hedgehog Cactuses to which the above-named species belongs is, as a rule, remarkable for the size and iron-like consistency of its spines, which are arranged in clusters along the ridges of the generally globose stems, and for its large, beautifully coloured flowers. In the character of the stems of the Echinocacti there is much variety; in some the ridges are regular and straight, in others curving in a sort of spiral way, and in a few they are divided into tubercles or mammæ, so that the stems resemble the Mammillarias. We may, perhaps, be pardoned if we say that the taste which can admire the stems of these Cacti is an acquired one, just, indeed, as is that taste which sees guineas in a slight variation in the form or the colour of an Orchid bloom. The love of the curious is as legitimate as the love of the beautiful, and in the stems of Echinocacti, as well as other genera of Cactuses, there is an extraordinary conglomeration of what is strange, anomalous, even monstrous among vegetable life. So much for the stems of Cacti. When, however, the flowers, as in the case of the Echinocactuses, are exceptionally large and handsome, there is a still stronger claim to favour than goes with singularity or crudity of form, and we could name at least a score of kinds of Echinocactus which might with justice be placed in the first rank among stove and greenhouse flowering plants. *E. texensis* has not been cultivated long enough in this country for us to speak of its value in this respect, but in the character of its stem, its thorns, and the form of its flowers it has much to recommend it to Cactus growers. Its stem is either depressed or globose, about a foot in diameter; the ridges are broad and swollen, and the spines vary from 1 inch to 3 inches in length, the longest being in the centre of each cluster and strong as a knife-blade. The flowers spring from the top of the stem, and there is a tuft of whitish wool at the base of each; they are 2½ inches long and broad, the tube being woolly, with little spines scattered over it; the petals are arranged in a cup and enclose a large cluster of stamens. The beautifully fringed character of the petals is shown in the accompanying woodcut, whilst their colour is described as purple-rose. Flowers have not yet been developed by the plants of *E. texensis* at Kew. The object of the strong, often interlacing, spines which clothe the stems of Cacti has recently been referred to by an American naturalist as intended to break the power of the sun's rays before they reach the skin of the stems; and if we remember that it is only in the most arid, sunburnt localities that Cactuses thrive, it seems probable that the spines serve some such purpose as this. *E.*

texensis is a native of North-east Mexico, and grows on stony hillsides in full exposure to the sun.

THE EUCCHARIS DISEASE.

DURING these dreary winter days few flowers present such a chaste appearance as those of *Eucharis amazonica*. It is therefore to be regretted that it should be liable to be attacked as it is by disease, or rather by the *Eucharis mite* (*Rhizoglyphus echinopus*). Having had some experience of this *Eucharis* disease during the last twelve months, it may not be amiss to describe the way in which I stamped it out. We grow a considerable quantity of *Eucharis* bulbs, but I shall confine my remarks to two dozen potfuls which flowered fairly well, at different periods, for two years previous to last March. At that time many of them showed unmistakable symptoms of disease, which I am of opinion the state of the soil in which the bulbs were growing encouraged. On examination, I found that it had become clammy, sodden, and sour; consequently, I set about remedying such an undesirable state of affairs. The bulbs had not been re-potted for at least two years pre-



Flower of *Echinocactus texensis*.

vious. Those of one half of the collection (which was in 12-inch pots) were shaken out carefully, and the bulbs were thoroughly washed in warm water. We then laid them on the potting bench, and sprinkled them well with clean sand. Many of the bulbs were, I observed, affected with reddish brown decaying spots. The following compost—viz., three parts good yellow fibrous loam, one part well decomposed manure, some half-inch bones and bone meal, with the addition of some charcoal, soot, and sand—having been prepared, the bulbs were sized and potted in it in 10-inch pots, six, seven, and eight bulbs being put in a pot. A few potfuls consisted of extra large bulbs, four being put in each pot. They were placed deep in the pots—a matter of importance, particularly if carrying heavy foliage. Smaller or young bulblets were potted ten, twelve, and fourteen, &c., in 8-inch pots. The soil was pressed moderately firm around the bulbs; four stakes were inserted at regular intervals apart round the sides, and a piece of string was tied round each, which kept the foliage upright. The pots were then plunged in a bed of cocoa-nut fibre, where a bottom heat of from 70° to 80° had been maintained. The usual stove temperature was kept up in the body of

the house. The operation of potting, plunging &c., took place on the 26th of March, and the pots received no water until the plants commenced to grow. They were gently syringed over-head twice daily on all favourable occasions. They were shaded from strong sunshine when necessary, and a humid atmosphere was maintained in the interior. The other bulbs alluded to received the same treatment on the 16th of April. Many of the latter bore a crop of flowers at the time when the first lot had been potted, and consequently could not just then be operated upon.

THE CHECK which the bulbs received during the foregoing operations had a tendency to make many of them push up flower-spikes in May and June, a state of things I by no means desired, my object being to encourage the vigour of the plants; however, as the season progressed, they made satisfactory progress until the pots were full of healthy, vigorous foliage, and sending up occasional flower-spikes towards the end of September. These we wished to retard until Christmas. We selected two dozen of the strongest plants and kept them in a house some 10° cooler for six weeks; the others were lifted out of the plunging bed on to it, water being withheld in each case during the period named. After that, one-half the batch from the cooler house was returned to its previous quarters, and plunged along with the lot already there. This time the fibre was changed (it being saturated with water) and a bed of leaves substituted seven weeks before Christmas. The remaining portion from the cool house was brought in two weeks later. In each case after all had been plunged they received a good soaking of liquid manure, composed of cow manure and soot, at a temperature of 85°. In a few days afterwards flower-spikes made their appearance numerously. The first flower that expanded was ready for gathering three weeks after the pots were plunged. From the two dozen strongest pots, consisting of four, six, and seven bulbs in a pot, we had 124 grand spikes and forty-two from some of the smaller bulbs, making 166 altogether, fifty of which bore five blooms on each flower-spike, sixty-six carried six blooms, forty-eight seven blooms, and two spikes were furnished with eight flowers each.

AT POTTING TIME the bulbs that showed the worst symptoms of disease were placed in three pots, and received, as near as was practicable, the same treatment as the others; they never made such satisfactory progress as the bulbs that had sustained only a slight attack. I examined one potful carefully and dissected the most unhealthy looking bulb; its top or point was in a state of decomposition. Amongst the decaying parts I perceived a great quantity of minute white-looking insects (doubtless the mite); with the aid of a pocket lens I could see that they were full of life and activity.

A STRIKING ILLUSTRATION of the debilitating effects of forcing the same bulbs into flower in quick succession has come under my observation. One bulb that flowered in September pushed up another spike at Christmas; this spike was not much stronger than a Rush and bore only two flowers. I have, therefore, come to the conclusion that if cultivators obtain two crops of flowers from the same bulb in twelve months, they ought to be satisfied. I may add that the young bulblets have done splendidly; the roots can be seen in masses near the surface. In a short time they will be shifted into larger pots with as little

disturbance as possible, and I have no doubt that they will flower satisfactorily in due course.

Wimbledon. D. SHEAHAN.

LATE CHRYSANTHEMUMS.

THE recent exhibition of Chrysanthemum blooms at the Royal Aquarium has demonstrated that the holding a show of these grand winter flowers in January has nothing chimerical about it. It is, however, doubtful, satisfactory as were the exhibits at the recent show, whether any of the plants from which they had been taken were grown specially with an eye to a January exhibition. Most probably they were grown for the production of extra late blooms for ordinary decoration. If such was the case, then there is good reason to believe that if specially cultivated for a January exhibition, even finer blooms and more varied kinds may be looked for in years to come. It is interesting to learn that exhibitors generally at the recent show were not so familiar to us as Chrysanthemum growers as might have been anticipated. That fact would naturally lead to the conclusion that November exhibitors chiefly expend their efforts in the production of blooms for the shows of that month. That is the inevitable result of having so many shows then, all of which with their valuable prizes are so many temptations to growers to throw all their strength into the production of blooms at the natural or ordinary season. After all, it must be admitted that no extraordinary amount of skill is needed to obtain fairly good Chrysanthemum blooms in November. Given good plants—and these are not hard to grow—flowers will come, because it is natural that they should do so. But the obtaining of only mediocre blooms in January—two months later than the ordinary show season—is indeed meritorious, and it is hoped that at the January show of next year, after ample notice and special preparation for that event have taken place, we shall see, not merely mediocre, but fairly good blooms. Very probably growers north of London have better chances for the production of late blooms than have southern growers, but still much remains to be tried. It is now worthy of consideration whether some portion of the large sum allotted as prize money at the National Society's November show might not well be diverted to the January schedule. The earlier show may suffer a little, but the later one would largely benefit. Then we have such an abundance of early shows, and all the finest kinds are so admirably produced at these, that the exhibitor has nothing to lose by the carrying out of this proposal. On the other hand, how much will be gained to the Chrysanthemum universally if by encouragement an abundant supply of bloom can be reared for several weeks longer in the winter than now is commonly the case. The Japanese section, in providing us with the bulk of late bloomers, adds but another debt to the many we owe those beautiful kinds, and assists to make them more popular than ever. The cultivation of Chrysanthemums for ordinary blooming has been pretty well threshed out, and it is difficult to find anything fresh to say. Those who have been more than ordinarily successful in rearing a good late show of blooms will now render good service in describing their modes of cultural treatment, and as that information may be added to, we may find there is yet much to be learned about late-blooming Chrysanthemums.

A. D.

Chrysanthemum Mdle. Lacroix.—Being somewhat surprised that no mention is made of this fine late white Japanese variety as being shown at the National Society's exhibition last week, I write to ask if others can corroborate my statements as to its beha-

viour. A single stem bore one fine flower in the end of last November, having been disbudged for some distance down the stem. A number of shoots (five) pushed strongly from lower down the stem while the first flower was opening, and these secondary growths have produced in January three blooms as fine as the first flower, and two somewhat smaller. These shoots have again broken strongly some way down, and show good flower-buds again, which, I regret to say, I must cut off before they can open, as there are no shoots fit for cuttings sprouting at the pot level, and I can wait no longer. If other growers can say they have noticed the same habit also, it goes far to prove that this Chrysanthemum is of unusual excellence for amateurs who like a succession of fine large blooms.—E. H. W.

FERNS.

SHORTENING TREE FERN STEMS.

"THE noble Tree Ferns which for so many years were the principal ornaments of my winter garden—those beautiful Dicksonias which every successive season produced such handsome heads of long feathery fronds—have grown so luxuriantly since they have been planted out, that they have at last attained such dimensions that the house is getting too small for them, and unless I can find someone who will kindly take them in exchange for other plants, or at a nominal value, I shall be obliged to destroy them, as the house will not hold them as they are now any longer." This complaint one unfortunately hears too frequently. There are only two ways of getting over the difficulty; one consists in having the structure in which the plants are growing raised; the other, which is far less expensive, is the reduction of the stems, an operation which may be performed with safety at any time between the beginning of November and the middle of February, provided the trunks thus operated upon are afterwards subjected to rational treatment. In the first place, the operation should be carried out while the plants are dormant, or failure will be the result. If done early in winter, just after the plants have gone to rest, during three or four months they will present a wretched appearance, in fact, look like freshly imported stems, as in all probability they will lose their foliage and not produce any for a considerable time. This, however, will not happen if the operation is performed in January or February, according to the temperature at which the house containing the Ferns is kept and just before they make their annual start, for in that case they generally keep their old foliage on until a crown of young fronds is developed, when they usually disappear; but should they even be deprived of their old foliage sooner than might be anticipated, they would only remain unsightly for a comparatively short time.

METHODS OF PREPARING THE STEMS FOR REDUCTION, more or less complicated, are numerous; getting them to root in a bed of Moss for a season previous to amputation has been advocated, but for this there is really no necessity. It is evident that if imported stems, cut off in their native habitats without any preparation and subjected to a long journey, can be induced to make good plants in one season, stems under altogether much more favourable circumstances cut off when still at rest, but approaching their growing season, must produce results at least quite as satisfactory. The first Tree Ferns the stems of which I saw reduced consisted of *Dicksonia antarctica* and *squarrosa*, *Cyathea dealbata* and *medullaris*, and *Alsophila australis*. These were in the once famous fernery belonging to Mr. T. Bewley, at Dublin; they were cut off from 2 feet to 3 feet above the ground and replanted close to the stumps, which were left undisturbed. None

of the stumps ever made any growth, although under ordinary treatment it is not rare to notice *Dicksonia squarrosa* pushing laterally; but the shortened stems succeeded admirably. Since then I have many times had an opportunity of testing the effects of similar treatment, and I have noticed that subjects operated on in this way succeed better when planted out than in pots or tubs. Although most Tree Ferns stand such reduction very well, *Dicksonia antarctica* suffers least—a fact easily accounted for when one considers the enormous quantities of aerial roots to be found on the trunk, all of which when in proximity to moisture have the power of absorbing an amount of atmospheric food sufficient for the development of a good head of fronds.

THE CUT-OFF STEM, which, for safety, must be at least equal in height to the length of the longest fronds, should be planted permanently in a previously prepared bed. Thorough drainage is indispensable, and the bed should contain clinkers, intermixed with pieces of bricks and coarsely broken charcoal, so as to allow a more than ordinary amount of water, which must be given to pass off freely. The drainage should be covered with a layer of Moss of some kind, but Sphagnum is best. The shortened stem should be set on the drainage, and then should be securely fixed thereon by some similar material placed around its base. Upon this should be placed a mixture of two-thirds peat and one-third loam, disposed so as to form a little mound around the stem. This will prevent the great quantity of water resulting from copious syringings keeping the base too wet, until fresh young roots have attained a certain development, after which little fear need be entertained on that score. The syringings, which should be frequent as well as copious, should be administered carefully over the whole surface of the trunk, so as to favour the development of roots in an equal proportion all around the stem. It is from these syringings given early in the morning and late in the evening that the greatest benefit is derived. A light shading should also be applied during the hottest part of the day, principally in the early spring, and until new fronds have attained that state of hardness which will enable them to stand unprotected a much greater amount of sun-heat than is generally supposed.

THE ABOVE TREATMENT is also that generally adopted, and with the most satisfactory results in the case of newly imported stems. These are sometimes surrounded with Sphagnum, which certainly favours the growth of new roots, but unless such packing be carefully performed by experienced hands, it is productive of much mischief, as when by the repeated use of either syringe or hose, and likewise through the slow, but unavoidable, action of the shrinking of the mossy material which is continually being washed away, the roots become exposed; these, besides having a very untidy appearance, are also subjected to the danger of drying much more rapidly than those of plants otherwise treated, and to lose their vitality in a short space of time. An excellent plan by which to prevent the excess of growth of these Tree Ferns when planted out in a winter garden is to cut annually around their stems, at a distance of 3 feet or so with the spade, a sort of trench, which will check their exuberance. This root-pruning, so to speak, should be done at any time between November and the middle of February, according to the temperature of the house in which the Ferns are growing, and before root action commences. S.

Ferns from spores. The following is the way in which I have grown both native and foreign Ferns from spores. My plan is to sow the spores in a biscuit box, the soil being 2 inches from the top, and cover over with a sheet of glass; the box stands on an old iron tray, which is upon a table in

the kitchen window, and every other night I fill the tray with boiling water, previously pouring off the old water. The best soil I find to be inclined to clay, mixed with one-third broken bricks, one-third peat or German Moss, with a small quantity of burnt freestone, bruised fine.—T. C.

ORCHIDS.

WINTER TREATMENT.

AFTER looking over the occupants of the Mexican or Cattleya house carefully, I am enabled to say that they have passed through the winter so far very well. We may now expect the sun to daily increase in strength, and it is well to remember that cold nights are not likely to do so much harm as dull sunless weather. If the temperature can be increased about 10° in the daytime by means of sun heat, the proper night temperature can be more easily kept up. Some maintain the atmosphere well on the side of dryness; others keep it quite moist. Some years ago I was shown a large collection of Orchids, and I remarked that the atmosphere seemed to be very dry; the house was an intermediate one, and well exposed to the sun, being span-roofed. In this case no water was sprinkled on the paths or stages except to wash out the paths once a week. This, I thought, seemed like erring on the dry side, and I fancy the owner thinks so now, for the other day I saw that a hose was being employed to water the paths and under the stages of that same house, and I was told that this was done daily. For my own part I would rather err on the side of dryness in winter; but there is no need to err at all. I have been going in and out all classes of Orchid houses daily for nearly twenty years, and I can tell whether the temperature and atmospheric conditions are right or not by the evidence of the senses. We have for at least ten years discontinued using the evaporating troughs during four months in mid-winter. The Orchids stand over a bed of broken shells, and whenever these are moderately dry they are sprinkled with water, and the paths are sprinkled daily, *i.e.*, if the temperature is up to the right point or over it; should it be too low in the morning no water is used until it has risen to the required height. Then as to ventilation to all our Orchid houses, we admit as much air as it is possible to give. The hit-and-miss ventilators in the side walls may seem small and unimportant to the casual observer, but they are not really so, and anyone who will take the trouble to make experiments by dropping feathers or any light substance in the air current will soon be satisfied that a continual stream of fresh air passes through these apertures, and, being placed exactly opposite the hot-water pipes, the air thus admitted gets warmed before it reaches the plants. In very cold and dull weather the top lights need not be opened, but we never lose an opportunity of opening them whenever the weather permits. One necessary part of Orchid culture consists in keeping a uniform night and day temperature; 55° at night and 60° by day, or from 65° to 70° with sun-heat, will be sufficient.

LELIA PURPURATA and *L. ELEGANS* require the highest Cattleya house temperature. If their growths have been matured before winter they will be all right, even if the temperature should fall to 50° sometimes. On the other hand, those plants that are making their growths suffer at once when the temperature falls as low as 50°. During the present winter we had some partly-formed growths of *L. elegans* which began to show signs of decay as soon as we had an accidentally low temperature for one or two nights only. They were placed at once in a warmer house, and the decay was arrested by an applica-

tion of quicklime. Growths are now forming and making very satisfactory progress; indeed, all undeveloped growths of this kind, and also those of *Cattleya labiata*, will complete their formation much better in a house a few degrees warmer if it can be provided for them. *Cattleya maxima* has been introduced in large quantities recently, and it has abundantly proved itself to be one of the best of the genus for flowering in winter. The two *Cattleyas* just named are very distinct in habit. One has bulbs 2 feet in length; the other has very short bulbs and more richly coloured flowers, but perhaps the tallest form flowers most freely. They must both be grown in pots in the usual compost; and the short-bulbed form may be induced to flower best if placed close to the glass. *C. maxima* lacks the rich coloured labellum of *C. labiata*, *C. Trianae*, and others, but the rich venation of the lip is delicately beautiful. *Oncidium Marshallianum* is now plentiful, being sold at auctions weekly. Grand masses were sold in the autumn, but they unfortunately proved to be *O. crispum*, also a handsome species, requiring the same treatment. I place them at once in the usual teak baskets, and suspend them close to the glass. The first named I hold to be the best of the yellow *Oncidiums*. We have tried it in pots, on blocks, rafts, &c., but we now confine it to the usual teak baskets.

Just a word in reference to that sweet-scented, old-fashioned Orchid, *Zygopetalum Mackayi*. Now is a good time to break up old plants of it, and to repot them in good fibrous yellow loam, a little fibrous peat, crocks, and charcoal.

THE CATTLEYA HOUSES are now crowded with those magnificent *Dendrobiums*, *D. crassinode*, *D. Wardianum*, and in some collections the very charming *D. Ainsworthi* is quite plentiful. We place all our plants in a warm greenhouse temperature, and they are brought into the Cattleya house in the shape of a few plants at a time. The earliest plants are now in flower in most collections; the good old *D. nobile* still holds its old position; it has not yet been superseded as regards colour. We have potted nothing this month except *Pleiones*, the earliest of which were potted in December. They are now well supplied with water, and are pushing out roots freely. Some *Cymbidiums* were at the same time surface-dressed with turfy loam and decayed manure, and they seem to be all the better for it. Plants of *C. Lowianum* are now well furnished with spikes partly developed, although the first flowers will not open for six weeks or more. We have one showing twenty-eight blooms on one spike. They were potted in November, and are now pushing out roots freely into the fresh compost. JAS. DOUGLAS.

An Orchid society.—No doubt there are two sides to this question, and some people object to the multiplication of special societies, partly because they cause a diffusion of effort, *i.e.*, some distraction from horticulture generally as upheld and represented by the Royal Horticultural Society. If the interests of amateurs and others are to be centralised, so much the better, but the above society has of late years been quite incapable of directing and controlling questions of this kind. Now that the Fellows of the Royal Horticultural Society are to dine together, I hope the worthy president will throw some light on the future prospects and action of the society. No sooner is an Orchid society proposed than we are told that the Orchid members of the floral committee have been thinking of it, and only await a fitting opportunity to give it effect. Thinking and waiting, however, never yet did effect much, and it seems time that thought resolved itself into action. If the Royal Horticultural Society will take up this matter, so much the better for all concerned.—LEX.

Cypripedium insigne.—Perhaps it may interest Mr. Warren (p. 55) to know that the plant about which he writes is the finest I ever heard of; but I think others might become as large and fine if they were not divided in order to increase the stock.—J. MUIR, *Maryam*.

LELIA ANCEPS AND ITS VARIETIES.

I AM unable to answer the question put by Mr. Crawshaw (p. 9), but I quite agree with him that the various growers of these *Lælias* should state the conditions under which they have found them to succeed best. There can be little doubt that the new importations of white *anceps* do not start or flower so freely as the old forms. Indeed, Mr. Crawshaw appears to be quite as successful as most growers, and it would have been instructive to many had he more fully described the conditions under which his plants are grown. We have some twenty plants, and many of them have this season made some fine bulbs—quite equal indeed to imported ones—but, unfortunately, none of them has bloomed. Our plants formed part of two importations made this season. After the usual cleaning, part were put in pots and the others in baskets, and placed in a house along with imported *Cattleyas*. This house was formerly a Cucumber house, and is what is termed a three-quarter span. It is 11 feet wide, 28 feet long, and somewhat shaded. The greater part started well, but in about seven weeks growth appeared to be less active. We then removed them to a more airy house, the temperature of which during the remainder of the summer was as near from 70° to 75° during the day, and from 65° to 70° at night as we could keep it. The roots had a good supply of rain water, and a slight sprinkle with the syringe was given overhead on very bright mornings. During this time the plants were in full sunshine up to ten o'clock in the morning. During the autumn and winter months the temperature has been from 60° to 65° by day, and from 55° to 60° at night. Growing under exactly the same conditions and potted about the same time, we have a number of the old forms of this season's importation; they have made fine bulbs, and most of them have bloomed satisfactorily, producing from five to ten spikes each. One specially worth mention is a plant with thirteen spikes, which has turned out to be *anceps Barkeri*; now that all the flowers are open this makes quite a show in itself. This also formed part of this season's importations. Established plants in the same house have also done well, including *Hilliana*. Our experience is that plants in pots have, on the whole, done better than those in baskets.

H. SIMPKINS.

Cambridge Lodge, Flodden Road, Camberwell.

NOTES ON CURRENT TOPICS.

BOWOOD MUSCAT GRAPE.—Mr. Coleman's remarks on this Grape at p. 34 are interesting to me. Although, as he indicates, no distinction is made between the Bowood and the common Muscat of Alexandria by dealers in Vines, still the Bowood, when it first came out, was distinct from any other variety, not only in the quality of its fruit and shape of the bunches, but also in its habit of growth and general appearance—so much so, that the writer could have picked young pot plants out from amongst hundreds of the common Muscat, and has often done so. These plants were, however, the first generation from one plant of the first lot of the Bowood sent out. This original Vine kept its characteristics to the last, but it appeared to me that later generations of the variety presented few or no differences from the common Muscat. This fact struck me at the time and others as well, and I have often thought

of it since, because it seems to show that even propagation by division or cuttings is not always sure to perpetuate a variety true. Be that as it may, Mr. Coleman's advice to get the Bowood "from a reliable source" is good, and I feel sanguine that if it can still be procured in its original character anywhere it is well worth trying. I shall never forget its superior and perfectly distinct appearance as it grew in ainery among a lot of other Muscats of the same age, all planted expressly to prove them. The Vine from Mr. Spencer, in fruit and foliage and wood, stood out so distinctly from the others, that the most casual observers noticed it the moment they entered the vinery.

THE VEGETABLE GARDEN.—That chapter from Vilmorin's book in last week's GARDEN has a healthy and original tone about it one likes, and if the author would only not manifest such herbivorous propensities, he would be faultless. It occurs to one that the argument that "we are meat-eaters because our fathers had little else to eat" is not a fortunate one, because it implies that Nature planted our fathers in the wrong place, as the grand old mother has planted a good many races between the north and the south poles. One fact comes out pretty clearly in history, viz., that the human races who ate meat and liked it have been generally the best, bravest, most energetic and enterprising. Meat-fed dogs are proverbial for courage and endurance. The indomitable courage of the Zulus could be explained on no other ground than their amazing meat-consuming powers. At the risk of being included among barbarians, I vow never to enter one of those future London restaurants that are going to do without the butcher. We prefer the Mosaic law to Vilmorin's, and are of opinion that our friends the Jews have exhibited a rather striking vitality and capacity on the rather exclusive liberal meat diet prescribed in the wilderness. With these objections, however, I agree with Mons. Vilmorin generally.

WATER LILY CULTURE.—Those who are fond of growing these flowers in the open air, which after all is the best place to see and enjoy them, are often disappointed in cold districts and cold seasons, owing to the flowers being so sparsely produced and not opening freely. In such circumstances a little artificial heat, created either by allowing an overflow from a warm tank to run into the cistern or tank, or by a small hot-water pipe of lead or metal run through the water itself, will make all the difference. By such means it is possible to give open-air aquatics almost as high a temperature as they require without any top covering whatever, since the water is the medium in which they live, and that warmed they are safe and comfortable, even in a cold air temperature. The late Mr. Speed, of Chatsworth, once showed me abundance of Water Lilies in an open tank, heated by the overflow from a warm house, while in another tank not so assisted there were scarcely any flowers, the varieties being the same in both cases.

COLLECTIONS OF ORCHIDS.—These in private gardens do not seem to last long. If only the dispersion of collections were chronicled as freely as other matters, readers would wonder what it meant. Barely have we become familiar or even acquainted with a noted collection anywhere than the news comes from some source or other that it has gone. The history of a good many of those "private collections" that are brought to the hammer would, we fear, reveal some of the discouraging features of Orchid culture at a period when private gardening on an expensive scale is on its trial, for never at any former period was gardening at such a low ebb financially in country places. Every "traveller" in the

trade will tell you so. A curious sign of the depression in the land interest is the fact that the "fine collections" are moving from the fine old gardens of country mansions into the newer ones near large towns and belonging to merchants and business men, among whom the love of flowers increases and gardening has extended in a wonderful degree.

THE PRUNED LÆLIA AND THE FLORAL COMMITTEE.—An amusing little episode that was at South Kensington last week when Mr. Blandford's fine Lælia—pruned of its leafless bulbs for about ten years—came before the collective wisdom of the committee, whose verdict on the plant, according to the *Chronicle*, reminds one of that delivered by the prejudiced American jury, which, not being able to convict the prisoner of an offence against a neighbour, condemned him on the plea that he had "not done him any good!" Mr. Blandford's Lælia was exhibited to prove that pruning did not kill an *Orchid* or injure it in any way, as several noted members of the floral committee have over and over again pledged their reputation and experience that it would. The verdict on the evidence ought to have been, "Opinion of the opponents of pruning erroneous: pruning a perfectly safe practice." But it was too much to expect those cultivators assembled to eat their convictions publicly, and they mumbled that "equally good plants had been produced without pruning!" Who ever said there hadn't been? A meaner confession of error and ignorance as regards Orchid physiology was never recorded. Nevertheless, this ordinary specimen, no better than others, was awarded a cultural commendation—what for? It is a pity to see individuals trying to crush inquiry and fair play in such a matter to hide their ignorance and precipitance, but it is worse when horticultural papers lend their aid to that end. In your contemporaries the plant is dismissed with a bare record of its presence, leaving the impression that it was nothing extraordinary. **THE GARDEN**, on the other hand, describes it as an "unusual example of good culture . . . indeed, a fine plant with strong, healthy bulbs and spotless leaves of that luxuriant green which indicates rude health—an opinion that is wholly at variance with that of the committee of "non-pruners," who reluctantly acknowledged to the no ill-effects only, and—fled!

GARDEN EXPENSES.—That's it. As "W. I." says last week, turf over half the flower-beds, or plant them up with shrubs and hardy plants, and, he might have added, simplify room and table decoration, reduce its extent, grow fewer expensive plants, have lawns of less extent and less labour, and be content with a simpler, but quite as pure a style of gardening as we have ever had. If the depression is the death of the bedding-out system, already nearly done for, no one need care a jot because it represents a style of gardening that never had much to recommend it but its extravagance and show.

BRUSSELS SPROUTS.—Vilmorin's reflections on Brussels Sprouts have occurred to others before now, and been expressed in **THE GARDEN** several times. It is one of the comical features of horticultural progress that we not infrequently find so-called improvers of vegetables and fruits travelling diligently back again by a roundabout way to the point from whence they started, as people do when lost in a fog. We never grew a big Brussels Sprout, and never mean to do. It is about five-and-twenty years since Brussels Sprouts reached the highest degree of excellence, as denoted by their small size, their firmness, flavour, and abundant production on the stalk. About that time the original object of the raiser of Sprouts and their purpose appears to have

been forgotten or lost sight of, and a certain man began to grow Brussels Sprouts back into Cabbages again, and he persevered in this direction till he died, when his great and dominant idea was taken up and pursued by other demented people until the present time. But it won't do, and big Brussels Sprouts are going out of repute, and those who want them prefer to have them in the form of the Cabbage, from whence they sprung. No intelligent cook will look at big Sprouts. He throws them away as bastard Cabbages, and goes in for "bullets" of the old shape.

S. W.

GARDEN FLORA.

PLATE 528.

THE SNOWDROPS.*

Few have any idea of the great variety to be found amongst Snowdrops. Under ordinary circumstances, only the single and double varieties of *Galanthus nivalis* are grown, not a thought being bestowed on the many other beautiful forms that belong to the genus. Many may be surprised to hear that in ordinary seasons I have Snowdrops in bloom each month from October to April, all being in the open ground and without the slightest protection. First comes *G. octobrensis* (October and November), then *G. præcox* (December and January), *G. nivalis*, and the various forms of *Elwesi*, *Imperati*, and *plicatus* in January, February, and the early part of March, and last of all comes a late form of *G. nivalis* which I had from Gusmus, and, therefore, call *G. Gusmusi*, which lingers on into April. In my notebook of the past year I find the following memorandum: "April 7, *G. Gusmusi* on north bank still good." Besides the extended season of blooming belonging to the Snowdrops, there is very great variety in foliage and the form and size of the flower as well as in the markings of the flower. Some of the varieties have the interior petals very heavily marked with green, whilst in others the green markings are very slight. There is one variety that has faint green spots on the exterior petals, and there is another that has these outer petals almost entirely green. In the case of some sorts the foliage is barely a quarter of an inch in breadth, while in that of others it is $1\frac{1}{2}$ inches wide. *G. latifolius* and some of the *nivalis* forms are very small and dwarf, whilst the best forms of *Imperati* and *Elwesi* are giants. Snowdrops require but little care in their cultivation; they will grow in almost any soil or situation. They do well under deciduous trees, and also in Grass if allowed to remain uncut until the foliage of the Snowdrop begins to turn yellow.

For the last seven or eight years I have paid special attention to Snowdrops, and by purchasing, exchanging, and the kindness of generous amateurs, I think I possess every variety at present in cultivation. I have paid as high as 7s. 6d. per root for new kinds, but for the choicest and rarest forms I am indebted to the kindness of the late Rev. Harpur-Crewe, M. Max Leichtlin, and Mr. Sanders. I find that in *nivalis*, *plicatus*, *Imperati*, and *Elwesi* there are many forms, so I am constantly purchasing from fresh sources and then making selections from them when in bloom. My experience is, that Snowdrops suffer but little, if at all, from being transplanted when in full bloom. In addition to this I am raising seedlings every year from my best varieties and have no doubt I shall ultimately be rewarded for my trouble. Only those

* Drawn from flowers sent by Mr. James Allen, Shepton Mallet, and Messrs. Barr and Son, King Street, Covent Garden.



EIGHT KINDS OF SNOWFL. F. GALANTHUS

who have a passion for flowers have any idea of the intense pleasure there is in raising seedlings and watching their progress up to the flowering period. It is hard, though, to wait for four or five years for the first bloom, but when you are once "in the swim," time is not much noticed, as during every season some of one's seedlings will be "coming out." I have a few young seedlings from *G. Shaylocki* and *G. virescens*. Will these maintain the characters of their parents, make a new departure, or revert to the typical *nivalis*?

G. OCTOBRENSIS usually blooms at the end of October, and the flowers appear before the foliage. It seems to be a variety of *G. nivalis*, but is most interesting on account of its blooming in the autumn. I am indebted to the late Rev. Harpur-Crewe for this choice bulb, and he obtained it from Lord Walsingham. It appears to have been a chance bulb collected by his lordship near Scrofitza, or Conchi, in Albania, some fifty or sixty miles north of Corfu.

G. PRÆCOX, OR *CORCYRENSIS*.—This was also a gift from Mr. Harpur-Crewe, to whom it was sent by the Rev. Mr. Hughes, chaplain at Corfu. This variety blooms at the end of December, and appears to be a form of *nivalis*. It is small in all its parts, and I find it more delicate than any other *Galanthus* I grow. It requires a light, sandy soil and a sheltered situation.

G. SHAYLOCKI has two peculiarities, viz., a pale green spot at the tip of each outside petal and two long spathes, which give to the flower a very singular appearance. With me *G. Shaylocki* grows very freely and increases rapidly. Mr. Barr kindly procured this variety for me from one of his clients.

G. LUTESCENS is another very peculiar form in which all the usual green markings of the flowers are of a rich yellow, and this extends even to the seed-vessel. I admire this variety very much on account of its delicate beauty. It requires more care than ordinary Snowdrops, and is somewhat slow of increase. This variety was found, a few years ago, in an old farmhouse garden in Northumberland by Mr. Sanders, of Cambridge, who kindly sent me some bulbs.

G. VIRESCENS is quite an oddity, having the outside petals green, tipped and edged with white. This variety is very late, and the form of the flower is often imperfect. It is valued for its singularity rather than its beauty. I am indebted to M. Max Leichtlin, of Baden-Baden, for this kind.

G. LATIFOLIUS has foliage like a *Scilla*, and will not bloom until thoroughly established. The flowers are small, but look very pretty peeping out from its short, broad, grass-green leaves. I have one bulb of this kind with a stronger habit and a larger flower than that of the type, and the foliage is somewhat glaucous. This is the only sport from the type that I have seen or heard of.

G. IMPERATI, if you get the true variety, is very fine, but many of the bulbs supplied by the trade are poor as regards the character of their flowers. The true variety was introduced by the late Mr. Atkins, and I was so fortunate as to obtain a few bulbs of it from that veteran horticulturist, Mr. George Wheeler, of Warminster, shortly before his death. *G. Imperati* varies very much, and the flowers are often deformed, but by careful selection one may get some lovely strains of it. There is a substance in the flowers unlike that of other kinds, and the long slender pedicles by which the blooms in some of these strains are attached to the stem give them quite a character of their own.

G. PLICATUS is now well known. This kind

also varies considerably, both in foliage and flower, and one form that I have selected blooms with the earlier sorts—*Elwesi*, *nivalis*, and *Imperati*. I have some with very narrow leaves, and others the leaves of which are $1\frac{1}{2}$ inches broad. One of my selections, which I have named *G. plicatus brevifolios*, has the petals very much shortened; it is peculiar, but not beautiful. This variety requires careful selection.

G. ELWESI is the largest of all the Snowdrops, and by many is considered to be the best, but I cannot endorse that opinion. The long, floppy leaves often get torn and soiled in rough weather, and the flowers, although large, often have the appearance of tissue paper. This kind also varies very much, and many of the strains are utter rubbish. Last season I selected two or three varieties, which, if they retain their characters, may win my good opinion, as they had size, form, and substance, together with a dwarf habit.

G. NIVALIS, the common Snowdrop, the one Snowdrop of the boyhood of those of us who



Flowers of *Galanthus plicatus reflexus*.*

are now in their second half century, has long been a symbol of hope and promise, of darkness giving place to light. It is the dove sent out of the ark in winter by Nature, to test the possibility of reclothing the earth with beauty. In *G. nivalis* we meet with great variety in the way of size and form, so that to one like myself, it is quite impossible to tell where *G. nivalis* ends and *G. Imperati* begins. I fancy the latter is nothing more than the aristocratic branch of the same family. The double form of *G. nivalis* is highly valued by some, but in simple beauty it is far behind the single one. Some of the strains of *nivalis* are giants and some are pigmies, but all are more or less beautiful. They will grow in any spot where it is possible to get a little soil to nourish them; in Grass, under deciduous trees, in woods, on banks—anywhere and everywhere. It is impossible to have too many of this lovely and chaste little flower.

G. POCULIFORMIS, raised by Mr. D. Melville,

* Drawn by Mr. Burbidge in 1877. Does any reader know if this variety is still in cultivation?

Dunrobin Castle, is a form of *nivalis* with the interior petals nearly as long as the exterior ones, and without the usual green markings. A perfect flower of this kind is very beautiful, but, unfortunately, a large proportion of the blooms are deformed.

I understand that in New Zealand the Snowdrop will not thrive; in fact, it pines and dies away in a year or two. What is the reason of this? Amongst the numerous variations in the Snowdrop, I have never yet come across one with perfectly formed flowers having the interior petals entirely white. I fancy this must exist somewhere, and should much like to get it. As the Snowdrop season is just commencing, perhaps my notes may induce some of your readers to observe more closely the peculiarities of the kinds which they grow. Should they discover any form that appears to be new, I should esteem it a favour if they would kindly send me, by parcels post, a root or two, with the flowers attached. This would enable me to examine and report on them. JAMES ALLEN.

Park House, Shepton Mallet.

WORK DONE IN WEEK ENDING JAN. 19.

JANUARY 13.

A COMPLETE thaw, but work on the garden soil quite impossible, owing to the sudden state of the ground, and we have therefore continued grubbing up tree stems, sifting gravel, carting the same, and commenced our annual trimming up and pruning of shrubs. Having a large quantity of *Rhododendrons* bounding ornamental walks and coach-roads, the trimming of these every year is a necessity to keep them from encroaching on the walks and roads. As to mode of trimming, *Rhododendrons* are all knived; none are ever clipped, and hedge-like effect is avoided by cutting each bush, without reference to the height of its neighbour, that is, each plant is cut according as is needed to keep it in a bushy state, form or shape being considered of secondary importance, the sole aim being, first, to keep them from overhanging walks and roads, and, next, of the densest growth throughout, and the latter condition can only be assured by well cutting back strong growing shoots, which soon break, and forms some half dozen shoots in place of the one cut out. Old bushy plants of common and Portugal Laurels and Hollies, that have been regularly cut every year, we clip with shears, but avoid as much as possible excessive formality. The same kinds of shrubs that have not been so regularly attended to have only their longest and strongest branches cut back, a strong knife or small billhook being used for this mode of shrub pruning. Small shrubs of the *Cupressus Lawsoniana* type are all knived, the extent of cutting in respect of these being simply to encourage an even balance of growth, by cutting back any shoots that are outgrowing the bulk of the others. Thinned out the fruit of our first batch of Strawberries. Considering the dull weather the set of fruit is good; we took the precaution to artificially fertilise the blossoms, but later on we leave this process to the wind, sun, and bees, except in very dull weather, when but little air can be given; then we occasionally run the hand gently over the blossoms. About five fruit to a 5-inch pot is all we allow at this early season. Another batch is in full flower, and another nearly so, and others are weekly added, from twenty-five to fifty plants being put in at a time. Vines have broken very weakly, and we shall force the more slowly till weather conditions are more favourable; sunshine is what they need. For the present 60° will not be exceeded at night, and even less than this when the outside air is below freezing-point. Sowed Cannas, *Grevillea robusta*, *Solanum marginatum*, *Chamaepeuce diacantha*, *Wigandia caracasana*, and *Acacia lophantha*.

JANUARY 14.

Another slight frost in the morning, but otherwise a splendid day, with a couple of hours' sunshine, a real boon for our Strawberries, early Peaches, and Vines, and, in fact, for forcing and plants in general. Being

mild, we seized the opportunity to wash the lights of Pine pits inside and out. All are movable, hence they were taken off to be washed, a mat being put on as each light was taken off. By the greatest care as to airing and firing in a long, dreary winter, it is almost an impossibility to prevent the plants becoming drawn, though the more light the plants can have the less likely are they to develop an attenuated growth; hence our washing the glass now, and which we may find it necessary to repeat should we get another snowstorm that always leaves behind it a great deposit of dirt. Of course, the night coverings that we use to save firing must have some of the credit of dirtying the glass, though a good shower clears this dirt off, but the snow deposit settles into the laps of the glass. All the plants that are showing fruit are arranged in a division by themselves, and these are kept warmer than are the general bulk of the plants—65° at night and as high as 75° by day; all are looked over for watering once a week, no manure water being given as yet, but the atmosphere is kept moderately moist by syringing the beds between the plants and the walls and floor on fine days. Planted out the first lot of Melons. The bottom heat thermometer registers 82°, but part of this warmth must be credited to the fresh loam, and I quite expect it will soon subside to 70°, which we find ample bottom heat all through the spring months. Tomatoes in pots are still fruiting, but the space being required for Melons, we have had to shift the plants into a cooler house. Moreover, the roots had got a firm hold of the old Melon bed on which the pots stood, so the check may prove too much for them; but as we have strong young plants to take their place, it is of little consequence, for soon as the young plants begin to fruit the old ones will be destroyed. Sutton's Earliest of All and Veitch's Hackwood Park, both first-rate varieties, are the sorts we are growing for the first crop. Still too wet to get on the land either to dig, plant, or prune fruit trees, and so we have again been shrub-cutting, trenching in wood, making up fires, and burning up every scrap and description of matter that will burn to make ash and charcoal for fruit trees and kitchen garden purposes. And, what is another, and in our case a great, consideration—by these fires we get rid of a lot of rubbish, that if left would be a constant eyesore and cause of complaint about want of neatness, perhaps at a time when we could least afford the labour to remedy the defect.

JANUARY 15.

Another change. Showers during the night, but a fine day; the ground continues in such a fearfully wet state that it would be worse than labour lost to do aught that necessitated trampling on the soil, so we have again been busy with breaking up new ground in copse and digging up Rhododendrons on a dry bank that needed thinning out, and, with the plants thus obtained, clumps are being formed in the new addition to pleasure grounds. Shrub-pruning, as during the last two days, and a couple of hands have been started to cut out some of the branches of Apples in an ordinary orchard, the trees of which are getting very crowded. Their instructions are to cut out all branches that intercept and chafe each other, and particularly all cankered boughs, of which there are a quantity, and, I think, caused by the ground having become impoverished, and as the trees are planted on grass it is not easy to apply a remedy, though, if time and means hold out, our present is to mulch the entire orchard, and there being a good deal of Lichen on some of the trees, these we intend to splash over with a wash of soap-suds, soot, and freshly slaked lime. Sowed seeds of Pyrethrum Golden Feather, also a small pan of Celery, and made other sowings of Mustard, Cress, and Lettuces in handlights, the old refuse soil from the potting-shed being sifted and used for this purpose. Cauliflower, Lettuce, and even Cabbage plants are showing signs of suffering from such a changeable winter, and I fear most of them will succumb, and therefore, to be on the safe side, we shall make additional sowings of each in heat, and soon as favourable a warm border will be utilised for open-air sowings, and for pricking out under handlights in the same position, the plants now being raised in heat. Fumigated second Peach house; our invariable rule

is to fumigate just before the blossom expands, then we rarely have occasion to repeat it till it is quite safe to do so without risk of injury to either fruit or foliage. Potting the scarcer kinds of Dahlia roots and put in heat for propagation; also put in a few cuttings of Crotons and Gardenias. Primulas, Cinerarias, Carnations, Cyclamens, and double-flowered zonal Pelargoniums fill our Strawberry house, and look so well, that makeshift pits are being prepared for the Strawberry plants by filling them with Oak leaves, on which the plants will be stood—not plunged, and as they come into flower they will be shifted to shelves in vineries, Melon, and Peach houses. Tied up early Muscat Vines and watered the inside border, the water being at a temperature of 80°. The night temperature now ranges from 60° to 65° by night, according to the external temperature, and by day 72° is never exceeded, except when the house is closed up with sun heat.

JANUARY 16.

Very fine; sunshine for several hours, but the ground is still too wet to recommence fruit tree training and pruning. Orchard and shrub-pruning continued, and other hands have cleaned up lawn and walks and rolled the latter. Cut off the boughs that the snow broke down of Cedars of Lebanon, Abies cephalonica, Abies Nordmanniana, and Picea grandis; all these have flat boughs, and therefore hold the snow; none others were damaged, and, provided the snow had fallen in the daytime, this damage would, to some extent, have been prevented, for with long poles the men would have shaken the snow off—the lower boughs at any rate—before they had got overweighted. Deciduous trees, by the weight of snow and hurricane combined, have been freed of a large amount of dead wood, and though the work of clearing it away has been great, it is so much the less to be done after the next gale that blows. Cleared out fruit rooms; Apples never kept better, nor Pears either, for though the late kinds seem to be ripening very early, they do not decay, as at one time I feared they might. We aim at keeping both Apple and Pear rooms dry as possible; neither are heated, but both are built with hollow walls and are thatched with straw under the slates, and I have never known the temperature lower than 36°, however severe the frost has been outside. In damp weather we keep them closely shut up, but ventilate freely when the outside air is dry and not frosty. The Grape room is built after the same style, but is heated with a hot-water pipe, but is never used except to drive out damp after a thaw or continued rains, which is soon done by setting the door and roof ventilator wide open and turning on the heat. We have not yet space to bottle all the Lady Downes Grapes, but the house is kept as cool and dry as it is possible to keep it in such changeable weather, and as Grapes from the room are used others are cut, and the Vines pruned as the fruit is cleared. All the houses have had the usual weekly scrub, shifting, and re-arranging of plants, and fresh relays of Hyacinths, Tulips, and Lily of Valley have been put in to force. The remainder of Bouvardias and part of Calanthes that had done flowering have been arranged together at back of stove, as plants to be kept on the dry side to rest them. The shelves of stove are now being made use of to start into growth for cuttings, stock plants of Alternantheras, Coleus, Heliotropes, and the weakest roots of single Dahlias.

JANUARY 18.

Snow yesterday, but rain cleared it away during the night, and to-day has been fine, with sunshine. Groundwork is still out of the question, and we have again been busy with shrub-trimming, trenching up underwood stumps, burning up rubbish, and gravel and manure carting. Made up a hotbed for Potatoes and Asparagus with leaves and long stable litter, and put fresh linings to other frames. Having got our entire stock of Chrysanthemum cuttings, the old plants have all been taken out of houses, and such as are required for planting out have been stood closely together in a cold pit, and the remainder thrown away. All plants, soon as struck, are taken out of the handlights and arranged on a shelf in a coolinery, as near to the glass as possible, to keep the plants stocky. Began to divide and repot stove Ferns; also

to repot Palms, Dracenas, Marantas, in fact, all the kinds of stove plants that we grow, which is but a limited collection, but sufficiently large for our demands, as they are only required for dinner-table and boudoir decoration. Our aim is to get the largest plants in the smallest pots, and we lay the foundation for such a structure by using the best turfy peat and loam, and with it use small pieces of charcoal and bone-dust, draining the pots well, and pot firmly. Put more Potatoes in boxes of leaf-soil to sprout, in readiness for frame planting. Got in soil for second batch of Melons. As it was rather wet not much pounding was done, but it will be pressed down more when it has got heated through and is drier. A thin sprinkle of half-inch bones and small pieces of charcoal was put between each layer of loam, these being the only ingredients mixed with the loam.

JANUARY 19.

Yet another change. Very fine; but thermometer at freezing point all day long. Continued the same out-door jobs as yesterday, also clipped a Yew, and Cupressus Lawsoniana hedge. For years now we have clipped such hedges and trimmed shrubs of all kinds in frosty weather without any perceptible injury to the plants, a fact that deserves to be better known, that such kinds of jobs may be done now; thus time that would otherwise be spent on such work in milder weather may probably be the means of some other job having more attention than has hitherto been the case. Indoors work has been potting Ferns and stove plants. Sowed seeds of Gloxinia, tuberous Begonias, and Cyclamens; a few more tubers of the first-named have been shaken out of the old soil and repotted. Put in cuttings of Lobelias and other kinds of soft-wooded bedding plants, of which the stock is short. HANTS.

FRUITS UNDER GLASS.

PINES.

ALTHOUGH English Pines are not nearly so extensively grown as they were twenty years ago, there is one old favourite which foreign cultivators have not yet succeeded in putting down. Smooth Cayennes still glut our winter markets, but good Queens for the London season are still grown in England, and, notwithstanding the fact that the money value of Pines is much lower than it used to be, the same may be said of all other choice garden produce; and it is just a question whether enterprising growers may not yet find good Queens in May and June quite as profitable as Grapes at the prices which they now realise. In my last paper on Pines I stated that a few of the most promising plants should be selected and placed in bottom heat for giving the earliest supply of fruit. This having been done, it will now be necessary to see that they receive the requisite amount of heat and moisture to insure their throwing up clean, healthy fruit. If kept too dry and in a low temperature through the resting period the roots are apt to suffer, and the plants make a feeble response to the application of heat when it is applied in January or perhaps earlier; but by keeping them well plunged in a moderately moist medium that has not parched and robbed the roots, and transferring them to a steady bottom heat of 80°, nearly every plant will throw up well, and the most anxious period of their culture will have been surmounted. To such plants a minimum temperature of 70°, with a rise of 10° from fire heat, may now be applied in moderate weather, and it may be allowed to range from 80° to 90° for a short time after the house is closed, with sun heat and atmospheric moisture. It will be necessary to watch newly-formed beds as the sun gains power and more fire heat and water find their way into the plunging material, as these elements sometimes produce a sudden flush, which must be corrected should the heat about the now active roots exceed 90°. It is not well to disturb the plants after they are finally plunged, but of two evils it is better to choose the lesser, by lifting or rocking the pots on the approach of danger. Examine the pots at regular intervals, and while guarding against getting the roots too wet, see that every plant is efficiently supplied with diluted liquid as often as it actually requires it. Give a little air at the apex of the house when the rising glass indicates 78°, close for the day when it again touches 80°, and

damp the surface of the bed on bright afternoons, but avoid overhead syringing until the fruits are out of flower and swelling.

Successional fruiters.—If the main batch of fruiting plants are still resting, lose no time in getting a good body of well-worked fermenting material placed in the pits and made very firm ready for their reception. If the pits are deep enough to hold a sufficient body of fermenting Oak leaves, hot-water pipes, resting in chambers or rubble, may well be dispensed with, as is the case at Frogmore, where such magnificent Cayennes are grown and finished on those best of all heat-giving substances. As some of these plants will make a growth before they show fruit, see that the roots are kept sufficiently moist to favour early root-action, and while supplementing the genial moisture which will rise from the newly formed beds by damping all available surfaces, guard against drip from the roof and overhead syringing—two of the most common causes of black hearts and malformed crowns in early pineries.

Successions.—Gradually raise the temperature in this department until it touches 60° to 65° at night and 70° to 75° by day, with a rise of 5° more when the weather is bright and mild. Damp the walls and surface of the bed with tepid water when the pit is closed about one p.m., and give water to the roots to induce fresh root-action, and restore the soil to a healthy growing condition before the plants are transferred to larger pots in February. Have clean pots and crocks dry and warm ready for use, and prepare compost for use next month, as a busy time is approaching, and composts always work and answer best when made up and thoroughly warmed some time before they are wanted for use.

THE CHERRY HOUSE.

The buds on trees that were started early in January, and have been regularly syringed with tepid water, will now be swelling fast, but no change from 40° to 45° at night must be made until they burst into flower, when a minimum temperature of 45° to 50°, with a circulation of air, will favour the process of setting. If the first-named figures can be maintained without the aid of fire-heat so much the better; but, in order to steal a march on time, no matter how mild the weather may be, the pipes should be warmed every morning, if only to favour the free admission of air and the escape of stagnant moisture. Trees that have been established, either in borders or pots, and have been forced for a number of years, require very little forcing, as we often find the buds pushing on open walls early in February; but our climate being so fickle and uncertain, the gain at the outset is very often checked and destroyed by the end of March. These uncertainties a well-ventilated and moderately heated house enables us to ward off, and trees, although kept in a low temperature, make steady progress until the fruit is set and we can depend upon early closing with solar heat to ripen it off. The great secret, then, is a low, steady temperature, liberal supplies of water, and plenty of air. Cherries, like all other stone fruit trees, are liable to be attacked by aphids, and as these pests soon make short work of the crop if allowed to go on unchecked, two smokings with tobacco paper should be the standing rule within ten days of the opening of the first flower. Few sights are more delightful than an early Cherry house when in full bloom, and it is often matter for surprise that these trees are not more frequently cultivated in pots for the beauty of their flowers. Light and air being the main essentials, many a greenhouse might be made cheerful, if not profitable, by the introduction of compact pyramids of May Duke or other choice kinds; but, aided by the camel's-hair brush when they are in flower and bird-proof netting later on, there is nothing to prevent these easily-managed trees from producing excellent crops of fruit for years in succession.

PLUMS.

The fact that Plums and Cherries are frequently potted, pruned, and grown together through the early stages is a fair proof that their requirements as to heat and ventilation are identical. But there comes a time when the treatment accorded to the

Plums would prove fatal to the precocious Cherries, and for this reason they should be divided, if only by a glass screen, when moisture, so essential to the swelling of the first, would destroy the ripening crop of Cherries. Assuming that a batch of trees was introduced early in the present month, and a dry, buoyant atmosphere can be secured from gentle fire-heat when they are in flower, the night temperature should not exceed 40° to 45° on cold nights, with a rise of 5° to 10° by day, when, with or without fire heat, air should be admitted. As days increase in length and the sun gains power more air can be given and the day temperature can be raised with safety, but no change should be made through the night until after the fruit is set and swelling. When thoroughly established in pots or restricted borders, Plums make very little growth and in course of time become overloaded with spur wood. This, it is needless to say, has a weakening effect, and as Plums, like all other forced trees, resent over-cropping the spurs should be well thinned with a sharp knife before they are started. Then, again, the Plum family offers such an endless list of varieties, and as all of them are not alike good, none but the choicest should be selected for forcing. Lists of the best sorts having been so often given in the pages of THE GARDEN, they need not be repeated.

STRAWBERRIES IN POTS.

When plants that were started with early Peaches and Vines show signs of opening their first flowers fumigate the house to free them from green fly during the time they are setting their fruit. It is just possible these pests may not be numerous; indeed, a single fly may not have been observed, but so certain is an attack, and so fatal is the result, that nothing short of downright neglect can be advanced as a plea for the omission of this simple operation. When Strawberries and Vines are brought on together, it is a good plan to remove the Strawberries to another structure to undergo the smoking process, if not to set their fruit, as few gardeners care to run the risk of injuring their tender Vine leaves by fumigating the house, even if this were the only objection to their retention. But this is not the only one, as Strawberry plants are also subject to red spider, and for this reason alone they should be removed to other quarters when smoking and copious syringing become impracticable. Fruit forcers, who have every convenience for growing all kinds of fruit separately or together, do not have to forego the risk of spoiling their crops of Grapes and Peaches by the dissemination of spider at the outset; but there are hundreds of gardeners who are expected to perform horticultural miracles with limited means, and it is only right that employers should be made acquainted with the disadvantages under which they labour. If forced Strawberries must be forthcoming from a given time onwards, their production is simple enough; but in these days of cheap materials and fuel, suitable structures should be provided for their culture. Assuming, then, that a light airy house is devoted to Strawberries, and the first batch is coming into flower, draw all the most forward to the warmest end, press down the leaves to keep them clear of the blooms, throw strength into the latter by pinching off a few of the weakest, and, aided by gentle fire-heat and liberal ventilation, secure a good set by artificial fertilisation. When properly set, thin down to a given number, according to the strength of the plants, prop the trusses to keep the fruit up to the light, and remove them to a shelf in the hottest structure to swell off. In order to facilitate this process and to secure fine fruit, syringe copiously with warm soft water and feed well with diluted liquid; but avoid the use of saucers, for much as the Strawberry plant enjoys moisture and suffers when it is withheld, the quality of the fruit is greatly deteriorated when the crotch roots are kept constantly standing at this early season in stagnant, if not putrid, water. When the fruit has attained full size and begins to colour, remove the plants to a light, airy shelf in a dry, warm structure, cleanse the shelf in the stove, and fill up with another batch for succession. By constantly moving the flowering plants forward, relays can be got in and a steady supply, in proportion to the convenience, can be kept up until the end of the season. If the Strawberry house proper is too small for the

demand, the supply can be greatly augmented by filling a sharp-pitched Melon pit with fermenting leaves and fixing narrow shelves, some 16 in. or 18 in. from the glass, for the reception of plants from the general stock for succession. First earlies, such as Vicomtesse Héricart de Thury, a general favourite, and La Grosse Sucrée, should occupy a portion of this pit; the remainder can be filled up with President, Paxton, Napier, where it does well, and other good midseason varieties. British Queen, the finest of all Strawberries when grown as Mr. Douglas grows it, is not one of the best for early forcing; but when brought on steadily and ripened in a high and rather dry temperature, its quality is exquisite. Many growers on light, dry soils experience great difficulty in securing early runners, but by planting on fresh ground annually and mulching heavily, strong runners can generally be obtained in quantity. These should be pegged down at once on the fruiting pots, in preference to 3-in. ones, for the two-fold purpose of saving time and labour. When a sufficient number for forcing have been secured, say early in July, the next best can be rooted in small pots for planting out in August.

W. COLEMAN.
Eastnor Castle, Ledbury.

FLOWER GARDEN.

STATISTICS OF CAPE BULBS.*

I HAVE not, like my predecessors (Dr. Masters and Prof. Michael Foster), had any experience worth taking into account in practical gardening, but I hold strongly to the opinion that botanists and gardeners should work together hand in hand and continually consult one another, and that if they do not do this, the work of both will be so much the worse for it. For instance, in these plants we are now considering, a description drawn from dried specimens alone is always more or less incomplete and unsatisfactory, and in the *Albineæ* to draw up any reasonably satisfactory description from dried specimens is altogether out of the question.

Of all the members of the rich Cape flora, which includes the garden Heaths, Pelargoniums, and Mesembryanthemums, these bulbs are the plants which possess the greatest horticultural interest, and are at the present time exciting the greatest share of attention.

One of the most interesting facts in botanical geography is the way in which the three bulb-bearing Natural Orders, Iridaceæ, Amaryllidaceæ, and Liliaceæ, are concentrated at the southern extremity of the African continent. All that I can attempt to do in the time at command is to lay before you the broad general facts of the case.

In Iridaceæ there are in the whole world 57 genera and 700 species. Of these, 32 genera and 374 species, or more than half the total number, belong to the Cape. Of the genera, 20 are endemic, 9 found also in Tropical Africa, and only 3 widely dispersed. The large genera, taking them in the order of size, are *Gladiolus*, *Moræa*, *Geissorhiza*, *Tritonia*, *Babiana*, *Hesperantha*, *Ixia*, *Romulea*, and *Lapeyrousia*. In Amaryllidaceæ there are in the whole world 64 genera and 650 species, and of these 21 genera and 154 species belong to the Cape—one-third of the genera and a quarter of the species. Of the genera, 13 are endemic, 3 also found in Tropical Africa, and 5 widely dispersed. The large Cape genera are *Hypoxis*, *Hæmanthus*, and *Cyrtanthus*. In Liliaceæ there are in the world 187 genera and 2100 species. Of these there are at the Cape 49 genera and 620 species. Of the 49 genera, 18 are endemic, 15 found also in Tropical Africa, and 16 widely dispersed. The large Cape genera

* Read at a meeting of the Horticultural Club by J. G. Baker, F.R.S., Jan. 12, 1886.

are Haworthia, Aloe, Gasteria, Asparagus, Ornithogalum, Scilla, Anthericum, Lachenalia, Eriosepermum, Bulbine, and Kniphofia.

The area of Africa south of the Tropics is about a million square miles. The total area of Cape Colony proper is about a quarter of a million square miles, or about one two-hundredth part of the whole land area of the world.

In the whole world there are in these three orders 308 genera and 3450 species, and of these 102 genera and 1148 species, or about one-third of the whole number of genera and species, belong to the Cape. Nearly all the Cape species are endemic, and of the 102 genera, 51, or just one half, are endemic, 27 represented also in Tropical Africa, and 24 are widely dispersed.

PHYSICAL GEOGRAPHY AND CLIMATE.—In climate one correlates the idea of bulbs with variability in heat or moisture, or usually in both, a high degree of heat in summer, and the need of protection from long periods of drought. Of these 1100 Cape types about 200 (Bulbine and the four genera of Aloineæ) are succulents, the Asparagaceæ, Anthericaceæ, and non-bulbous Iridaceæ (such as Aristeæ, Witseniæ, and Bobartiæ) are about 150 species, leaving a balance of 800 species in which the rootstock is either a bulb, corm, or tuber.

Turning to the encyclopædia nearest at hand, I find the physical geography summed up as follows: "The general character of the scenery is rocky and arid mountains, naked and uncultivated stony valleys without a tree; a prevailing monotony; absence of shade and verdure and water." For the whole region the coldest months are June and July; the warmest, December and January. For Cape Town the annual mean temperature is 62° Fahr., the minimum in the shade being 34°, and the maximum about 100°. All along the south coast there is very little variation in temperature. On Table Mountain, which is nearly 4000 feet above the sea level, snow lies sometimes for two or three days. At Cape Town the annual rainfall is 24 inches. In the province of Worcester, which lies in the interior north-east of Capetown, the annual rainfall sinks to 12 inches. Along the south coast it increases as we travel east, and reaches 33 inches at Graham's Town. Parallel with the south coast the land rises in three successive terraces. The highest of these, the Great Karoo, has an elevation of 3000 feet, a length from east to west of 300 miles, and of 80 miles from north to south. For nine months of the year the soil is quite bare, and even in the rainy season the vegetation is very scanty. The highest peak of the Graaf Reinet Mountains, the Sniewbergen, is above 10,000 feet above sea level, and here the snow lies for three or four months. The highest peak of the eastern range of hills, the Winterberg, is 7000 feet above sea level.

RELATION OF CAPE FLORA TO THAT OF TROPICAL AFRICA.—I should like to say a word about the relationship of the Cape flora to that of Tropical Africa. It would seem that, just as in Europe, there was a glacial epoch, and when a warmer climate set in, the cold-loving plants were pushed out to the north and mountain tops; so in Africa there has been since the present vegetable genera were differentiated an era of universal cold, and the plants that then flowered over the whole continent have been pushed out to the Cape and up to the mountain summits of the intertropical zone. As I previously pointed out, 51 genera out of 102 are confined to the Cape; but of characteristically Cape genera in these three orders alone, outlying representatives of 27 are found high up amongst the intertropical mountains.

FLOWERING SEASON OF SOUTH TEMPERATE ZONES.—In conclusion, as a subject for discussion

this evening, what I want to ask you as an assembly of experienced horticulturists is this: "How far is it possible by cultivation to change the natural flowering time of these south temperate plants?" In the three great floras of the south temperate zone there are probably not less than 25,000 plants, say 25 per cent. of the whole vegetable kingdom. Which are the plants, or, if that be too comprehensive a question, which are the types of the Natural Orders about which we are speaking for which we can alter the natural flowering season so as to grow them in the open air in the English climate, and which are the types for which we cannot do this? Upon what does the difference depend, and, in the case for which it is possible to effect a material change, what are the means by which it can be accomplished most successfully?

ANNUAL EVERLASTINGS.

WINTERLY as the outside world at present looks, the number of seedsmen's catalogues that reach us by every post make us, whether we will or not, think of our gardens and their requirements in



Annual Everlasting flowers (*Xeranthemum annuum*).

the way of seeds. In short, the season for sowing is at hand, and the seeds needed for doing so must now be obtained. Amongst these annual Everlastings should not be overlooked. Few annuals are more showy or useful, and when they have served their purpose in the open air they may be cut, tied in small bunches, and hung upside down in a cool shed or outhouse to dry. Thus treated, they may be used afterwards with excellent effect in many kinds of indoor decoration. Among them may be mentioned Helichrys, of which we have innumerable forms, and as many shades of colour; Gnaphalium, with their singular Daisy-like flowers; Antennarias; Acrocliniums, especially the double sorts, which are extremely beautiful; Rhodanthe Manglesi, including maculata and alba; the charming little Waitzias; Helipterum Milleri; and last, but not least, the two charming and useful annuals represented by the annexed illustrations. *Xeranthemum annuum* and the variety *superbissimum* should find a place in every garden, i.e., if they succeed as well with us as they do with

Messrs. Haage and Schmidt at Erfurt, where they flower with great freedom and beauty. *X. annuum* grows from 18 inches to 2 feet in height, and forms, even when used sparingly, fine bushy masses, crowned with abundance of white, purple, violet, and yellow flowers, single, semi-double, and double. They should be sown along with other hardy annuals early in March in open seasons where they are intended to remain, due care being taken, if sown separately, to make the colours harmonise as much as possible. They are all natives of South Europe, and flower with us from May onwards. K.

VARIETIES OF HELLEBORUS NIGER.

It is pleasant to find cultured amateurs taking more than a passing interest in these fairest blossoms of dreary winter days. No other hardy flowers are so fresh and valuable for indoor uses, and but few, if any, are more long enduring in a warm room. But there are Christmas Roses and Christmas Roses—in a word, the varieties of *Helleborus niger* are as many and as different from each other as are those of some Orchids. It is this infinite variety which adds a zest to our rambles through the gardens of friends and others, ever anxious as we are to see what will turn up. Variable and beautiful as are the Christmas Roses to-day, they will be much more variable, and perchance infinitely more beautiful, when we carefully cross them in our gardens, and begin their intelligent culture from home-grown seeds.

This raising of our finest of hardy flowers from seeds, the result of careful hybridism or cross-breeding, is the very poetry of good gardening, and its potentialities are infinite.

No doubt Hellebores prefer deep, cool, rich soils to dry and warm ones, but the main thing necessary to their happiness is shelter from cutting winds, and they take a year or two to establish themselves thoroughly. In the nurseries near Bath these plants grow most luxuriantly, some growers having from 50,000 to 70,000 plants of the different forms, the differences between some of these being very subtle, nearly indistinguishable, indeed, from cut specimens, and yet, from a practical cultivator's standpoint, of the utmost importance. The following are the varieties known to me as being definitely distinct garden forms:—

1. *HELLEBORUS NIGER ALTIFOLIUS*.—In Edinburgh this plant seems first to have been brought into notice by the late Miss F. J. Hope, of Wardie Lodge, who, having got some inkling of its existence near Aberdeen, undertook the journey to find it out and introduce it to her garden, where it was grown under the name of *H. niger grandiflorus*. It is the *H. niger maximus* also of some gardens. Although coming to public notice in the north through Miss Hope, I believe I am correct in saying that when its value became known and the northern plants travelled southwards, some of the Devonshire and Cornish growers were surprised to find that they had the plant already, and that it had existed in Devon and in Cornwall, no doubt, as long as it had done in Scotland. It is a robust and vigorous plant, with its thick flower-scares and leaf-stalks heavily dotted with red or dark brown markings. The flowers vary from 3 inches to 5½ inches across, and are of all shades, from pure white, with perhaps a faint rosy flush behind the sepals, to a deep rose colour bordering on light crimson. It is a vigorous grower, and yields an abundance of its blossoms throughout the month of November. One of the most definite characters possessed by this variety and its relatives is the pink-tipped stigmas. A form of this plant exists with elegantly crimped sepals.

2. H. NIGER SCOTICUS.—This variety, like the last, was brought into notice by Miss Hope, to whom it was presented by her neighbour, the late Mr. Isaac Anderson-Henry. The plant somewhat resembles the last in leafage and markings, but is of a more slender habit, the flowers, as a rule, being smaller and whiter. Mr. Anderson-Henry purchased the plant at a sale of roots that had been imported direct from Austria. The difficulty now is to decide which of these two plants shall be called "Miss Hope's Christmas Rose," and perhaps the present plant should be chosen. I lately had the pleasure of making a pilgrimage to Miss Hope's garden, in which exists a long and vigorous line of this plant 50 feet or 60 feet long on the Grass, and when I saw the boldly grouped and thick clusters of glossy leaves, the whole sight and associations of this belt of Christmas Roses seemed to possess all the classic beauty and interest of a Greek frieze. This variety has been called *H. niger scoticus* by Mr. Barr, and it is the plant to which the late Mr. J. M'Nab attached the name of *H. niger angustifolius*. This varietal name "*angustifolius*" belongs, as far as I know, to Sweet, who gives it in his "*Hortus Britannicus*" without any figure or description to identify the plant, so that, from a botanical point of view, the bare name has no right of priority or position whatever. This form is known in some gardens as *H. n. intermedius*.

3. H. NIGER (Riverston variety).—This is a free-growing and profuse-blooming variety which appeared in Mr. Poë's garden at Riverston, in county Tipperary. It is a most valuable plant, its main point of resemblance to the above being the fact of its possessing the characteristic pink-tipped styles. The plant at first sight resembles Nos. 4 and 5 in habit, but differs from them, inasmuch as while the leaf-stalks are pale Apple-green, the flower-stems are profusely dotted with red; hence, this form has been supposed by some to be a hybrid between *H. niger altifolius* and one or other of the pale green-stalked forms. Its leaves are thick and leathery, as in *H. n. altifolius*, but of a paler or lighter green colour, and they are rather coarsely serrated towards the points. As a variety for the supply of cut flowers this is one of the best, and I trust that Mr. J. T. Poë will kindly tell us all he can of its history.

I saw a plant in Miss Jekyll's garden at Munstead which she grew as "Mrs. Davidson's variety," and which resembled Mr. Poë's plant somewhat in habit of growth, but I have not seen flowers. Mr. Poë, however, tells me that it is not the same.

4. H. NIGER VAR. JUVERNIS ("St. Brigid's" variety).—This is a large and strong-growing plant, its seven to nine-lobed leaves being broader than those of the type and the apical margins of the leaflets are very slightly serrated, so slightly, that the leaves scarcely show the saw-like edge peculiar to most of the other kinds. Both leaf-stalks and flower-stalks are of a pale Apple-green tint, having no red dotting whatever. The flowers are 3 inches to 4 inches across, pure white with broad and rounded sepals. It flowers most abundantly, being about a month later in flowering than *H. niger altifolius*. This year it was fully in bloom on the 21st of December, but the latest flowers will not, as a rule, be over until the 1st of February. Large and well-established plants of this plant, besides being noble ornaments in themselves, yield rich crops of flowers and buds for cutting, the best blooms being but little inferior to those of the Eucharis Lily, while they have the advantage of enduring fresh for a much longer time after they are gathered from the plant.

The early history of this variety is unknown, but it is thought to have been brought to Ireland by the Huguenot refugees, who, as is well known, carried their favourite plants and flowers with them everywhere. The first record of a pale green-stalked Christmas Rose made in modern times is that of "*Veronica*" in *THE GARDEN*, Jan. 20, 1883 (p. 49). This note attracted the attention of Mr. Wolley Dod, who had observed a similar variety, and Mr. Brockbank also discovered that he had grown a similar variety in his garden, near Manchester, for some time. Then I figured and described the Irish form (now named *H. niger Juvernii* by Mr. Barr) in *THE GARDEN*, 1883, March 24 (p. 276), and to the memorable controversy which followed may be traced a marked increase in the demand for the best forms of the Christmas Rose in all good gardens, and the result is we now have, in the trade at least, a dozen well-marked and distinctive forms in place of the five or six known and cultivated previous to that date. Since I first noticed this plant I have met with it in other Irish gardens, and I hear that Mr. Ware, of the Inglescombe Nurseries at Bath, has a stock of the true plant.



Double annual Everlasting flowers (*Xeranthemum annuum* var. *superbissimum*).

5. H. NIGER (Brockhurst variety).—Another fine variety, long grown for market purposes in the neighbourhood of Sale and Manchester, but comparatively unknown in gardens generally until brought into notice by Mr. Brockbank during the controversy in these pages, to which reference has been made. It is a vigorous free-blooming plant, very similar to the last, but the leaves are more markedly serrate and the leaflets are flatter, i.e., not so convex as those of the last named. When well established it is a noble plant, and one of the best of the Christmas Roses, very similar to the last in flower, and both the leaf and flower-stems are of a pale apple-green tint also. I thought at one time that these two forms might prove to be identical, but as seen growing side by side here and elsewhere there are evident differences from a cultivator's point of view. It would be interesting to know how this variety became so abundant near Manchester, and escaped the notice of the London nurserymen until within the last two or three years. It

is also a curious coincidence that the discovery of "St. Brigid's" variety in Ireland should have led to this Brockhurst variety becoming popular in England, just as the finding of *H. niger altifolius* about Aberdeen led to the finding of the same noble form to be quite plentiful in Devonshire gardens. A woodcut illustration of this Brockhurst variety was given in the *Gardeners' Chronicle*, January 19, 1884, p. 85, but the leaflets are drawn much too narrow and are represented as being more like the leaves of *Helleborus foetidus* than of *H. niger*. The flowers are, however, well shown, and are thoroughly characteristic of this fine variety.

6. H. NIGER MAJOR (Bath variety).—A free-growing form, larger than the type, with more erect and darker green leaves, and bearing a profusion of white blossoms borne well up among the foliage. It is largely grown near Bath, whence its varietal name. The flowers if sheltered are snow white and well expanded. The Bath variety of major is the best I have seen among many in gardens, where it has long been the practice to tack on the word major to any form whatever so that it is a little larger or taller than the typical *H. niger*.

7. H. NIGER MADAME FOURCADE.—It would be very interesting to know the origin of this free-growing and profuse-blooming kind. It resembles the last in habit, but the foliage is more spreading. The flowers are also distinctly cup-shaped, the closely imbricated sepaline segments being blunt at their tips, so that the flowers possess quite a distinct character of their own, and are at once distinguishable from those of any other form known to me. For a good supply of firm and shapely blooms I consider it one of the best of the major forms. The flowers of this variety are so finely modelled and it is so profuse in its flower yielding, even under ordinary "rough and tumble" cultivation, that I can strongly recommend it to the attention of that now rather large body of amateurs who persistently practise cross-fertilisation in their gardens. It would be interesting if some one would cross *H. niger altifolius* with *H. niger* "St. Brigid's" or with the Brockhurst variety, which, if successful, ought to yield good results in all ways.

8. H. NIGER RUBER.—This is one of the most distinct in colour of all the Christmas Roses, being of a clear, pale rosy or Apple blossom colour, so that it affords a pretty contrast to the ordinary white varieties. Mr. Walter Ware, of Bath, sent me cut flowers a year ago, and it is now throwing up its pink buds and rosy tinted flowers along with *Mme. Fourcade* and *H. niger major*. Both this form and that last mentioned have pink tipped styles. It would be most interesting to raise seedlings from this deep tinted form, or to cross it with pollen of *H. niger altifolius*, as the result might be forms with darker coloured flowers. I may remark in passing that I have failed repeatedly in my attempts to cross-fertilise any form of *H. niger* with *H. orientalis* var. *atro-rubens*, or *vice-versa*, and yet I shall try again in the hope of succeeding. Can anyone inform me if a cross between these two groups, i.e., between the Christmas and the Lenten Roses, has ever yet been made?

9. H. NIGER (De Graaff's variety).—This is the only variety herein alluded to which I have not seen in flower, and is thus described by Mr. Barr, "pure white when first open and then it changes to a pale primrose colour after expansion." Mr. Barr once grew this plant, but, as he informs me, returned the stock to the raiser, M. Simon de Graaff, he having lost his own plants of it from some accidental cause. It would be interesting if Mynheer de Graaff would kindly tell us the

parentage of this plant. It may interest some cultivators to know that seedling Hellebores are raised by the thousand in the Leyden nurseries. Mr. Woodall will be glad to know that his wish for a yellow Christmas Rose has so far been anticipated by the production of the above primrose-tinted variety.

10. H. NIGER (the common Christmas Rose).—This is a variable plant of dwarf, spreading habit, but quite unworthy of cultivation if stock can be obtained of any of the kinds above referred to, as the flowers are small; there is a stunted look about the plant, and very often the sepals are contorted and misshapen. Even where the plant does well, i.e., where soil and situation are most favourable, it cannot compete with its taller and fairer "sisters, cousins, and aunts." This is imported by hundreds of thousands every year from Austria for forcing purposes, and by picking over a large consignment carefully soon after their arrival, we have some selected forms far above the average, indeed, approaching scoticus and major in size and form. The typical plant is figured in the *Botanical Magazine*, vol. i., t. 8. I find this typical plant seeds more freely than most of the other varieties. There is a form (*H. niger variegatus*) of this plant having the leaves splashed and margined with white and silvery grey, the flowers being small, but of snowy whiteness.

11. H. NIGER VAR. MINOR.—A curious dwarf form with pale, sparsely dotted stalks, and well imbricated shapely flowers, not much larger than a shilling. Mr. T. S. Ware in his catalogue makes this dwarf, small-flowered form synonymous with *H. n. angustifolius*, but on whose authority I do not know. The true *angustifolius*, or *latifolius* varieties of Sweet and Don, are quite unknown to-day. Mr. McNab's name of *angustifolius* was applied to what Mr. Barr now calls *H. niger scoticus* (No. 2 of this paper) or the *H. niger intermedius* of others. I have written to Mr. Barr on this point, and hope that as an authority on Christmas and Lenten Roses he may enlighten us on some of the questions raised in this paper. So, also, I wish Mr. Hook, Mr. Wolley Dod, Mr. T. H. Archer-Hind, and others would give us the results of their experience as applied to the now numerous and beautiful varieties of the flower of winter, long ago yept the Christmas Flower, or Rose.

I have five or six other forms now under trial here, and also some unbloomed seedlings of promise, as to which I shall be glad to report on a future occasion.

Of course it must be distinctly understood that all the varieties referred to in this paper are simply seminal, or geographical variations of the one species (*Helleborus niger*). Each and all are amply distinct as garden varieties, but not worthy of a moment's thought from a purely botanical point of view, except as showing the results of seminal variation, or cross-breeding in a state of nature, and its consequent possibility in the garden.

F. W. BURBIDGE.

Nelumbium luteum.—In an article by Mr. Miles in THE GARDEN for Dec. 26, 1885, mention is made of *Nelumbium luteum* being injured by winter weather in England. Travelling in Missouri some years since, I visited a lake seven miles south of St. Joseph, and saw acres of the surface covered with the pods and seed-vessels of this plant. I was assured that in St. Joseph the mercury in winter occasionally falls to 30° below zero Fahr., and in summer I can testify to a temperature of 116° in the shade. I sent a number of seeds to my home in Massachusetts, where they were dropped in different places in Charles River, but the plants have never appeared. Our winters, though severe, are not subject to such extremes

of cold as in the West, nor are our summers so warm. May it not be the cool summer weather rather than any severe cold of winter which prevents the vigorous growth of this *Nelumbium* in England?—GEO. A. PURDIE, Wellesley Hills, Mass., U.S.A.

FRUIT GARDEN.

POT VINES.

ALTHOUGH every place of note is now supplied through the spring months with Grapes of the preceding year, there are still a few gardens in which the early supply is obtained from pots. In some cases the pot system is retained, because the proprietor prefers early forced, thin-skinned Grapes to the many-seeded and thicker-skinned Lady Downes. In others, the turning out and renovation of old or the planting of new vineries offer facilities for obtaining valuable crops from pots; but where every house is well furnished with good Vines, established in internal and external borders, and old Lady Downes, worthy of the name, shake hands with the new, pot culture may be looked upon more as a hobby than a profitable part of fruit culture. The varieties best adapted for early forcing are: Black Hamburgh, Madresfield Court, Alicante, Foster's Seedling, Buckland Sweetwater, White Frontignan, and White Muscadine. The forcing cultivator who wishes to defer starting a permanently planted house until, say, the 1st of January will have commenced with a set of pot Vines in November, and all having gone well, they will now be tied down, stopped, and the most forward will be in flower. These experienced growers do not require telling the detailed management, as the routine from the propagating pit to the ripe bunch is perfectly understood. There are, however, a great number of young beginners and amateurs who, owing to the change which has taken place within the last few years, have been almost, if not entirely, deprived of practical experience in this department; and, judging from the inquiries that are frequently made, privately and otherwise, the art of growing good early pot Grapes has not yet lost its interest. Pot Vines ready for forcing can be obtained *ad lib.* from any good nursery, but the majority of fruit forcers prefer raising their own from eyes. Nothing, however, is gained, at least economically, as two houses must be devoted to the culture of one crop of Grapes—the first to grow and mature the Vines in ready for forcing; the second to start them in and finish the fruit, when the Vines are cast away as useless. Unless light, compact, well glazed, and efficiently heated pits are plentiful, it is best to buy the Vines early in the autumn, as the most promising always go first, and to keep them in a dry, cool place, where the roots can be protected from frost and drought until the time arrives for forcing. Some good growers obtain their Vines from eyes of the current year strong enough for fruiting the next. Those excellent cultivators, Keynes & Co., Salisbury, adopt this plan by putting in all the eyes before Christmas. Others use cut-backs, which make stronger canes, but it is questionable if they are in any way superior to well-ripened yearlings.

FORCING.—Assuming that the amateur has secured early-ripened Vines and a start is now about to be made, a moist, mild bottom heat being of importance, provision should be made for placing the lower parts of the pots over or in a bed of fermenting leaves or tan. But as tan or leaves are continually sinking and drawing away the Vines from the trellis, each pot should be placed on a pedestal of dry bricks capped with a sod of turf, grass side downwards. The

pots, then retain their position, and the fermenting bed, for which no heat-giving substitute has yet been found, can be turned and renovated when it gets too low or the heat becomes inadequate to the requirements of the roots. If shortened back to the proper length as soon as the leaves fall, the Vines will not bleed and styptic need not be applied. Wash the pots and enlarge the holes in the bottoms to set the crock roots at liberty. Place each Vine on its sod, and introduce the fermenting material, rather loosely at first to allow for the escape of warmth and moisture into the atmosphere of the house, and in sufficient quantity to partially bury the lower parts of the pots at the outset. If eventually the rods are to be trained to a trellis like ordinary Vines, allow them to hang loosely over the bed with the base buds raised to form the highest part of an arch and the points on a level with the pots. Dew them over two or three times a day to secure an even break, and in all other respects treat the house as an ordinary vinery. Commence forcing at a night temperature of 50° to 56°, raise it to 60° by the time the buds are on the move, and to 68° when the bunches come into flower, allowing a rise of 5° by day and 10° from sun heat when air can be admitted. With moist bottom heat playing about the pots, liberal supplies of water at first will not be necessary, as too much frequently sours the soil and destroys many of the most valuable roots. Be chary with the syringe in dull weather, and discontinue direct syringing when the bunches become prominent, as too much moisture induces a tendency to looseness generally and running into tendrils when the canes are imperfectly ripened.

TRAINING.—When all the buds commence growing freely, tie the canes up to the wires, top-dress the pots with rich compost and increase the supply of water or diluted liquid to the roots, as pot Vines when in leaf will take liberal quantities—always, be it understood, at the mean temperature of the atmosphere. When strong enough, tie the young shoots out to the wires, stop those at the second joint beyond the most promising bunches, and remove all superfluous shoots before they come into flower. Pinch all the laterals on the shoots carrying bunches and lay them in from others after the first stopping wherever there is room for foliage to grow up to the sun and light without eventually becoming crowded. If any of the Vines miss fruiting, remove them before the others are tied down, as the latter will then have more room for extension and most likely compensate for the loss by carrying heavier crops under an extra expansion of foliage.

VENTILATION.—Pay regular attention to ventilation through all the stages, and always leave on a chink at night to prevent condensation of moisture, as well as an accumulation of gases, from the fermenting material, particularly when the bunches are in flower. At this time keep the atmosphere drier and warmer by an increase of fire-heat and the use of water in moderation, also by maintaining a slight circulation of air whenever the weather is favourable. At all other times close early with an abundance of sun heat and plenty of moisture to swell out the bunches and berries.

SETTING AND SWELLING THE FRUIT.—Where pot vineries are kept over a steady bottom heat, they invariably set well without the fertiliser's aid; but this simple operation is quickly performed, and if, as many believe, artificial fertilisation increases the size and weight of the fruit, the process is well worth the trouble. Some use the camel's-hair brush, others the syringe. I have used both. The use of the latter, I must admit, was forced upon me by an attack of mildew

when the Vines were coming into flower. Sulphur water was used every day, and the Grapes never set and finished better. Black Hamburgs being the pot Vine grower's sheet anchor, there is no difficulty in getting good pollen. The brush should be well charged with this, and passed very lightly over the shy kinds every day until the berries begin to swell. Thin early, avoid overcropping as a great evil, and pay particular attention to

TOP-DRESSING. As every fruit grower is guided by circumstances or fancy to the use of some particular preparation, it may be well to leave the amateur to choose his own. One thing, however, we must guard against, and that is injury to the roots by a too liberal application of ammonia. Little and often, in my experience, is the best and safest practice to pursue, and failing artificial manures, not unfrequently dangerous in inexperienced hands, good rotten manure and fresh turfy loam washed in with weak liquid from the frame-ground tanks will answer every purpose. If at hand when the Grapes are thinned the tops of the pots may be dressed with turf, manure, and bone dust in moderation, and a little of the latter may be spread about the sods upon which the pots are standing when the crock roots have found their way into it.

When the stoning stage arrives, reduce the night temperature to 65° to give the Vines a little rest, and raise it again to 68° or 70° if time is an object.

PROPAGATION OF THE VINE.—In order to keep up a continuous supply of young Vines for planting out or fruiting in pots, a systematic mode of making stock must be resorted to. Seeds, cuttings, and layers are sometimes employed, but the now universal practice is propagation from single eyes. When gardeners raise their own Vines, they carefully select well ripened shoots at pruning time and lay them in until they are wanted for cutting up in January, or perhaps as late as the early part of February. If sound, plump buds, with a small portion of wood attached to them, are inserted singly in small pots, rather firmly filled with rich loam and sand, early in the year, they will make young Vines fit for planting out in May, or they may be grown on into fruiting canes by the end of September. The main point in successful propagation being a steady bottom heat of 80° in a close, compact pit, a good bed of tan or fermenting leaves should be provided, if not as a substitute, certainly as a genial aid to hot-water pipes. Pots and eyes being ready, scoop out a hole in each pot large enough to hold a walnut; replace the soil with silver sand and press down the bud until it is slightly below the surface, sprinkle with water to consolidate the sand, and apply the labels. Many convey the eyes at once to the propagating pit; others prefer placing them for ten days or a fortnight in an intermediate frame, as an excess of heat at the outset sometimes forces the buds in advance of the roots. The sap contained in the buds and wood enables them to push one or two small leaves; then comes a stand, as further progress cannot be made until new roots are formed; but this apparent check need not cause alarm provided the soil is not allowed to become wet and the bottom heat is kept up to 80°. When the first set of roots touch the sides of the pots, the young shoots will soon respond to their action, and preparations must be made for the first shift into pots a little larger. The compost for this purpose should be light, rich turfy loam, sand, and a sprinkling of bone dust, thoroughly warm and sufficiently dry to bear pressing without becoming adhesive.

POTTING.—Prior to giving the young Vines the first shift, prepare a light compact pit for

their reception, by securing a sweet steady bottom heat of 80° to 85° from tan or leaves, and keep the surface well up to the glass to prevent the miniature canes from becoming drawn at the outset. Do not risk loss by potting too early, but select all the strongest for the first batch; renovate the propagating bed, and replunge the weakest to come on later. Keep the newly potted Vines close for a few days and be sparing with water; but maintain a moist-growing atmosphere by damping the bed and walls and dewing them over on fine days with tepid water. Slight shade may be necessary at first, but when fresh growth sets in this must be discontinued, as plenty of light, solar heat, and careful ventilation, while securing a quick growth, will keep the foliage free from warts and assist the young canes in becoming firm and short-jointed. As days increase in length growth will be very rapid, more head room will be required, and preparations must be made for a second shift into 7-inch or 8-inch pots before the roots become matted. When this stage has been reached, the purpose for which the Vines are intended must be decided upon. If a few are wanted for growing on into fruiters, select the best, pot them first and return them to the best part of the pit, where they can have plenty of bottom heat, light, and more headroom. Syringe well, but avoid a stagnant atmosphere; air and heat the pit as a forcinginery, and stimulate the roots with diluted liquid to get them forward for the final shift into pots which need not exceed 11 inches in diameter. Let the pots be clean, crock with great care, and pay particular attention to the preparation of the compost, which should consist of sound, rather light loam, burnt earth, or old lime rubble with a liberal admixture of bone dust. Loosen the coiling roots from the sides of the balls, pot firmly, and return them to the bottom heat for a short time to give them a fresh start. When vigorous growth again sets in, raise the pots out of the bed by degrees, but let them stand on the surface until they require more headroom.

AFTER MANAGEMENT.—If it is found that there is danger of the Vines shading each other, remove them to a light house, where they can have a temperature ranging from 65° to 70° by night, and 80° to 85° by day. Ventilate freely and syringe well to keep them clean and growing. Pinch all side shoots or laterals at the first joint and finally stop them when 6 feet to 9 feet in length unless they are wanted longer for any special object. If any of the top buds break, let them grow and stop again. If the summer is fine, fire heat will hardly be needed; but they must have every ray of sunshine possible, and moderate syringing to plump up the buds before the house is opened, and again when it is closed with sun heat on bright afternoons.

RIPENING.—When the young canes begin to change colour, gradually reduce atmospheric moisture; but on no account allow the roots to feel the want of stimulating liquid, otherwise they will ripen prematurely, and the main foliage will suffer. When the latter have performed their office and the canes cease swelling, carefully remove all the laterals from the base up to within a foot or so of the terminal buds, which may possibly break, but this will do no harm, as the sap will feed the main buds below, and favour the gradual ripening of the old leaves. Apply a little fire heat if necessary to increase the circulation of warm air as the ripening process proceeds; lower the night temperature and discontinue the use of the syringe if spider can be kept in check without the aid of water. When the young canes are quite ripe and the leaves have fallen, throw the house open, or place the Vines against a sheltered wall where they

can be protected from frost, drought, and heavy rain.

Young stock intended for planting out or cutting back will undergo the process of pinching and stopping recommended for fruiting canes; but 7-inch or 8-inch pots being quite large enough for their requirements, the ripening of the canes will be earlier and attended with less difficulty.

Eastnor Castle, Leobury.

W. COLEMAN.

Variegated Grape Vines.—About twelve years ago in the vinery at Forde Abbey—I have forgotten now whether it was on a Black Hamburg or Alexandria Muscat—a rod about 15 feet long appeared, with leaves of the usual size, but snow-white, with the exception of a spot of green about the size of a shilling in the centre of each leaf. It was shown to me by the then head gardener. I urged the advisability of propagating it at once, as, if fixed, it would certainly be one of the most beautiful variegated plants in existence. The suggestion was adopted, and in a short time several established plants in pots were the result; but the second year the beautiful markings were irregular and fugitive, and the third year they entirely disappeared in every plant. This happened in the case of a number of cuttings struck two years following. Not so, however, with the parent Vine; for several years it continued constant from the eye from which it first appeared, but whether there is now any trace of it I cannot say.—*J. M., Charmouth, Dorset.*

—I have a Vine with foliage of a rich golden colour, and very handsome. It is about twelve years old, but has never produced much fruit. It has simply been retained for its good looks. Last year it produced some six bunches, the largest of which weighed about 2 lbs., and they have kept better than the bunches of any other Grape in the house. Their flavour is, however, good for nothing; therefore, Grapes being a specialty here, I intend replacing it with something better worth growing, keeping a few eyes to grow for decorative purposes, for which it is well worth attention. I shall be happy to let Mr. Ellaombe have any quantity of eyes he may require. I may add that I cut the last bunch a fortnight ago, and every berry was plump and good.—*WILLIAM HEALEY, Ganstead Grange, Hull.*

Outdoor Vines.—An instance of the need of attending early in the winter to the advice given in THE GARDEN, p. 23, on pruning outdoor Vines occurred the other day. The Vine in question was growing upon the front of a cottage, and the growth was not only long and loose, but also dense, and reached to the roof-eaves. The day after the snowfall the frozen weight of the fleecy particles gradually told upon some of the looser growth and evidently drew a few nails. Then the top, falling over, became too heavy for the remainder, and, curling in its fall, down came the entire Vine, blocking up the doorway and window, and presenting about as intricate a maze of growth to be replaced as well could be. Had some proper, or indeed ordinary, pruning been given earlier in the winter, this catastrophe might have been avoided. As a rule, outdoor cottage Vines are seldom pruned or trained in any sensible way. Almost always they are left too full of wood, so that the summer growth creates a perfect network or mass of shoots and leafage. In such a case fairly good fruit is not possible and proper ripening impossible. Generally there seems to be fear on the part of those who have such Vines to cut hard. If they did, they would be surprised at the great recuperative powers Vines possess. Half-a-dozen stout, well ripened rods are worth a score of small pipy shoots, and if the bunches be fewer they will be much finer, and the berries more thoroughly finished. One of our great wants in outdoor Vines is a good black kind that will ripen its fruit as well and as early as the Sweetwater will. A Black Hamburg which could be relied upon under ordinary training and culture to give us fairly good ripened Grapes from open walls would be indeed valuable. In some seasons our present Black Hamburg will produce fairly good fruit outdoors, but it cannot be relied upon. We want a Hamburg that is both harder and earlier for outdoor cultivation.—*A. D.*

APPLE SEEDS.

IN the autumn of 1884 it occurred to me that it would be interesting to ascertain the average number of seeds which different sorts of Apples contained, and to see if any useful facts could be drawn from the information so obtained, more particularly as to whether or not the number of pips had any influence on the size or other properties belonging to the fruit. Since then I have examined a large number of different Apples, and, where practicable, I have tested large as well as small samples from the same tree. The result is that I have found that the larger the Apple the larger the pips, and that seeds from small Apples are quite as valuable for reproductive purposes as those from large ones. I am not sure, moreover, that if sown they would not produce the greater percentage of plants, for they are quite as firm and plump as those from larger fruits. Some fruits, I found, had no seeds at all, or, if any, only imperfectly developed pips, yet the absence of pips made no difference either in the size or quality of the fruit. For this I was certainly not prepared; on the contrary, my impression was that I should find perfect seeds, either few or many, in all. I found more fruit with imperfect pips amongst dessert Apples than amongst culinary varieties, except in the case of Cornish Gillyflower. This produced eight perfect seeds, while such sorts as Ribston, Cox's Orange Pippin, and Margil did not average more than four; even the largest Blenheim Orange did not exceed that number. Many late sorts had but few pips, or, if any, they were imperfectly developed. Dutch Codlin and Keswick Codlin had their full complement of seeds, and amongst late dessert kinds Golden Knob is as prolific in the way of seeds as any in its class. Ten is the largest number of seeds taken from a single fruit, and that was from a specimen of Besspool, a well-known culinary Apple. The information thus obtained may not be of any special value, yet one is left to conjecture how it is that the largest fruits should have no more pips than small ones. If we have learned nothing more by this experiment, we have at least learned that the fertilisation of the Apple blossom is not so perfect as one would imagine it ought to be to produce such large fruit. The fact that the largest fruits have frequently as few seeds as small ones clearly shows that fertilisation must have been imperfectly performed, and yet it seems to have had no effect on the

growth of the fruit. This is quite contrary to my experience in reference to most other fruits, as well as matured Peaches and Plums have all got stones, and stoneless Grapes are generally very small. In the case of the Apple, it appears to me that although the organs of fructification may be so imperfectly fertilised as to be unable to form seeds, they are nevertheless sufficiently so to develop fruit.

J. C. C.

LARGE BUNCHES OF GRAPES.

THE large bunch of Gros Guillaume Grapes here illustrated was grown on a Vine, planted along with others in April, 1883, the border for which was made afresh. It consisted of maiden loam,



Bunch of Gros Guillaume Grapes grown at the Chief Secretary's Lodge, Phoenix Park, Dublin. Weight, 20 lbs.

with a sprinkling of half-inch bones. The cane on which the bunch was borne was cut down to within 8 inches of the soil. It made about 18 feet of good wood that season, and was cut back at next pruning time to about 8 feet. Next year we took two very good bunches off it, each measuring 14 inches long, and last year it showed fourteen bunches, averaging in length from 18 inches to 27 inches, the one under notice being 27 inches by 26 inches.

ROBT. McKENNA.

Fruit prospects.—If a plentiful show of buds is any guide this year ought to be remarkable for its crops of hardy fruits, for at no time previous have

prospects been brighter than now. Apples, Pears, Plums, Cherries, and indeed all hardy fruit trees are wonderfully well furnished with perfectly formed buds. No doubt the long drought last summer favoured their formation, for not in many cases did fruit trees make such vigorous growth as they did last year.—J. C. C.

LITTLE-KNOWN HARDY FRUITS.

MOLMANNE DUKE CHERRY.—A late fruiting kind, berries large, very fine in appearance, and of tolerably good quality. Very fertile and vigorous, and if planted on a north wall will last until the middle of September.

THE JEWEL STRAWBERRY.—Raised by Messrs.

Augur and Son, of Middlefield, Connecticut, between Jersey Queen and Prince of Berries. Fruit large, brilliant in colour, and produced in great abundance. It remains only to be seen if it equals in merit the new varieties lately raised by M. G. Goehcke, of Coehen, who holds premier place amongst the raisers of new Strawberries in Europe at the present time.

WHINHAM'S INDUSTRY GOOSEBERRY.—Very spiny and fertile, fruit red and large. American growers praise it highly, and it has been stated that 84 pounds of fruit have been gathered from ten trees two and half years old.

BRUANT ALMOND.—M. Carrière states in the *Revue Horticole* that this variety was found in a plantation of seedling Almonds destined for grafting in the nursery of M. Bruant, of Poitiers. The tree is vigorous and very fertile, much branched, the shoots reddish brown, the leaves small; flowers campanulate, small and numerous, pale rose in colour. The fruit is oval, enlarged at the base, the skin slightly velvety, some-

times spotted with violet-red. Flesh yellowish white, dark red near the stone. Stone very hard, punctured with holes, from whence issue coloured filaments. It appears that the fruit is eatable.

ELBERTA PEACH.—This variety is recommended in the *Gardener's Monthly*. It has much affinity with Crawford's Early, which it surpasses in flavour and richness of juice. The fruit is oval, about 3 inches long, weighing about 7 ounces. The skin is golden yellow, taking on a deep red tint on the sunny side. Flesh yellow, juicy, dark red round the kernel, which is long and pointed.

KONIGEN OLGA PEACH.—One of the finest of early Peaches. It was raised at the Pomological

Institute of Reutlingen from a stone of the Willmeroz Peach. It bears large fruit, yellow in colour, rather red round the kernel.

WATERLOO PEACH.—This is of American origin, is a good and fine variety, ripening at the beginning of July. Fruit large, spherical, furrowed, skin thin, deep red, and velvety. Flesh white sometimes, rather red under the skin and greenish near the kernel.

DANISHE DOYENNE PEAR (Danish Doyenné).—Fruit pyriform, calyx small, foot-stalk thick and woody, skin very thin and perfumed, green changing to greenish yellow, flesh white, juicy, smelling of a winy aromatic flavour; ripens in November.

PRINZESSIN DAGMAR PEAR.—A Danish variety, which fruited for the first time in 1880. Fruit fine, pyriform, the calyx small and leathery, foot-stalk thick and firmly fixed to the tree, skin green, changing to bright yellow, fine, and covered with small, dark brown specks; flesh white, fine buttery, of a vinous flavour. Is in season in November and December; a good dessert fruit.

JACQUIN APPLE.—Fruit of moderate size, skin greenish yellow, changing to golden yellow, dotted with grey when arrived at maturity; flesh yellowish white, sugary, with a Reinette flavour. A dessert fruit, and remaining good from November till June.

PRUNUS MARITIMA.—This is a native of Western America. It is distributed on the hills from Massachusetts to Virginia, extending even far into the interior. A remarkable circumstance is that in the last-mentioned instance the leaves are smoother, thinner, and the fruit is smaller, which has led more than one botanist to consider these forms as distinct varieties. It is a dwarf tree, attaining a height of about 5 feet. In open situations the branches almost reach down to the ground. The ripe fruit has an agreeable flavour, and is found occasionally in the American markets. The above appeared in a recent number of the *Bulletin d'Arboriculture*. J. C.

Byfleet.

Cankered Apple trees.—I send herewith two specimens of apparent canker of some kind which has affected our Apple trees during the last two years. If you can give me any information as to the probable cause and how the disease can be avoided I shall be much obliged. You will observe that the younger of two enclosed branches shows the disease in its earlier form. The large branches when thus affected die off. The trees themselves are not old, and they have hitherto been healthy and bear well.—A. W. N.

* An answer as to the cause and cure of canker would not be an easy matter to give. The subject is very involved and surrounded by doubt. The brilliant red dots in the cracks of your branches are fungi, named *Nectria ditissima*, always seen at their best in the winter. Some observers attribute the worst form of canker to the attacks of this fungus, and recommend cutting away the affected parts and painting the wounds left with warm coal-tar. We believe the fungus to be an after result, and not a cause of canker.—W. G. S.

NOTES ON THE FRUIT GARDEN.

Birds and Gooseberry buds.—Many experience much difficulty in keeping birds off the buds of Gooseberries. The way in which we protect ours is to syringe lime-wash over the bushes. This not only protects the buds, but frees the bark from Moss and Lichen, and leaves it clean and healthy for the rest of the year.—S.

Huyshe's Princess of Wales Pear.—This I consider to be one of the best of November and December Pears. It is larger than Marie Louise, and keeps longer. Its flesh is juicy, melting, and sugary. Its parents, I believe, were Marie Louise and Gansel's Bergamot, the latter, to be really good, requiring a south-east wall. W.

Walnuts in sand.—This plan of keeping Walnuts answers very well. We place a layer of sand nearly dry at

the bottom of an earthenware pipkin, then a layer of Walnut^s divested of their green shells, then sand, and so on until the pipkin is full, taking care to have the top well covered. When wanted for use, wash the sand off them and wipe them dry; thus treated, they will be found to peel quite as well now as in September.—D. L.

TREES AND SHRUBS.

CONIFERS FOR AVENUES.

WHILST I thoroughly deprecate the indiscriminate introduction of Conifers in every nook and corner—and they are very frequently stuck in places which would be infinitely better left open—and otherwise scattered about in such a manner as to savour of a very childish taste, if taste it can be called, I think there are some cases where they may be used to advantage, where they are now but seldom seen. In avenues for instance, they could be often employed with good effect.

If a drive is flanked by woods, it is not uncommon to see a greater or less number of Conifers lining it, and not unfrequently when they would be better absent, as in most cases a fringe of the deciduous trees of which the woods are composed would be more in character; but it is comparatively rare that an attempt is made to raise Conifer avenues to flank the roadways through the grounds or park. That such trees, when grown, would ever rival, or be more desirable than the stretches of grand old Beeches, Elms, and other deciduous trees one occasionally comes across is very doubtful, but when it is considered that such trees as these can never be produced in an ordinary lifetime, the inquiry whether the substitution of some quicker-growing kinds, which would give some return for the labour and outlay in the lifetime of the planter, could not be effected is, to say the least, warrantable. There is scarcely a thing within the range of planting which looks poorer than by inserting rows of bare-stemmed trees, reminding one of lines of telegraph poles in miniature, with mop heads affixed to the summits, but with the difference that the telegraph poles are generally erect, whilst these attenuated trees, from the difficulty of efficiently staking them, are bending about in every direction in an unsteady kind of way, from the force of the wind. It may be thought that this illustration is extreme, but on candid consideration it will be admitted that it is not, as all over the country where new roads have been laid out such a plan is by far too often adopted in this country. In such cases as this, and particularly where immediate effect is aimed at, Conifers are certainly admissible and preferable.

Several instances recur to me as I write where a very poor result has been obtained through sticking too closely to deciduous trees, where in all probability had suitable Conifers for the soil and situation been selected by this time a great advance in growth would have been made. The determination of the way in which these flanking lines of trees shall be planted will depend much upon circumstances, such as the capabilities of the site. But the thing with coniferous trees to be avoided is the alignment into single and formal rows. Grouping in one form or another must be resorted to, and when this is carefully done any fear of monotony will be overcome. If the area be sufficiently large to admit of the plan and the soil and situation be suited, from a financial as well as ornamental point of view, there is scarcely a better tree than the Larch, or, as this loses its leaves, the Larch and the Scotch Pine, not, however, mixed, but in separate groups. There is of course beyond these a very wide range for choice, and, as it has been before said, all

possible latitude must be left to the planter in his selection. Given these or any other Conifer for which there is a market value, a permanent flank to the roadway and successive crops of timber may be obtained by first planting the groups with sufficient interval to allow of the subsequent introduction of others between them. In this way the original plantings would be allowed some years' start, and by the time they were fit to be cleared the second plantings would be large enough to supply their place in the landscape, and the sites as they become vacant could be replanted and a continuous growth kept up. There is, of course, the objection to successive crops of Fir, but this, if considered necessary, could be overcome by alternating with some other tree.

D. J. Y.

Specimen Conifers.—Lovers of fine "extinguisher"-shaped specimens of the popular *Coniferae* cannot, I fear, share in my feelings of happiness at having cut down myself to-day three healthy specimens of the *Wellingtonia*. I did it for their ugliness.—J. T.

Old flowers on Hydrangeas.—"How shabby these look," remarked a friend to me the other day on seeing hundreds of old flower-heads on our plants of *Hydrangea*. "They do," I replied; "but that is what makes our plants so fine." It is a difficult matter to protect plants 8 feet and 10 feet through when frost comes, and it is astonishing how well the old heads protect the buds on the wood underneath them. One year I cut them off as soon as they withered in the autumn; a good deal of frost followed, and the plants suffered more than ever I saw them do. Since then the flower-heads have always been left intact.—J. Muir, *Margam, Glamorgan-shire*.

The best Barberries.—I consider that the most useful of the Barberries is the common *Berberis Aquifolium* (*Mahonia*). It grows well in almost any position; even under the drip of large trees it will thrive well, and can easily be kept within bounds by timely attention to pruning. It is very handsome, when planted in bold masses, when covered with its bright yellow blossoms, as it is annually in April; and again in autumn its purple coloured berries are freely produced. The leaves in winter assume various rich tints of colour, which when so marked are useful for filling vases. *B. Bealii* is a vigorous growing kind, with an upright habit, producing long leaves of a peculiar shade of brown green; its pale lemon flowers are plentifully produced in the spring. It is a desirable variety to plant in masses of, say, six or eight plants. The well-known *B. Darwini* looks well in any position. It may be grown dwarf by pruning, or tall by encouraging a free growth. *B. dulcis* and *B. stenophylla* are useful varieties to plant at the back of the shrubberies, as they are rapid growers when placed among evergreen shrubs. A good effect is produced when the Barberries are in full bloom, which they do freely every spring. The above are a few of the most useful kinds.—E. M.

The Spindle tree (*Euonymus europæus*).—The broad-leaved Spindle tree (*E. latifolius*) is considered to be the best among the deciduous Spindle trees, yet the merits of the common kind are of no mean order. In the first place, it is thoroughly hardy, and will thrive in light, sandy soils better than the generality of shrubs, while, though the flowers are inconspicuous, the fruits are highly ornamental. When the exterior of the fruit capsules acquire their bright rose colour, a tree thickly studded with them is very attractive, while after a time an additional feature is added when the capsules split open, thus leaving the orange-coloured fruits which are contained therein exposed to view, and in this condition they will remain a considerable time. It is a shrub well suited for planting in belts or screens—that is to say, where those of a deciduous character are admissible—and as a single specimen on Grass it is effective; but in this latter respect is surpassed by the broad-leaved form. It is generally met with in the character of a shrub, but if trimmed up a little during its earlier stages will acquire quite a tree-like habit. There is a variety of the common

Spindle tree in which the capsules, instead of the ordinary pink colour, are white, and though not so showy, it is well worth a place from its distinctive character. The variegated-leaved kind is seldom or never met with in a satisfactory condition, except just as the young foliage first makes its appearance. —A.

PRUNING CONIFERS.

I FIND it an excellent plan to annually examine Conifers in order to see if they require pruning. I do not hold with clipping them into a formal style, as is sometimes done. They should be pruned with a knife, and the cuts made in such a way as to be not seen; any straggling shoots should be shortened back, which will induce a thick bushy habit in keeping with its natural character. It may not be generally known that trees which have lost their leaders make others when subject to pruning.

Cupressus Lawsoniana and its varieties are much benefited by being annually overlooked and pruned into form, as this confines the growth to one main leader; often this tree shows a tendency to produce more. The different kinds of Retinosporas branch freely after being operated upon with the knife, and thus compact specimens are retained. Thuja, Thujopsis, Junipers, Biotas, and the various forms of Yews which have a tendency to an upright growth are also much improved by timely attention to this matter. Trees and shrubs of weeping habit, as, for instance, Abies canadensis (the Hemlock Spruce), do not require pruning at all beyond curtailing any rival leaders. Conifers of this class, of course, require more space than those of upright growth, and are better adapted for planting singly as specimens than in the mixed shrubbery except when in a young state.

E. MOLYNEUX.

Golden Scotch Fir. Among the numerous forms of the Scotch Fir (*Pinus sylvestris*) this is one of the most distinct, differing as it does from the type in being altogether a smaller growing plant, and especially in the foliage acquiring during the winter a rich golden hue, which assumes the normal green character as the season advances. It is of rather slow growth, and from this circumstance may, in planting, be associated with many of the smaller Conifers without any danger of intruding on its neighbours. There is also a silver-leaved variety of the Scotch Fir, known as *argentea*, in which the young foliage is of a whitish tint, but this character is present as soon as the leaves unfold, and not, as in the golden kind, remain green till autumn. The silver variety is much more vigorous in growth than the golden; indeed, judging by young plants, it seems likely to attain the dimensions of a large tree. Both are increased by grafting on seedlings of the common kind. —H. P.

Shrubby Spiræas.—Every garden should contain a few of these, they are so bright in the shrubbery and some are useful for culture. The following are a few of the commoner kinds easily grown. All they require after being once established is timely attention to pruning the shoots, which, if at all neglected, they soon get out of due proportion. *S. callosa* is one of the most useful kinds, produces its bright pink blossoms in July on the current year's growth; it can be grown into a large bush or it can be kept dwarf by cutting down to within a bud or two above the ground line. It breaks into growth freely when treated in this way, and will grow from 2 feet to 4 feet high in one season, according to soil, position, and season. *S. arifolia* produces in profusion its creamy white bunches of flowers in a waving habit in July. It grows with rapidity, and is more appropriate for the background of the mixed shrubbery, as it is not so amenable to pruning as the former kind; if cut in too hard it does not produce flowers so freely as when allowed more extension, as when cut down to the ground it rarely ever flowers on the

current growth. *S. prunifolia* fl.-pl. is one of the best shrubby plants we have. It bears a profusion of small white button-like flowers. The annual pruning of *Spiræas* should consist of thinning out the older branches, allowing the younger shoots more space, as it is from these the most flowers are developed. These shrubs well repay a little extra attention in the shape of adding some manure to the soil. —E. M.

THE KENTUCKY COFFEE TREE.

(*GYMNOCLADUS CANADENSIS*.)

THERE seems to be some difference of opinion as to the hardiness of this tree in this country, and as to the soils and situations in which it will thrive. Loudon speaks of it as being very hardy, and that it flowers freely in the neighbourhood of London, but does not produce seed. Other writers also speak of it as being perfectly hardy and growing in exposed situations and on a cold soil. Later writers, however, seem to doubt this, and remark that it will not withstand the cold and exposure. The truth most likely is that it requires a good soil, and this is not often found in very exposed places. In some respects this tree is like the *Acacia*, and places suited to the latter would also suit the Coffee Tree. For ornamental purposes it is rather a wonder it is not oftener met with. That its remarkable appearance in winter is the cause of this, one can hardly believe, as the peculiarity of its branching renders it rather an acquisition than otherwise. In its native forests it reaches a height of some 60 feet, and in this country it has been known to approach this very closely.

It is easily propagated by seed, which, however, must be obtained by importation, as it rarely if ever bears seed here, although it flowers abundantly. It may also be grown from root cuttings. Its wood is hard and of a rose colour, and it is a tree which puts on heartwood very quickly. It is not, however, so much for these reasons that it is worthy of being grown as on account of its splendid foliage. This is particularly grand when the tree is young and vigorous.

Cupressus Lawsoniana filifera.—This is a very distinct variety of Lawson's Cypress, with long undivided branchlets that are of a strictly pendulous character. From the points of these branchlets quite a cluster of young shoots are pushed out during the second season, which, in their turn, acquire the long thread-like character. Curiously enough, this *Cupressus* closely mimics one of the *Retinosporas* (*filifera*), and it needs a close inspection to detect the difference. Though resembling each other so closely, there is, however, one point upon which they differ greatly, and it is that cuttings of the *Retinospora* may be struck much more readily than those of the *Cupressus*. This latter is in general appearance as far removed from the upright variety of Lawson's Cypress (*erecta viridis*) as if they belonged to totally different genera. —H. P.

OBITUARY.

MR. CHARLES McDONALD died on the 16th inst. at Garden House, Stokesley, Yorkshire. He was for many years at Dunrobin Castle, and at Woodstock Park, the charming residence of Lady Louisa Tighe, near Inishoge, Kilkenny. He was afterwards appointed bailiff at Phoenix Park, where he remained some seven years, and on leaving that he took a small nursery at Stokesley. He was an excellent gardener and greatly respected by all who knew him.

BOOKS RECEIVED.

"Studies from Nature of British Foliage." By Tom Kelly. London, John Heywood, Paternoster Buildings. Series No. 1 (40) contains Larch, Fossils, Cut leaved Maple, Oak Apples, Filbert and Spindle Tree.
"Vine Culture under Glass." By J. R. Pearson. Fifth edition, revised and edited by C. E. Pearson. Forman and Sons, Nottingham.

GARDENERS' BENEVOLENT INSTITUTION.

At the annual general meeting of this institution, which took place on the 15th inst., twenty-five candidates were placed on the pension list without the trouble or expense of an election; their addition brings the number of pensioners up to 118, viz., fifty-two men at £20 per annum, and sixty-six women at £16 per annum. The ages of the twenty-five just elected vary from 60 to 82, the last being that of Mr. E. Spary, long connected with the Queen's Graperies, Brighton.

STATEMENT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDING DECEMBER 31, 1885.

| | £ | s. | d. | £ | s. | d. | £ | s. | d. |
|--|-------|----|----|---|----|----|------|----|----|
| To Balance from 1884 | 1,094 | 13 | 0 | | | | 286 | 8 | 10 |
| Annual subscriptions | 1,094 | 13 | 0 | | | | | | |
| Donations at and in consequence of Annual Dinner | 7 | 1 | 0 | | | | 195 | 16 | 6 |
| Advertisements | | | | 4 | 0 | 6 | | | |
| Amount of collecting cards | 14 | 7 | 0 | | | | 199 | 7 | 6 |
| Dividends on Stock | 34 | 1 | 0 | | | | | | |
| Interest on Deposits | 2 | 10 | 3 | | | | 552 | 5 | 3 |
| | | | | | | | 272 | 9 | 3 |
| Legacy from Mrs. Boulton | 450 | 0 | 0 | | | | | | |
| Do. J. S. Law, Esq. | 100 | 0 | 0 | | | | | | |
| | | | | | | | 550 | 0 | 0 |
| Augmentation Fund Account | | | | | | | 287 | 1 | 6 |
| | | | | | | | 284 | 13 | 9 |
| | | | | | | | 2861 | 2 | 7 |

Stock, £21,100, Three per Cent. Consols.

| | £ | s. | d. |
|--|------|----|----|
| By Pensioners | 105 | 1 | 4 |
| Secretary's salary | 109 | 0 | 0 |
| Printing | 11 | 1 | 3 |
| Furniture for office | 40 | 19 | 6 |
| Hire of committee room | 5 | 17 | 0 |
| Stationery | 17 | 16 | 4 |
| Books of cheques | 3 | 9 | 2 |
| Advertising | 6 | 1 | 6 |
| Expense of Annual Dinner | 78 | 5 | 3 |
| Postages, travelling expenses, and sundry petty expenses | 84 | 6 | 9 |
| Secretary's bill | 2 | 2 | 0 |
| | 2171 | 3 | 1 |
| Purchase of £150, £3 per cent. Consols | 4992 | 13 | 9 |
| Amount placed on deposit | 1100 | 0 | 0 |
| | 6092 | 13 | 9 |
| Balances, viz. | | | |
| With Treasurer at bankers | 371 | 19 | 0 |
| With Secretary | 15 | 6 | 0 |
| | 387 | 5 | 0 |
| | 2861 | 2 | 7 |

Audited January 11, 1886.

JOHN LEE,
JOSEPH MESTON,
JESSE WILLARD.

LATE NOTES.

Gardenias.—*I. B.* 1 have carefully examined your Gardenias, and cannot find any insects on or in them. The leaves appear to me as if they had been attacked by thrips. Your applications must have had no effect than you imagine. No insecticide will make the leaves look as if they had not been injured. —G. S. S.

Diseased Cucumbers.—*W. J. M.* Your Cucumbers are attacked by small white nematode worms, which cause the excrescences on the roots within which they live; they are quite microscopic, and belong to the genus *Tylenchus*. They are very nearly allied to the worms which cause the ear cockle on purple wheat, and the vinegar cobs. The only known effect of them is to clear out all the soil in which the affected plant was growing and burn it. —G. S. S.

United Horticultural Benefit and Provident Society. *Herts.* The secretary of this society is Mr. J. L. McKelvey, The Gardens, Monty Lodge, Camden Hill, Kensington. We believe there is a gardeners' society of this character at Leeds, but we are unable to give the name of the secretary or supply any particulars. There is in existence a society called the Ancient Order of Gardeners, but we have no information as to the privileges on which such a society is founded. There is an Ancient Society of Horticulturists at York, but it is not a society for benefit purposes. It uses solely for holding exhibitions.

Names of plants. *E. Beveridge.* *Oreidium frutescens.* —*Cultus Bras.*—1, *Narcissus Bulbocodium Gracilis*; 2, *N. triandrus*, from Oxford; *A. B.* Next week. *R. Soars.* 1, *Helleborus niger albidus*; 2, common winter Aconite (*Eranthis hyemalis*).

Names of fruits. *R. E. B.* 1, large, Brabant Belle-dieu; 2, small, Wyken Pippin; 3, not recognised.

WOODS & FORESTS.

MENZIES' SPRUCE.

(ABIES MENZIESI.)

THE many good qualities possessed by this Conifer, its strong, hardy nature and its valuable timber, renders it pre-eminent among its tribe. Its symmetrical outline and vivid bluish green foliage are the peculiar characteristics of this Spruce, and when in a young state it is one of the handsomest of evergreen trees. Discovered and sent home from Northern California by Douglas in 1831, this magnificent species has already received a fair amount of attention from planters in this country, its free and rapid growth auguring well as to its suitability for our climate and soil. The name *Menziesi* was given to it by Douglas in compliment to Mr. Archibald Menzies.

In its native country, the western side of North America, *Abies Menziesi* has an extensive range of coast line, occurring, as it does, from about 100 miles north of San Francisco far into Alaska. It attains largest dimensions wherever soil and climate are most congenial to it, such as in Vancouver's Island and near the mouths of the Columbia and Eel Rivers, the latter place containing no doubt the finest grove of this Spruce in existence, many of the individual trees measuring from 6 feet to 8 feet in diameter of trunk, and rising to nearly 200 feet in height. In the Rocky Mountains, at altitudes ranging from 6000 feet to 9000 feet, it seldom, however, exceeds 100 feet in height, and is rarely found in what could be described as large quantities, but usually in straggling belts along the banks of streams and in damp ground generally.

Already there are many large specimens of *Menzies' Spruce* in this country—trees of from 50 feet to over 80 feet in height—and which, when we consider that the tree was only introduced about fifty-three years ago, speaks highly in its favour as a rapid timber-producer. It is undoubtedly hardy, not in the least liable to injury from storms, for I cannot remember even a leader being broken, and for seaside planting can favourably compete with many trees that have already received their due meed of praise as maritime subjects.

In cool, damp loam, and where partial shelter from prevailing winds is secured, this Spruce does best, but it will not bear cramping or crowding; the thick spreading branches clearly point outwards, so that in order to have well-grown luxuriant specimens ample room on all sides must be provided.

Where the soil is light and dry the foliage is, if we may use the term for an Evergreen, semi-deciduous and meagre, and the whole tree stunted in appearance; indeed, so changed in general aspect does it become under these circumstances, that it is with difficulty recognised. The branches are somewhat stiff and rather irregularly disposed, the points inclining upwards, and thickly beset with remarkably stout, sharp-pointed leaves that readily distinguish the tree from any other Spruce. Two silvery lines mark the under side of the foliage, while above it is of a pleasing bluish grey tint, this latter being most noticeable in young, thriving specimens, and usually less so in those of older growth. The cones, when ripe, are of a pleasing russety brown, cylindrical, 3 in. in length, by about 1 inch in diameter, and usually bent or curved. In my opinion this is the most distinct and pretty cone produced by any of the tribe, and to see in September or October a well-balanced tree with its russety cones swaying in the breeze, and intensified by the bluish grey or green foliage, is not readily

forgotten. The male catkins are pendulous, and usually produced in abundance about March or April. On the upper portions of the tree the bark is of a conspicuous yellowish brown, while lower down it has a sooty dye, somewhat rough, and with numerous receptacles containing a clear, fragrant resin.

Judging from the specimens here at Penrhyn, the rate of growth is from 2 feet to 3 feet annually and remarkably strong, much, however, depending on the soil in which the trees are growing, those on deep, damp loam making the longest and most luxuriant shoots, those of the present season usually exceeding 1 inch in diameter. The colour of the foliage also varies considerably in different plants, some being of a lighter and others a darker green, approaching to blue, this latter colour being by far the most ornamental, and, in my opinion, only attained by such trees as are favourably placed and more fully developed in the younger stages of the plant's existence. There is a large specimen close on 80 feet high, and with a trunk of $4\frac{1}{2}$ feet girth at a yard up, growing on the lawn southward from the castle, but, owing to the rather dry, shallow soil, its appearance is not nearly so healthy or striking as others planted in damp loam alongside the carriage drive leading to the grand entrance, one of which in particular is so thickly covered with its dense, glaucous foliage that it is almost impossible to get a sight of the bole without pulling aside the branches—a feat which, from their sharp, prickly nature, few will attempt a second time. This is, however, it is but fair to state, a much younger tree, of perhaps not more than twenty years' growth, and not exceeding 50 feet in height, which, as I have before stated, may have some little to do with the healthy appearance as well as density of the foliage. Ample room has also been assigned to this specimen, which can hardly be said of the other, for a Corsican Fir of almost unparalleled dimensions (I mean in this country) stands at no great distance to the southward, while a wide-spreading Cedar and round-headed Stone Pine shut out to some extent the free access of sun and wind, both of which seem potent factors in producing nice, well-balanced trees of the *Abies Menziesi*. Another tree of still smaller growth than that just referred to, and growing in a clump of hybrid Rhododendrons of rather stately proportions, was found on examination to have all the lower branches either dead or dying by the encroaching nature of its neighbour, thus showing, in combination with the cases already given, that *Menzies' Spruce* to appear in good form must have ample room for development, enclosed spaces and coddling being detestable to its nature.

Young trees of this Spruce present rather a bare and naked appearance for the upper half, owing to the leading shoots of the past two seasons being almost destitute of branchlets. The present leader does not throw out twigs until the following spring, and as these rarely attain to a greater length in one season than 6 inches, the upper half of the tree always wears a somewhat naked appearance, and is disproportionate to the lower half; as the stem, for the past four years' growth, has been thickly beset with leaves, the monotony of bare wood is, however, to some extent relieved.

The cones become ripe in September or the beginning of October, and, if wanted for sowing, should then be collected, as almost immediately after that date the scales open, and the seeds, being remarkably light, are wafted away and lost. When we state that an ounce weight of *Abies Menziesi* seeds contains no less than 28,333 seeds, or nearly $2\frac{1}{2}$ times more than any other coniferous tree of my acquaintance, their light, airy nature will at once be apparent.

In the nursery management of *Abies Menziesi*, a more than ordinary amount of care is necessary not only in the sowing of the seeds, but after-management of the young stock as well. Although, for many reasons, we are no advocates of raising forest plants under glass, still in some cases this method of procedure has its advantages, and I must own that for my own part I have a sort of sneaking regard for its adoption with some half a dozen Conifers—*Menzies' Spruce* amongst the others—and the following is the method of procedure: Half fill an ordinary frame, or any wooden enclosure of a similar shape, with a mixture of leaf mould, loam and sand; level the surface and make it fairly solid with the back of a spade; after which (April or May is the best time for sowing) sow the seeds evenly over the surface and cover with a very light coating of sandy leaf mould through a fine-meshed riddle. Put on the light and keep the whole moist and close until the seedlings appear, after which it may be slightly tilted for the admission of air, but closed during the night so as to guard against the admission of marauders, several of which are particularly fond of the tender plants. The first season's growth is very small indeed, and the seedlings should in all cases be allowed to remain in the bed or frame for three years, after which they may be transplanted into well-prepared nursery borders, where the increase will become yearly more noticeable.

Although somewhat coarse-grained, the wood of *Menzies' Spruce* is tough and strong, and is used for a great variety of purposes, including ship-building. Dr. Newberry, in his Pacific Railway report, speaks highly of the timber, it being of excellent quality and used by the settlers for various kinds of carpentry.

A. D. WEBSTER.

HOME GROWN V. FOREIGN TIMBER.

At a time like the present when trade is generally dull and prices of all kinds of farm, as well as woodland, produce is exceptionally low in price—so much so, that the farmer is unable to pay a fair rent for his holding, and has no other alternative to keep his position but by asking his landlord to allow him a reduction for the time being in order to keep him out of the bankruptcy court—when timber is equally low in price and in many cases cannot be sold but at a great sacrifice, and when the outlook is still gloomy and obscure, I have no hesitation in saying that such a state of things is to be deplored, and one cannot but sympathise with the owners of land generally who have done their best to meet the requirements of the case under the pressure of so lengthened and widespread calamity.

In speaking of prices of timber (p. 38) "Yorkshireman" says: "It would almost appear, however, that, short of giving it away for nothing, owners of some kinds of timber in England cannot compete against the foreign supply, except in special cases. There is a tendency in the colliery districts to take less and less England timber. Some collieries we know of use none, although the landlord from whom the coal-pits are let has timber growing above the coal close to the pits that he would be glad to dispose of at a price that would just leave a margin of profit, if he could." Now, I think there is something here which requires further explanation, and we may ask if the timber growing above the coal-pits is of a proper size and scantling for the requirements of the miner, and if not, no one need be surprised that the miner will not make a purchase when he can get foreign stuff of a proper size at a cheap rate.

On the other hand, should the stuff be of a proper size and suitable for all the requirements of the mine-owners, prejudice, established custom, or too high a price—any or all of which must have something to do with keeping a tenant from giving his landlord a fair price for his timber, more especially when it is the proper size for his mines. I look upon the landlord's and tenant's interest as being identical, and I cannot understand or imagine how a tenant could act in so indifferent a way without strong reasons for doing so.

It is a matter of great importance, in the proper management of estates, to plant and grow to a great extent the kinds of timber which is sure to be wanted in the neighbourhood. In districts where coal is abundant and where mining timber is sure to be in demand, the particular aim of the planter should be to plant and rear timber suitable for such requirements, and this can be best accomplished by growing Fir timber rather thickly upon the ground, so that the trees may assume the size and shape of clean straight poles of a proper size for such purposes; and if this has been attended to, it is not clearly demonstrated how any outsider could bring timber to the pits at a lower rate of price than the landlord could rear the same class of stuff for on the spot. Timber cannot be brought either by water or rail without considerable expense, and if plantations in the vicinity of the coal-pits have been properly reared for such purposes, the owners need fear no competition. Prices may, and do, fluctuate, but the man who has the market for his stuff at home, without the expense of a long carriage, has an advantage over all opponents.

J. B. WEBSTER.

Planting coverts. The filling up of the plantations with various sorts of Evergreens and deciduous flowering shrubs is now becoming generally practised throughout the country, and the chief object for which this is intended is to produce a shelter for game, and more especially for the pheasant. The planting of these undergrowths is, however, like many other things, often performed without regard to consequences or economy, while the chief aim ought in this case to be a conjunction of the useful with the beautiful. Certainly, there can be nothing better adapted for the purposes of sheltering game than the common Laurel, Evergreen Privet, Portugal Laurel, Rhododendron, Holly, Arbor-vitæ, &c., while these produce at the same time an agreeable effect upon the forest scenery, which, without the aid of Evergreens and other undergrowths, is extremely monotonous. Still, however, while we endeavour to produce both these effects, we should also have an eye to something useful and economical. What avails it howsoever well game be provided with close and impenetrable coverts when the common means of sustenance are wanting within their leafy domicile? The birds are compelled by hunger to leave behind "the umbrageous glade" and seek their food in the fields of the farmers, who in some districts of the country where pheasants are very plentiful are compelled to seek redress for the damages thus sustained. Such a course on the part of a tenant, though it is quite fair and reasonable, is a very disagreeable alternative, and must prove destructive of that friendly intercourse which ought to subsist between tenant and landlord.—J. M.

The wood forester.—The duties of a wood forester (says Mr. Clarke in an essay upon the English Arboricultural Society) are very varied, and it is astonishing that so much knowledge is expected from one single individual. In the first place he must possess a knowledge of the management of forest tree plantations and their proper planting, thinning, &c.; he must know the different kinds of trees to suit different soils; he must be a practical drainer, as the ground must be properly and sufficiently drained; he must be able to keep his various estate books, such as a time and a work book; be able to calculate the price of timber, and he must be able to measure the

same correctly; he must be able to prepare estimates of the value of draining, planting, fencing, &c., and submit reports of the same; he must possess a knowledge of machinery and the care of a sawmill, which in nearly every case is driven by steam power; as a rule he is expected to cut out timber for fencing; to make or superintend the making of field gates, hurdles, &c.; and, to sum up the whole, it means wood merchant, engineer, joiner, nurseryman, book-keeper, contractor, and drainer, all combined in one single person; and with all this knowledge he is generally considered to be a very modest individual on an estate. If such a class of men exist with the limited training and opportunities which can be found within their reach, how much better the same men would be if an institution such as a school of forestry existed, where any young man, after passing through the plain details of planting, pruning, felling, barking, measuring, &c., could be ushered into a sphere where the higher duties of his business would be learned, and where he could get the assistance of whatever learning or science can give to assist him in the execution of his duties in after life.

SCOTCH FORESTRY.

SCOTCH plantations are chiefly in masses, clumps, or belts. The first of these is almost the only form in which we can pretend to anything approaching to the picturesque; for here the fence of the plantation may be entirely or nearly kept out of sight, while in the two latter modes this is almost impossible. If a plantation is made for beauty and profit, as regards wood, the mass is certainly the most desirable; but the clump and the belt are by no means destitute either of beauty or usefulness; indeed, as regards the latter quality, I will venture to say that in many districts the country has been benefited 50 per cent. or 100 per cent. by the numerous belts stretching their protecting arms around what are now lovely green pastures, but before the encircling stripe was formed were barren heathy uplands. Clumps and strips of plantation, too, come within the limits of many a one who cannot give land for a mass, and if a little persuasion would induce proprietors to carry this most useful improvement a little further, one object of these remarks will be gained. There is an error which a great many proprietors fall into in forming belts of plantations, viz., that of making them too narrow. This is a short-sighted policy, and arises often from their listening too much to their tenants, who usually grudge every morsel of land taken off the farm for this purpose.

Our severest blasts of wind here are from the south-west and west, as may be seen from our trees bending to the east. Our belts, therefore, as far as practicable, run from north to south and from north-west to south-east, though this is of course varied by situation and convenience. They ought never to be less than 60 yards wide, and if 20 yards or 30 yards more can be added to their width, the shelter will not only be greater and the wood better, but they will look much handsomer; and if they are wide enough to allow a roadway along the centre of the belt it will be found a great advantage, both in giving access to the wood for carting, when it is of a size fit for useful purposes, and also when it is young, in affording facilities for inspecting the wood with a view to thinning, which, alas! is so much neglected. Most proprietors know the advantage of a march fence; they would in many cases find it greatly to their benefit and not much more expensive to have a march strip, for which each coterminous proprietor should give 40 yards or 50 yards, having a road in the centre along the actual line of march, or it might be more convenient if the strip were for so much of its length on one man's land and so

much on the other. By this latter mode each would be able to thin his own wood to his liking; and this is of greater consequence in a strip than in almost any other form of plantation, and in strips is almost always neglected. MAC.

THIN V. THICK PLANTING.

No greater error can be committed than planting trees too thickly, and unless one is prepared to cut down or transplant every alternate tree, it should never be done. It, however, often happens in carrying out the thinning that the best trees are removed; while if trees be planted at the distances just mentioned, should one or more fail, it is an easy matter to replace them at once with others that would match those already planted. As a rule, Chestnuts, Limes, Sycamores, Acacias, and a few other varieties may be planted with advantage from 25 feet to 30 feet apart, and where variety is a consideration, the first three mentioned may be mixed with very good effect. I would under no consideration associate Planes and Black Italian Poplars with them, nor would I plant Planes and Poplars together, unless it was positively understood that the Poplars would be removed before the Planes were injured. Where rapid growth and dense foliage are required, nothing is more suitable than the Black Italian Poplar. The Plane, however, although slower in growth, is far more lasting as a tree, evidence of which may be seen in many parts of London. The foliage of both remains in excellent condition until very late in autumn, and this cannot be said of many trees, as, for instance, the Lime, Chestnut, and Sycamore.

IN STREET PLANTING it is important that really good, stout, and straight trees be procured. It is painful to see the miserable material under the name of trees that is sometimes planted; and when the cost of guards, stakes, &c., is considered, it will be seen that a few shillings more than is usually paid per tree would really be a great gain. It is surely false economy to put a guard costing £1 to a tree costing but 2s. It cannot be too widely known that, to ensure success, the planting should be done by a thoroughly practical man, as it often happens that after every preparation has been made in the best possible manner, the work is a failure, through a want of knowledge of the simplest rules of planting. The hole should in all cases be sufficiently large to allow the roots to lie in it in a natural position. The bottom of the hole should be well loosened, and all broken or otherwise damaged roots should be cut away. Some of the finest soil should then be introduced and the tree placed upon it in the centre, slightly below where it is intended to remain, in order that it may be raised to its place when some of the best soil has been placed upon its roots. This operation allows the soil to pass freely among the roots, and disposes of them in a natural manner. A tree should never be planted deeper than it has been when growing in the nursery, or wherever it may come from. Deep planting is the cause of many trees dying; whereas the loss does not exceed 1 per cent. when the planting is carried out as has just been stated. When the tree is in its proper place the soil should be made tolerably firm by treading, but great care must be taken not to tread too near the stem, as it often occurs that the stem and some of the best roots are injured thereby. It is much better to make the soil firm round the outer part of the hole than close to the tree. PLANTER.

Raising fallen trees.—Can any reader tell me how to proceed in raising several large Spruces which have been blown over? They are not damaged in the branches and the balls of roots are intact. R. P.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

PRUNING TO PROMOTE VIGOUR.

At present, opinion on the subject of pruning may with truth, I think, be said to be in a transition state, for it is impossible that the two different systems now practised can ever be reconciled. One is wrong and one is right, and the question is, which is the right one? Pruning to promote vigour is, however, the particular phase of the subject to which I shall now allude. There are pruners who, in order to promote vigorous growth, prune severely—cut back short; and there are pruners who, with the same object in view, prune moderately or not at all. Before discussing the merits of either, however, it is necessary to determine what we mean by "vigour" in a cultivated tree, and this, I believe, I am correct in describing as the power to produce strong shoots, good foliage and plenty of it, a fair crop of fruit or flowers, and long life. In other words, I would call that the most vigorous plant or tree which produced the greatest amount of growth and crop in a given time. I am not aware that vigour or vitality can mean anything else, and the question is, is this kind of vigour produced by severe pruning or the reverse? According to mostly all past authorities on the subject, hard pruning does promote strength and free growth debility.

PRUNED AND NON-PRUNED ROSES.—Let me give an example in the case of the Rose. In that otherwise excellent book the "Rose Garden," by Mr. Wm. Paul, occurs the following passage: "We are told that the extraordinary vigour and beauty of some plants on which goats had been browsing first gave the ancients the idea of pruning. Certainly, no one at the present day would dispute the advantages of it. . . . If we leave a Rose tree unpruned for one year a great number of buds will burst forth, producing a vast quantity of blossoms, but both shoots and flowers will be comparatively thin and puny. If such a tree be left unpruned for two or three successive years it will become greatly enfeebled; the ends of the yearly shoots will die back for want of nourishment, and thus is reduced the number of buds capable of development during subsequent years. Here we see one end of pruning naturally accomplished. But it is not sufficiently so. The flowers continue to degenerate, till at length they can be scarcely recognised; the tree dwindles, presents an unhealthy appearance, and pruning must be the first means applied for its restoration." I have quoted this passage because it fully expresses the mistaken notions that exist on the subject, and it would be difficult to find a better example anywhere, or a passage in which truth and error are so much mixed up. Browsing by goats has no such effects as are here described, and no one ever saw a vigorous bush that was constantly nipped in such a way. We have a fine example near us here on a common where game and cattle constantly have nipped the young growths of the Furze bushes, with the result that the bushes have gradually disappeared, except here and there a small tuft not many inches high and growing less and less every year; whereas Furze protected from the cattle grows 6 feet and 7 feet high in a few years. The statement, however, that an unpruned Rose tree produces a great number of buds and "a vast quantity of blossoms," if not prize

blossoms, is quite true, and one naturally enquires how such a display of vitality can be regarded as a sign of weakness. The idea is simply preposterous. "If such a tree be left unpruned for two or three successive years it will become greatly enfeebled and the ends of the shoots will die back for want of nourishment." How comes it then that an Oak or any other tree attains the dimensions which they do when left unpruned? How comes it that the common Brier in the hedgerows reaches 10 feet in height and as much through, every bit of it green and healthy? and how comes it that a pruned Rose when freed from the knife grows into a large bush and makes annual shoots as thick as walking-sticks compared with shoots like penholders or smaller during the time in which it was pruned regularly? The idea of any tree or bush, growing in a suitable situation, actually dying because it is not periodically hacked back by the knife is just about as true and intelligible as that a man's constitution is improved by cutting off his arms and legs one by one in their turn. How such statements ever came to be made by observant horticulturists is a mystery. Not only does a Rose not die back or become enfeebled by being left unpruned, but exactly the contrary is the fact. The plants do die in time under the knife and revive when it is withdrawn, and there is hardly a surer way of restoring a feeble Rose tree to health than letting it grow and produce as much new growth as possible. I do not deny that a pruned Rose in which all the strength of the roots is concentrated upon a few blooms may produce these of better quality from the exhibitor's point of view than an unpruned one, but it would be absurd to regard a few such blooms as a sign of vigour compared with the "vast quantity of blossoms" of "comparatively" small size which do indicate vigour. Let me give a *bona-fide* cultural example. About twenty years ago I found here a border of Roses pruned and cultivated in the orthodox way—that is, cut close back annually. I do not know how old they may have been, but they never produced shoots much thicker than a quill, and mostly smaller than that, and were constantly dying off in severe winters. I took them all up some years later, divided the stools where necessary, and replanted them in the same border under exactly the same cultural conditions, and allowed them to grow to full size, subjecting them to no more pruning than topping the sprawling limbs with a pair of shears. The result was that they grew stronger and stronger every year until they reached their maximum and natural size, and since then they have continued to send up limbs as thick as walking-sticks every season, while the two or three-year-old limbs are stronger still. From these Roses, under severe pruning, when we wanted Rose leaves for drying, we had to gather them in capfuls till we had enough; now two men go over far fewer bushes every year with two clothes-baskets and fill them once or twice some fine day. Truly such big bushes do produce "vast quantities of blossoms."

PRUNED AND NON-PRUNED VINES.—So much for flowering shrubs; now for fruit trees, and for an example of the opinions held I will quote from Mr. Barron's book on the Vine. I have chosen two well-known authorities for the foundation of the case rather than the irresponsible and casual statements of writers which only serve to prove how much harm the so-called "unquestionable authorities" have done. Mr. Barron's opinions closely resemble those of Mr. Paul, and show how deeply fixed the idea is that cutting off the head of a tree puts life in it. He writes (p. 72): "A good (Vine) stem should be about the thickness of one's thumb, and a weak one of the

thickness of an ordinary black-lead pencil. If the main stem resembles the latter, it should be headed back quite close, as it would be too weak to produce good side spurs, or to bear fruit." Just so. Now, what would take place in the event of such a weak shoot being left long and unpruned would be this: It would produce laterals, extend in length from the top, nearly double its thickness, or perhaps much more, just according to circumstances, bear a light crop if allowed, and lay the foundation of a good growth and crop the following season. If cut back, as Mr. Barron recommends, it would bear no fruit, would push apparently stronger from the cut-back point, and run out till it had reached the limit of the year before; but by the end of the season it would, all things being equal, be a smaller Vine, with less bearing capacity, than the one that had not been pruned, because nothing was put into it by cutting away the whole of its top, and nothing more could thereby come out of it; whereas the unpruned Vine, having a greater area of wood and foliage to start with, excited more root action, had the start, and all the benefit which these are known to give, and profited accordingly. This, at all events, is the teaching of science, and it is corroborated by practice. What applies to Roses and Vines applies to all fruit trees and shrubs of similar general habit, and the philosophy of the subject is simply this: limbs and leaves promote root action, which in turn reciprocally encourages growth, vigour, and fertility. On the other hand, anything which tends to restrict growth, whether it be severe pruning in winter or pinching in summer, results in restricted root action, and consequently in weaker growth in the branches. It is not denied that by pruning in a certain manner we concentrate the vigour upon certain points—buds, we shall say—which push more vigorously in consequence, but such pruning reduces, and does not add to the vigour of the tree on the whole. J. S. W.

NOTES ON RECENT NUMBERS.

BUTTON-HOLES (p. 67).—"A white or pink Camellia and buds partially opened" would be in most cases, to say the least, somewhat heavy in an evening coat if the ordinary kinds of Camellias are used; but, like most other things on this planet, the different varieties are not all of a size, and there exists, though they are but little known, miniature Camellias thoroughly suitable for button-hole use. I have now got a little single white one, the expanded flowers of which do not measure much more than 1 inch or 1½ inches across, and I have before this drawn attention to a small red one very similar in style, a curious point about them being that, though the flowers are perfectly single, neither of them have any pollen; whether they are degenerate doubles or undeveloped ones, I cannot say, though they look distinct enough to form a species by themselves. Of course, they are not so showy as many others, but for purposes of bouquet or button-hole making they are likely to prove very useful.

PAMPAS GRASS PLUMES (p. 67).—For good effect in the house the stalks should always be left as long as possible; when, as is so often done, they are merely beheaded and bunched into a vase they soon get dusty and dirty-looking; whereas if they are allowed to stand up tall and boldly, one does not notice so much the signs of senile decay as the months roll on. We have had the same plumes last in fair order for four years, but generally before that time they begin to forewear the tidiness of their youth, and are frequently somewhat of a trial to the temper of the housemaids. The tall arching spikes of the

Arundo conspicua are almost more beautiful and graceful than the Pampas, but both may be allowed to stand within sight of each other without much sign of ill-feeling or disagreement, and the *Arundo* being smaller and lighter may be used with good effect in positions not large enough for the other.

WHITE PLUME CELERY (p. 69).—I know nothing of this vegetable beyond what has been told of it in *THE GARDEN*. I am anxious to know whether for cooking purposes (soup, stewing, &c.) it is equally as useful as the ordinary varieties, even though it prove inferior when raw. Opinions may differ as to the latter point, and the decision may be eventually against it; still, if the cook approves of it for her share of the work, she will probably thank the gardener for a good supply, and he will be ready to accommodate her or him more willingly when he is saved the trouble of the old earthing-up system. One rather grudges to see a vegetable which has required some extra trouble to grow end its life in the stock pot!

Sussex.

C. R. S. D.

NOTES OF THE WEEK.

Freesia refracta alba.—We have just now many charming little plants of this in bloom, the scent of which at this dull season of the year is quite refreshing. When mounted on wires and placed in bouquets its flowers are welcomed by everybody, and I should advise all to grow it. We pot our bulbs the same as Hyacinths, plunge them in coal ashes, and flower them in an intermediate house. Their green, Grass-like leaves, surmounted by white flowers, are very striking and beautiful.—R. GILBERT, *Barphley*.

Phalænopsis Schilleriana.—We have received from Mr. Eden, gardener at Henham Hall, some blooms of this Orchid, to show that they vary somewhat, not only in colour, but in other respects; and it is well that they do so for the sake of variety, all being nearly equally handsome. Mr. Eden states that he has 500 flowers of this *Phalænopsis* open at the present time, one plant, a large one, carrying 150. They are now, he says, in perfection, and, associated with *P. grandiflora*, make a grand display—the admiration of all who see them.

Pitcairnia corallina.—This is a Bromeliad which should be included in every stove collection, its large handsome foliage and the brilliant colour of its inflorescence being certain to please almost every taste. There are two good specimens of it now flowering in the stove at Kew, and we could wish that all those who object to Bromeliads, because of their supposed want of beauty, would go and see these two plants. The genus *Pitcairnia* is, of course, rich in graceful stove plants, but not one of the better-known species approaches in beauty this coral-coloured kind.

Brownea grandiceps.—In large stoves, such, for instance, as the Palm house at Kew, where several fine specimens are to be seen, this *Brownea* is a most useful tree, either when judged by its graceful foliage, which when young is beautifully variegated, or by the enormous size and brilliancy in colour of its heads of flower. A huge truss, quite as large as the largest flower-head of a *Rhododendron* and much more compact, is produced on the drooping ends of the branches, and the colour of the flowers is of the brightest rose. Other *Brownias* are remarkable for the number of their flower-heads rather than for the size of each, but this species stands out as being one of the largest headed and most striking of the rich natural order (*Leguminosæ*) to which it belongs.

Epacris.—A visit to the Enfield nurseries of Messrs. H. Low & Co. would be full of instruction to those gardeners who think a greenhouse well stocked if it contains the usual stereotyped collection of *Camellias*, *Azaleas*, *Pelargoniums*, *Fuchsias*, and *Chrysanthemums*, for there they would see what a host of beautiful and now rare plants, many of them winter-flowering, is contained in the hard-wooded

plant collections of these and other great nurserymen. The *Epacris* are particularly noteworthy in this respect, and they are so easy to grow, so free to flower, and so beautiful when in flower, that the smallest greenhouse should not be without a few of them. As cut blooms they have few equals, as they last a long time in water, and are useful either for mixing with other flowers or when arranged by themselves.

Poinsettias.—What has become of the double *Poinsettia*? We have seen a great many heads of this plant lately—the single form, that is—but the much-prized double variety has been conspicuous by its absence. It is a little surprising that next to nothing has been done in the way of improving, or at any rate obtaining some variety in the forms or the colour of this most useful plant. There is a white one, or what is called such, ready to hand, and it seems to us a very simple business to obtain seedlings from a cross between these two which would probably contain many distinct breaks in the way of colour and shape of bract. In the Tropics the *Poinsettia* is a common wayside plant, or rather tree; and only the other day we saw a painting of a house in Jamaica in which the *Poinsettia* formed a huge bush in front of the house, its large heads of red bracts being particularly glowing.

Lily of the Valley.—I send you a few spikes of this Lily, not so much for their extra excellence as to show how much better and easier they are got into bloom than any of the foreign bulbs which I have had this year. We have been gathering quantities of blooms from them for these last three weeks quite equal, if not better, than those sent. The roots are just lifted from the open and put into boxes that hold about sixty buds. We then give them a good watering, cover them well with Moss, which is kept always damp, and set them on a pretty hot pipe, when they soon come into flower. We prepare the bulbs for forcing as follows: Two years ago come spring a piece of ground was well manured and single bulbs were put in it in rows 6 inches apart and 3 inches asunder in the row; they were well attended to during the growing season, and thus managed we find, as I have said, that they start into growth when placed in heat much more freely than foreign bulbs.

—A. HENDERSON, *Thoresby Park, Olberton, Notts.*

* * The spikes sent were all that could be desired—good in colour and very fragrant.—ED.

Xanthosoma robusta.—The Aroid family may be divided into three broad groups, according as they are (1) beautiful and curiously formed in their flowers, (2) handsomely variegated in their foliage, and (3) remarkable for the large size and noble character of their leaves. Of the first group the *Arisæmas*, *Callas*, and some of the *Anthuriums* are good examples; *Schismatoglottis*, *Diefenbachias*, various *Anthuriums*, and *Alocasias* represent the second; whilst of the third group the handsome *Dendroid*, *Godwinia*, *Amorphophallus*, *Conophallus*, and the *Xanthosomas* are specially noteworthy. In the Palm house at Kew most of the plants here named may be seen in fine condition at various times of the year, but just now the noblest Aroid in the house, and one of the most striking of all plants, is *X. robusta*. The thick stem, rising a foot or so above the soil, bears a whorl of about a dozen leaves, of which the stalks are over 6 feet in length, surmounted by a huge heart-shaped dark green blade. The flowers are developed in the sheathing portion of the leaf-stalk, where they push through one after the other, their stalks being so short that only the white spathe, with its green, swollen, bag-like base, is seen. As one flower (inflorescence) withers another expands; the bag-like portion grows and extends in length, so that a row of green flower-bases or fruits is seen nestling in the sheath of one leaf. The flowering of this gigantic Arum is of rare occurrence, and the singular arrangement of flowers is quite exceptional. On first unfolding there is a delicious Musk-like perfume given off by the flowers, and so powerful is this, that it permeates the atmosphere for a long distance from the plant. This odour diminishes in strength after the first day, till finally, when the white Calla-like portion of the flower withers, a disagreeable smell is emitted from what remains. As a foliage plant for large stoves we know of nothing more noteworthy than this *Xanthosoma*, which at Kew is the object of much admiration.

THE LEIGH, COOMBE WARREN.

This is one of the numerous residences that have been built on the Duke of Cambridge's Coombe Wood estate, a beautiful stretch of woodland, common, and pasture lying between Wimbledon and Kingston, and bounded by Richmond Park. The Leigh was built by its present owner, Mr. Galsworthy, and though it comprises only about eight acres, it is important from a landscape point of view, inasmuch as the most has been made of the natural features of the place. It was laid out by the late Mr. Milner, who wisely availed himself of the fine old Oaks which formed part of the historical Coombe Wood. These old native trees, combined with modern evergreen and deciduous trees, make an extremely pretty garden, particularly that part of it close around the house. You see little glades of turf leading up to a gnarled old Oak, showing it off to the best advantage. There is a broad stretch of lawn on the front side of the house, marred, some would consider, by plots of little geometrical beds and a fountain. It destroys the repose of the lawn and the extensive prospect beyond. This front is shown in the engraving opposite. There is also an iron fence cutting the foreground which has also been omitted in the illustration.

A finer position for the house could not have been chosen. It stands on the highest ground, and you look straight across the valley to the Epsom and Banstead Downs, Boxhill and Dorking, and on a clear day the monument on Leith Hill, some twenty miles distant, can be seen. In all Surrey Mr. Galsworthy could not have hit upon a finer spot for a house; it is surrounded on all sides by woodland, which here overlooks the garden—itsself of secondary importance.

Coombe Wood is celebrated for its springs of the finest water, whence Hampton Court Palace, some three miles distant, was supplied in Cardinal Wolsey's time. The water was taken thence by conduits, but these are now in disuse. There is a quaint old building in the garden, every part of which savours of antiquity, containing one of these original springs, and it is said that it has never been known to run dry. The present owner of The Leigh enjoys the privilege of using the water, which in the hottest weather is deliciously cool.

One of the features of the place, and which is out of the ordinary run, is the intermixture of fruit trees in the ornamental shrubberies. Apples, Pears, Plums, and Cherries flower in company with Lilacs, Barberries, Spiræas and the like, and in autumn, when adorned with fruit, an additional interest is added to the place. In one part, too, there is a pretty piece of Pulham's rockwork embellished with hardy Ferns and a waterfall.

There is a good kitchen garden, and hardy fruits are made a speciality, particularly pyramid Apples and Pears. There are excellent fruit and plant houses. Among the plants there is a remarkable specimen of the beautiful *Rhododendron Veitchi*, 6 feet high by 5 feet through. The conservatory adjoining the house has its roof festooned with creepers, and against the wall are pretty examples of a rock fernery. When these notes were taken the conservatory was adorned with a magnificent group of *Chrysanthemums*, of which Mr. Orchard, the gardener, is a noted grower; in fact, it is one of his chief specialities, and he has won conspicuous success as an exhibitor at the Crystal Palace and Kingston shows.

One word respecting the entrance lodge, which is one of the prettiest that I have seen. Its walls are crowded with creepers. One side is covered with the stately *Clematis montana*, which in flowering time is a sheet of white bloom.

The place was originally known as Coombe Leigh, but has recently been changed to its present name.

W. G.

UTILISATION OF BACK WALLS.

BLANK walls, in plant houses more especially, are an eyesore to many, and in various instances with a little ingenuity on the part of those in charge of them they may be quickly converted into attractive features. In ferneries, plant stoves, and conservatories not a blank wall should be seen, not only because they are unsightly, but also because of the space wasted, the living materials with which they may easily be clothed being both ornamental and serviceable. Modern structures, being built principally of wood, iron and glass, give fewer opportunities for creating pleasing wall effects than older houses with their high side and back walls. On the back walls of lean-to houses and the walled-up ends of many old span-roofed ferneries and plant stoves much may be done with a plentiful supply of virgin cork, this being so disposed over the wall as to form numerous pockets, in which a little peaty soil may be placed for the reception of various Ferns, Selaginellas, fine-foliaged Begonias (the Rex type), Peperomias and Fittonias. At the foot of the wall a few troughs or pans may be

Cissus is at its best or during the summer and early autumn months it is singularly beautiful, such a free mixture of beautiful plants agreeably surprising many visitors. From this wall we are enabled to cut good quantities of greenery for table and vase decoration, and the whole is kept in good order principally with the aid of a syringe and a blind to shade it from bright sunshine. The pot plants require to be repotted every second year and top-dressed in the interval; this, with the aid of an occasional supply of liquid manure, keeps them in vigorous condition. Any of the South African Asparagi are suitable for furnishing walls of warm conservatories, ferneries and plant stoves; in fact, no better position can be found for them, especially if plenty of shade is afforded them during hot weather.

WALLS COVERED WITH FERNS are sometimes to be met with, and these, if well managed, are very beautiful, and yield large quantities of fronds for decorative purposes. The common Maiden-hair (*Adiantum cuneatum*) is one of the best Ferns for this purpose; *A. Capillus-*

over the wall, and, failing these, old plants may be freely divided and similarly used, the roots being firmly fixed in the soil in every instance. *A. venustum* divides readily, and when pricked out on turf-covered walls grows and spreads surprisingly fast, and the same remarks apply to *A. Capillus-veneris*. Some of the other neat-growing *Adiantums* have been tried on walls with fairly good results, but they do not equal those just mentioned. Whatever plants are used preference should be given to those in a small or young state, as these take more readily to their new quarters than older plants, which of necessity undergo rather rough treatment before they are fixed in position. Next to Maiden-hair Ferns for clothing walls, or, by way of a change, I can recommend *Selaginella stolonifera*, *Mertensi*, and *Mertensi variegata*; any of these, or all of them, mixed quite luxuriate in the thin layer of turf, always supposing they never suffer from want of water. Walls may also be clothed with the old *Selaginella Kraussiana*, better known as *S. denticulata*, but this rarely looks well a second season, and is almost certain to overgrow or



The Leigh, Coombe Warren. (Front lawn view)

placed to hold small plants of *Ficus repens*; this neat small-leaved climber quickly spreads all over the wall not occupied with other plants, clinging to the cork even more tenaciously than Ivy would, and all that is necessary is to syringe it frequently and to cut it back closely wherever it overruns the occupants of the pockets. When the walls are extra high and wide, as in a fernery under my charge, it may be advisable to dispense with the cork and hang ornamental or plain terra-cotta pockets at intervals over the wall surface. These pockets are, I believe, supplied by most of the principal flower-pot manufacturers, and they hold sufficient soil to support the plants for one or two years. Our wall is completely covered with *Ficus repens*, but in addition we have also a grand mixture of such handsome trailing pot plants as *Selaginella caesia arborea*, *Asparagus plumosus* and *tenuissimus*, *Smilax*, *Myrsiphyllum asparagoides*, and *Cissus discolor*, while among these are interspersed pockets containing Ferns, Begonias, Peperomias and Selaginellas. Throughout the year this wall is very attractive, but when the

veneris for a cool house, and *A. venustum* for a warm one also succeed admirably on walls. Walls completely covered with *Adiantums* are most effective, but where variety is preferred it is an easy matter to intersperse Begonias, Peperomias, Davallias, such as *bullata*, *canariensis*, *dissecta*, and *elegans*, *Pteris serrulata* and its many forms, *Pteris longifolia*, with *Tradescantias* among them. When this style of clothing walls is attempted, the only difficulties usually experienced are principally securing sufficient small plants for the purpose and in attaching these to the walls. In the latter case all that is necessary is to procure a few yards of galvanised wire netting, such as is used for protection from rabbits, fasten this to the wall with small staples, and enclose at the same time a single thickness or layer of fibrous loam. A stronger network with much coarser meshes would, however, be more lasting, and when this is used it much simplifies the work of planting, there being then no necessity to cut the wire when rather large holes are needed. Seedling plants of *A. cuneatum* are much the best for pricking out thickly all

smother most other plants mixed with it. February and March are the best months for doing this kind of work; if delayed till the sun shall have gained more power it may prove very difficult to properly shade them, for shade they must have, or many of them will fail, and a patchy wall will be the consequence. Until the plants are well established it is a good plan to suspend a few blinds or strips of canvas directly in front of them, and they should also be frequently syringed, especially during bright sunny days. At no time should the turf be allowed to become dry, as this is not easily re-moistened, and a little neglect soon injuriously affects the colour of the plants. They are easily kept properly moistened with a syringe, and well repay for all the time expended on them.

BACK WALLS OF FRUIT HOUSES as well as of forcing houses are frequently utilised, and if not always with very good results, anything is better than having a blank wall constantly before one. Few plants will succeed under the heavy shade of Grape Vines, but there are two noteworthy exceptions, viz., Camellias and the Citron family.

Strange to say, neither are often seen in vineries, yet, with ordinarily fair treatment in the shape of plenty of good loamy soil and water as required, the former slowly cover a wall, and if not always so floriferous as wished for their foliage is more ornamental than a lime-washed surface. Nor are Citrons and Lemons so much grown on walls of vineries and other houses as they might well be. The best examples of the value and beauty of the Lemon for wall decoration I have yet seen are at Cardiff Castle. They are planted at the back of a lean-to vinery, and here they perfect large crops of serviceable fruit, thus ripening in long succession. An old Essex friend of mine owning a small vinery has the back wall covered with a healthy Shaddock. This member of the Citron family is more robust than the Lemon, and might with advantage be selected as a stock for other less robust species, but it is not so fruitful, nor are the fruit so much valued. They grow to an immense size, however, and a dozen of them, near the size of ostrich's eggs, hanging on a tree never fail to create wonder in the beholder. A good loamy soil, such as we give Grapes, suits Lemons, and there is no reason why the back walls of various houses may not be profitably clothed with these or Oranges. Tea Roses where not much shaded will succeed on back walls of forcing houses, and when planted out flower freely all the year round. In cooler houses, with fruit trees overhead, not so dense as Grapes, Tea Roses may be grown on the back wall, and a few plants of the strong growing *Heliotrope Boule de Neige* will afford a capital supply of flowers for cutting. They are best planted out in each case, starvation treatment not unfrequently being the cause of wall plants failing. The semi-double zonal *Pelargonium Guillon Mangilli* is a most profitable sort for furnishing walls, either of warm houses or conservatories, but it must not be shaded overhead. We have plants of it planted against a high conservatory wall which have attained a height of 14 feet; these yield abundance of flowers all the year round, and are wonderfully fine during the summer. *F. V. Raspail* (scarlet) and *Mrs. Arthur Latty* (pink) are good companions for *Guillon Mangilli*, though not quite so free flowering as that invaluable variety. Among the flowering plants that succeed satisfactorily on the back walls of plant stoves the most noteworthy are *Dipladenia boliviensis*, *Rondeletia speciosa*, *Euphorbia jacquiniæ-flora*, *Pomsettia pulcherrima*, *Gardenias*, *Jasminum gracillimum*, and *Bougainvillea glabra*. The last named is still more effective in an intermediate house or conservatory, providing it is assigned a light position, the flowers, or rather the showy bracts associated with the flowers, being of a richer colour in a cooler house than in a warmer one.

TOMATOES are also very well adapted for covering the back walls of light forcing houses, especially those originally constructed for the cultivation of Pine-apples, and now used for other purposes. In most of these the principal path is at the back of the house, and not unfrequently there is a blank wall, from 4 feet to 6 feet in height. The pathway, and it may be some of the hot-water pipes, prevent a narrow raised border being formed for the purpose of growing Tomatoes or any other plants, but in many cases this difficulty may be overcome by the construction of long narrow boxes, say about 3 feet long, 9 inches wide, and 12 inches deep for Tomatoes, and still deeper for any other plants that do not readily take possession of any heavy top-dressings that may be given them. A few of these boxes, blocked up over or on the pipes, do not greatly obstruct the pathway, and the plants thrive in them most surprisingly well. Supposing Tomatoes are planted in them, these should be grown

on the extension system, or, in other words, be encouraged to spread in all directions, crowding, however, being avoided by the timely removal of all surplus growths. In this manner every plant soon sets a great number of fruit, some of which may well be removed when large enough for pickling. In addition to frequent supplies of liquid manure, the plants also require occasional top-dressings of loam and manure in equal proportions, and each time the latter are given it may be necessary to add a rim to the box, this being made not less than 4 inches deep and to fit exactly on the top of the box, one end being nailed together after the rim is placed in position. Under this treatment the plants remain in a fairly vigorous and fruitful condition for a long time; and I have known instances where they have been thus maintained in a profitable condition for upwards of two years, each plant occupying a wall-space about 10 ft. by 5 ft. The variety in this case was the good old Dwarf Orangefield, and other somewhat small-fruited sorts, such as *Chiswick Red*, *King Humbert*, *Vick's Criterion*, *Queen of Tomatoes*, *Nisbet's Victoria*, and *Sutton's Abundance*, are well adapted for this method of culture. Where Tomatoes can be planted in a narrow border and a fairly rich compost they thrive amazingly; and I have seen high back walls of newly planted vineries and low back walls of three-quarter span-roofed houses perfectly clothed with them, the plants remaining in full bearing for many months. Near here there is a new vinery wall covered with plants of *Tomato Reading Perfection* that have been in full bearing for nine months, and several pounds of fruit have been cut since Christmas.

W. I. M.

FRUIT GARDEN.

FIGS IN POTS.

ALTHOUGH the weather since the early trees were started in December has been the reverse of favourable, aided by a steady bottom heat, fair progress has been made, and young fruit and foliage already show signs of rapid development. This advance is, however, almost entirely due to the influence of artificial heat from fermenting leaves and the hot-water pipes combined, as we rarely see the sun; consequently the foliage is pale and less dense than we sometimes see it at the end of January. Frost, moderately severe, still continues, and, judging from the dense, heavy state of the atmosphere, more snow may be expected before we can look for really good forcing weather. These conditions, to all with the exception of gardeners who are forcing against time, are seasonable and acceptable, as they are retarding our outdoor blossoms which were getting too forward. A good time is, however, in store for us, and those who can exercise patience and rest content with steady progress until the clouds roll by will be the gainers in the long run. Let forcing then be carried on by day by raising the pits up to the maximum heat once in the twenty-four hours, ply the syringe sparingly, if spider can be kept in check without its aid, and carefully avoid having the foliage wet when the heat descends to the minimum at night-fall. Pay particular attention to the bottom heat by turning the beds at short intervals and add fresh leaves from the reserve as they are required, for after all that has been said for and against it there is nothing that can compare with bottom heat from a good bed of decaying vegetable matter which is constantly supplying the occupants of the pit with warmth, food, and moisture. Many advanced Orchid growers have arrived at the conclusion that incessant, nay, moderate, syringing is injurious in winter, and

fruit growers will do well by taking a leaf out of their book, particularly during a continuance of this dark, dull weather. As days increase in length and brightness the copious syringing of fruit trees under glass becomes absolutely necessary, but then there is a possibility of carrying it too far when gentle moisture is constantly, if imperceptibly, rising and floating through the foliage.

STOPPING, THINNING, AND TYING.—When pot trees have attained their full size and stopping becomes necessary, the young shoots that evince a tendency to free growth may be pinched once at the fourth or fifth leaf, for the twofold purpose of throwing strength into the lower parts of the trees and securing second growths for producing a successional crop of fruit. Others, less luxuriant, checked by the swelling fruit, not unfrequently run out a few inches, and form elongated spurs with bold, plump points thickly studded with embryo Figs at the base of every leaf. These should not be pinched, as the fruit they produce generally stands and finishes well; but side shoots, or weak spray which starts from their base, should be closely stopped or cut out to a single leaf to let in light and air, so essential to colour and flavour in early-forced Figs. As well-ripened trees generally show more fruit than they can possibly carry to maturity without endangering the whole of the first crop, thinning should be commenced as soon as the finest and best placed for ripening can be decided upon. There long prevailed an idea that every fruit should be left on trees groaning under their load to allow for dropping, but this theory is now exploded, and, other conditions being right, growers who thin well and early rarely have to complain of their best fruit falling when it ought to be commencing the last swelling.

WATERING AND FEEDING are two important operations in good Fig culture; indeed, irregularity, which is closely akin to neglect, next to overcropping is one of the most common causes of failure. Rich turfy loam, saturated with liquid, and good rotten manure, should therefore always be kept on hand for top-dressing the pots with. This in course of time draws the roots upwards and over the sides of the pots into the decaying leaves, when fruit of the finest quality can always be relied upon, as the trees then have at command an endless supply of food should the regular watering of the pots with diluted liquid at any time be neglected.

SUCCESSIONAL HOUSES.—When, as I have often advised, several compartments are devoted to Fig culture, the second house should have been started early in January. If the trees are planted out in well drained, confined borders, with convenience for applying bottom heat, there is no reason why they should not be started with, or immediately after, the pot trees and be allowed to come on slower, as annual root pruning and division of the borders with brick walls is neither more nor less than pot culture on the extension principle. Planted-out trees should be gradually and thoroughly moistened with warm water before any attempt is made to excite them; they should then be liberally assisted through the early stages with fermenting material placed in the divisions as well as on the surface of the borders, and the syringe must be freely plied to the stems and walls when parching fire heat becomes necessary. When fairly started a temperature suitable to early Muscat Vines will suit the trees, that is 50° to 56° by night and 60° to 65° through the day with a rise to 70° after the house is closed with sun heat. No hard and fast line must, however, be drawn, as there are times when a few hours' bright sun will run the house up to 80° without the aid of fire heat, while at

others—the present to wit—with the external temperature standing at 25° the minimum heats here given will be quite high enough.

MID-SEASON AND LATE HOUSES from which frost can be excluded must now be pruned and tied in, if this work has hitherto been put off for other matters more pressing. The Fig under glass being so subject to scale, spider, and bug, let every tree be well washed with strong soap water, lime-wash the walls and paint the trellis and wood-work. These measures will generally destroy the first and second, but bug, which is quite as troublesome in the Fig house as it is amongst Vines, must be more carefully dealt with. The best remedy for this is the tar mixture, half a pint to a gallon of finely sifted earth thoroughly mixed and reduced to the consistency of paint with warm water. This mixture may still be applied to the old wood; but it is now getting rather late to paint the young shoots on which the embryo Figs are already becoming prominent. As powerful insecticides cannot be applied to trees when the sap is moving, it may be well to warn the inexperienced and to suggest washing the young wood twice over in preference to painting.

TREES IN COLD HOUSES and wall cases must be kept dry and as far away from the glass as possible. The seasons since 1881 having been unusually mild, the principal precaution has been abundant ventilation to keep the trees in check, but the return to frost and snow may yet render protection of some kind necessary. Trees against back walls can easily be covered with dry Fern or straw, which may remain until the usual period of great severity is over. Others planted against the front lights and trained under the roof should be unfasted and drawn down as near to the floor as possible, where for better security dry Bracken or frigi-domo can be placed over the branches.

PROPAGATION OF THE FIG.—The propagation of the Fig, like that of the Vine, is extremely simple, and, like that accommodating plant or tree, fruit-bearing bushes can be grown in one season. Where the old-fashioned many-stemmed trees exist against walls a few rooted suckers are often detached and potted, or grown on against walls until they come into bearing; but the best and surest mode of propagation is from single eyes or well ripened cuttings. If a quantity of choice varieties are wanted and stock is scarce, eyes should be made, inserted in small pots and plunged in bottom heat, where they can be grown on under pot Vine treatment. If, on the other hand, stock is plentiful and only a few plants are required, well ripened cuttings will perhaps best answer the grower's purpose. Firm, short-jointed pieces of wood with a good terminal bud and a heel, or an inch of the two-year-old wood attached, may now be put in, although three weeks earlier would have been preferable. Like the Gooseberry and Currant, all buds near the base of each cutting should be removed to prevent the growth of suckers, as a clean single stem is now imperative. The cuttings will then be ready for inserting singly in 4-inch pots and plunging in bottom heat. The latter should range from 75° to 85°, and in order to prevent the terminal bud from bursting and exhausting the cutting before young roots are formed, they should be kept close to the glass in a mean temperature of 60°. When well rooted, raise the heat of the pit to 60° or 65° by night, 70° to 80° by day, and make preparations for repotting. The Fig being a gross feeder, pots from 7 inches to 8 inches in diameter will not be too large for the first shift, provided the compost is warm and the plants are at once returned to the bottom heat. As soon as they have filled these pots with roots and the young growths

require more head room, lower the bed by the removal of some of the plunging material, and pinch the points to induce the formation of side shoots. Ply the syringe twice a day, keep the roots well supplied with warm diluted liquid, and shut up early with sun heat. As soon as the side shoots, which start from what was the terminal bud, have grown a few inches, press them down with the hand to give a horizontal inclination, and, provided the roots are not matted, get as much growth as possible before they are again shifted.

IF PYRAMIDS, the best of all forms, are wanted, place a stick to each plant and train up the fresh break from the central shoot until it in its turn is high enough for stopping. While this growth, which should not exceed 12 inches, is in process keep an eye to the first set of side shoots, and pinch any that are taking too strong a lead to the detriment of the others. When under high culture the framework of the pyramids is properly formed, shift into 10-inch pots and re-plunge, but gradually raise the pots to the surface when the roots have taken to the new compost. By constantly pinching and feeding, good-sized trees can be made in one season; but it is not wise to pinch after the beginning of July, otherwise there may be blind points, and this is the reverse of what is wanted, as every shoot should be furnished with a good terminal bud when the trees, under cooler treatment, go to rest for the winter.

BUSH TREES, always useful for filling up the front rows near the glass, can be made in precisely the same way, only there is no necessity for a trained leader. If four to six shoots of equal strength can be secured, they may either be allowed to ripen their terminal buds the first season, or by keeping them in heat they may be pinched once and ripened off when the second set of shoots have formed good terminals. Although the Fig is a most accommodating tree, and can be kept growing for a long time, late pinching should be avoided, as it is better to have a moderate-sized bush with good buds than one that is larger and will require shortening back before it is again started.

COMPOST.—Notwithstanding the fact that the Fig can get its own living out of anything, from a bank of rich loam to a crumbling limestone wall, provided the roots are not immersed in stagnant water or parched up with thirst, there exists no doubt that some soils suit it better than others. Where rather light calcareous or sandy loam exists, turf cut from an old sheep pasture or roadside, and stacked for a time to mellow, will be found the best material for forming the main staple of the compost for potting or planting out over good drainage. Materials for correcting or enriching soil that is too heavy or too poor will be found in old lime rubble, burnt clay, pounded bricks and bone dust, and unusually poor soils may be enriched with finely broken dry cow manure, or the remains of an old Mushroom bed. Manures are not, however, recommended, as they encourage worms and become sour, if they do not cause young trees to grow too fast at the outset. The compost should be mixed some time before it is wanted, and if laid where it can be kept dry and warm, the bone will gradually dissolve, and it will always be ready for use. Clean pots and drainage are, of course, always used by good growers, and the latter should be freely used, as pot trees take an abundance of water, which should pass away quickly, and never remain stagnant about the roots.

W. COLEMAN.

Eastnor Castle, Ledbury.

Our crop of Pears was a light one last season, but it is several years since I knew so few vagaries amongst them. We commenced in the case of

autumn sorts with Williams' Bon Chrétien; then followed Brockworth Park in excellent order. Louise Bonne of Jersey came next, and Doyenné du Comice followed quickly after, the fruit of this being very fine and clear. The next to ripen was Althorp Crassane, a small green fruit with a white melting flesh, of fairly good flavour, and the tree is a regular and prolific bearer. Comte de Paris only gave us a few fruits; this Pear is not much grown, but its quality is excellent. At the beginning of November Marie Louise came into use in fine condition. Next to be fit for table was Beurré Diel, very fine in appearance, and for our strong soil fairly good in flavour. Winter Nelis followed quickly, which, though small in size, was equal to any in flavour. Josephine de Malines is just now ready for table, and this will close the season with us earlier than usual, as the trees of Beurré Rance and Ne Plus Meuris failed to produce any fruit. Beurré Superfin and Huyshe's Victoria also failed completely. The crop was, as has been stated, a thin one, yet, considering how few fruits each tree bore, the supply has been kept up without a break. This is unusual, for Pears, as a rule, are so irregular in ripening, that after the beginning of November one cannot rely upon any sort becoming ripe at its proper season.—J. C. C.

CANKERED APPLE TREES.

I HAVE read "W. G. S.'s" remarks on this subject (p. 83), and believe that he is quite right in stating "fungus to be an after result, and not the cause of canker." This is a subject of very great importance to all growers of hardy fruits; and, moreover, it is one on which much difference of opinion still exists. Even careful observers have come to the conclusion that insects are the cause of canker. That they may be found on cankered portions is quite possible; they congregate plentifully where there is space between the decaying bark and wood, but after careful investigation I have come to the conclusion that canker on the old wood is caused by the roots getting down into unsuitable subsoil. Canker in the young wood is probably caused by circumstances in some cases beyond the control of the cultivator. The wood may be badly ripened, owing to a cold summer and autumn, and when this is followed by late frosts the following season the sap vessels become ruptured, and canker is generally the result. On the other hand, the young wood may be badly ripened from causes quite under control. Badly drained or undrained soil is a fertile cause of un-ripened wood.

THE CURE OF CANKER is usually not difficult; I have frequently cured it. Mr. Reid, gardener at Balcarras, in Fifeshire, fifty years ago, found that in a cankered orchard the roots of the trees had entered the earth to the depth of 3 feet, and from experiments he ascertained that during the summer months the average heat of the soil at 6 inches below the surface was 61°, at 9 inches, 57°; at 18 inches, 50°; and at 3 feet, 44°. He, therefore, took measures to confine the roots to the surface soil, and the consequence was the disappearance of canker and the ripening of the fruit. Perhaps no gardener studied this subject more than the late Mr. Robert Thompson, of Chiswick, and the following is a summary of his experience as to the cause of canker: "Sudden checks to the tree, especially in spring and early in summer, derangements of the flow of sap from vicissitudes of heat and cold as well as moisture and dryness, unskilful and severe pruning, and vitiation of the sap by deleterious substances in the soil or subsoil."

THE PREVENTION OF CANKER is far more important than its cure, and that it can be prevented to a large extent I am quite certain. In the first place, the soil ought to be well prepared for the trees by draining and trenching. The drains should be cut 3 feet deep, and the trenching 2 feet or even 2 feet 6 inches, if the nature of the

soil well admits of it. In planting the trees keep the roots up near the surface, and mulch round the stems with decayed manure to encourage them to remain there. In two years I would again trench the ground, lifting the trees as the work progresses. Young trees thus treated will grow and fruit well for twenty years, and show little or no traces of canker. If the ground has become partly exhausted by old trees, some fresh loam should be added round the roots at each time of planting. Some trees are more liable to be attacked than others, the Ribston Pippin, for instance, and, if attacked by canker, root-pruning will cause the disease to disappear. By root-pruning, I mean digging a deep trench round the trees and working under the bole 18 inches or 2 feet under ground, cutting through all roots that run into the subsoil. JAS. DOUGLAS.

COST OF FRUIT PRODUCTION.

THIS is a subject connected intimately with the cost of gardens, as written about by "W. I." The fruits which it pays to grow in a garden are Grapes when done fairly well, Melons, Peaches under glass, Strawberries, forced and in the open air, and other small fruits. It pays also to grow Apples, Pears, and Plums on the old orchard system, provided the sorts are well selected and a market can be found for the spare fruit; but it does not pay to produce these in orchard houses, or on trees cultivated and trained in a manner that requires much labour. Grapes and other select fruits are not usually grown on a larger scale than they can be taken care of and used, but it is otherwise with Apples, Pears, &c. I have in my possession the correct account of the Apples, Pears, Filberts, Walnuts, Chestnuts, Bananas, &c., supplied to the establishment of a nobleman who entertains about the average number of visitors at the shooting and sporting seasons and other times, and provides daily a first-class dessert on an abundant scale. None but the best picked foreign Pears and Apples have been used during nine months of the past year, the three months being deducted for the London season. The dessert fruit is supplied by a fruiterer as wanted, in small quantities at a time, just as the fishmonger supplies the fish, so as to have no losses by having any of it left on hand when the proprietor pays return visits to his friends, and the amount paid for the last year for the fruits named above is about £30; last year it was a little more, but under £40. Of course, abundance of good Grapes is supplied nearly all the year from the home garden, as also Peaches, Nectarines, Melons, Figs, Plums, Strawberries, &c.

Really only a small quantity of any one kind of fruit is eaten at one time at dessert, when there is a good variety of fruit set up. Thus, when there were perhaps twenty-four people dining, a good full dish of each kind of fruit would have to be set up the first night, but much less afterwards, as only the quantity had to be replaced daily that had been consumed the day before. The establishment to which I refer is no exception. In others, larger and smaller, the actual consumption is just in proportion, and disproportionately small to the extent of the fruit garden. My opinion is that gardeners have hitherto, as a rule, taken far too little note of such matters as these, and in consequence paid far more for the production of Apples and Pears than there was any occasion for. In good seasons at least too much fruit is produced and wasted. In two large ducal gardens, where the writer once was, not a tithe of the Apples and Pears went to the mansion, but to the rubbish heap or the pigs. Large and expensive fruit rooms were provided where the fruit was stored, and from the day it was put in till it was all gone it was a weekly

job to go over and pick out the rotten fruit, and remove them in a wheelbarrow, little or none being given away and as little sold sometimes, because no good market was near. The rubbish-heap was the final destination of much of the fruit from the finely trained trees that so much time and money were spent on annually. Now-a-days, gardeners are more alive to their employers' interests, but in the extravagant days of old this description of the state of things had a pretty general application. Every year the supply of Apples and Pears from abroad becomes more abundant and cheaper, and the more difficult will the private gardener find it to compete with the market unless he alters his plans and his practice, estimates accurately his wants, and provides accordingly. CHEF.

WINTER DRESSING PEACH TREES.

IN THE GARDEN (p. 54) "J. C. C.," writing on this subject, strongly advocates the desirability of securing thoroughly ripened wood. There can be no doubt of the importance of this point, especially in respect to outdoor cultivation. It is, in fact, the one point of all others most essential to ensure success. With well ripened wood to commence with, a good or a fair crop of fruit may be obtained, even if other conditions should prove unfavourable; but with unripened wood to start with failure must ensue, let all other circumstances be ever so propitious. "That nothing does more towards securing well ripened wood than unnailling the branches and letting them hang loosely from the wall" is, however, an assertion which should not, I think, be allowed to pass unnoticed. Unnailling the branches may assist in a slight degree towards this end, but that it is so important an operation as here represented, or that it is at all equal in this respect to some other details of cultivation, may, I think, be fairly questioned. To be of any service at all, it should, I think, be done in the autumn, and not deferred till January, as recommended, for the simple reason that wood not ripened before the latter date is not then likely to be improved by either this or any other proceeding. And as to the liability of injury from frost, if the young wood is in that stage of ripeness by November which is necessary, and if the roots are well cared for scarcely any amount of frost will injure them, whether against or away from the wall. Wind does, no doubt, act a necessary part in the ripening process, but its influence is chiefly, if not wholly, exerted while the foliage is yet green and active in the late summer and autumn months. Loosening the branches of Peach trees, however, whether in leaf or leafless, is in breezy situations very risky, and frequently results in more harm than good, from injuries received by being blown against the wall. They could, of course, be secured by stakes, but then the influence of the wind would, to a great extent, be neutralised. Also, when away from the wall, they are not exposed to so high a temperature as when in contact with it, which, after all, is as potent a factor as wind in the ripening process. In respect to winter dressing Peach trees, "J. C. C." advocates the disuse of it altogether, at least on outdoor trees, the reason assigned being the fear of supposed injury to the trees. This appears to me to be an insufficient reason for discontinuing this preventive operation, and is, I venture to think, calculated to mislead the inexperienced. That winter dressings do destroy innumerable hosts of insects there cannot be a doubt in the mind of anyone who leaves his trees undressed for a few successive years, during which time scale, one of the Peach tree's worst enemies, will be increased to a fearful extent. That it can be more easily destroyed at this season than when

the trees are in active growth is also certain, and if the supposed or anticipated injury accruing from winter dressings be placed in the one balance, and the well-known injury committed by this insect alone be placed in the other, the comparison will, I think, be sufficient to justify the continuance of the practice in some form or other. Almost every gardener has his own pet recipe and method, and that some of them are absurd and probably injurious to some extent is no good reason why the practice, in a better form, should be abandoned altogether, and so long as the trees are not appreciably injured thereby, and insects are thus kept in check, by all means let us continue these winter dressings. The method I have adopted since paraffin was found such an excellent insecticide is simply to mix 2 ozs. to a gallon of water, and syringe over every portion of the trees, as well as the wall, taking care to see that the oil is well mixed with the water in syringing. This method is comparatively cheap, it is quickly done, the insects are as quickly done by it, and, as far as I have been able to discover, it is in no way detrimental to the trees. W. C. T.

AUSTRALIAN FRUITS.

As attention has lately been directed to what American cultivators have accomplished in way of improvement of hardy fruits, it may interest your readers to know that in some of our Australian colonies efforts are also being made in the same direction, with apparently gratifying results. I few years ago I sent a parcel of grafts of British Apples and Pears to Mr. Geo. Neilson, secretary of the Horticultural Society of Victoria, and, notwithstanding the long voyage and the difference between the incidence of the seasons in Britain and Australia, a number of the varieties sent retained their vitality, and were successfully propagated on their arrival there. As a return favour, Mr. Neilson sent me a parcel of scions of hardy fruits raised in Australia, comprising ten varieties of Apples, twelve Pears, two Plums, three Cherries, and four Crabs. Unfortunately, the consignment failed to reach me, so that I have not had an opportunity of testing their adaptability to our climate, but the following extracts from Mr. Neilson's letter will give an idea of the progress that had at that time been made in producing a race of fruits suited to the climate of Victoria. Of the Apples sent, the following four varieties were particularly recommended by Mr. Neilson, viz.: Bunce, a kind raised by the late Dr. Bunce, of Geelong. It is of the type of Adam's Pearmain, but a great improvement on that variety. Prince Bismarck, described as one of the largest Apples known. It is of the type of Emperor Alexander, but much larger and handsomer. It is an early and free bearer, and a good keeper. (Is this the Prince Bismarck shown in one of the English collections at the recent Edinburgh Congress?) Shepherd's Perfection, a handsome, free-bearing dessert Apple, and a good keeper. Fruits of this were sent by Mr. Neilson to the last Paris Exhibition, and the same fruits were afterwards sent to London in good condition. Prince's Pippin, one of the handsomest dessert Apples in Victoria, and of excellent quality.

The following varieties of Pears had all been raised by Mr. Cole, of the Yarraberg Nurseries, and had obtained numerous prizes and certificates, viz.: Beurré Cole, April Bergamot, Beymont, and Cole's Seedling, raised from seed of the Winter Nelis. Calebasse Cole is a cross between Winter Nelis and Beurré Bosc. Jessie Bonne, a seedling from Louise Bonne of Jersey. Madame Cole, raised from Winter Nelis, crossed with Beurré Clairgeau. "You will find it," says Mr. Neilson, "unrivalled by any Pear in Europe, that is, if your climate does not change its Victorian character." T. C. Cole, raised from Winter Nelis crossed with Marie Louise. Autumn Beauty, raised from Flemish Beauty. Blanche, raised from Williams' Bon Chrétien. Mother, a variety of great excellence, raised from Williams' Bon Chrétien. And Cole's No. 2, raised from Winter Nelis crossed with Flemish Beauty.

The four Crabs, named respectively Bowen, Barkley, Dawling, and La Trobe, had been raised from the Siberian Crab, and were described by Mr. Neilson as the handsomest fruits grown in Victoria. Among Cherries, Twyford (Bigarreau), also raised by Mr. Cole, was said to be unequalled by any Cherry in the Bigarreau class. Mr. Cole evidently bids fair to become to Australia what Van Mons, Esperen, Diel, Knight, and Rivers were to Europe, and what he has done shows what can be accomplished by a single individual, in a few years, when actuated by an enthusiasm for improvement.

JAMES GRIEVE.

Pirig Park, Edinburgh.

THE FORGE APPLE.

THIS Apple was grown in almost every orchard and garden in Surrey when I was a boy, and when I went to reside in Sussex I found it quite as extensively grown there, and so it is about some of the Kentish villages bordering on Sussex. It is, however, doubtless a Sussex Apple. I always thought so highly of this Apple, that I introduced it into Somerset some few years ago, but I regret to say it does not take kindly either to the soil or the climate. Although the trees make good growth they do not bear well, and the few fruits which they produce run small and are badly formed, but such as we have will keep sound until the beginning of March. The only fault which this Apple has is its size; it does not grow large enough to make a good marketable sort, but those who know its merits as a culinary fruit overlook that defect. It is the most delicately flavoured kind in its season; it possesses just enough acidity to make it pleasant. I do not quite agree with the statement that the tree requires but little pruning. When grown as a standard the head gets overcrowded with weak spray, and, as a consequence, the fruit is smaller than when the growth is properly thinned out. It forms a naturally low-spreading tree when grown as a standard, and unless the head is kept moderately thin it bears fruit so freely that it quite exhausts itself, and requires the next year to recoup its strength. This is the reason why cottagers who grow it say that it only bears every other year. The fact is the tree is such a good cropper, and generally so over-burdened with fruit-bearing branches, that it cannot bear regularly; but when the bearing surface is reduced according to the strength of the roots, it bears as regularly as any other Apple. I have also seen some very good espalier trees of this sort, and with me it makes handsome pyramids. It is said to have originated near East Grinstead.

J. C. C.

NOTES ON THE FRUIT GARDEN.

Spotted Apples (H.).—The small dark-coloured rings or circular blotches on the Newtown Pippin Apple which you have sent us are caused by a fungus which grows beneath the membrane of the fruit. The name is *Cladosporium dendriticum*; the variety which causes the distinctly circular spots is termed *orbiculatum*. All circular spots, dark rings, and blotches on Apples are not, however, necessarily caused by this fungus.—W. G. S.

Liquid manure for bush fruits.—In no instance have we found liquid manure to be more beneficial than in the case of an old Gooseberry and Currant quarter, which has had no other manure for the past four years. Nevertheless, during that time the trees have yielded excellent crops. They receive a thorough drenching of the liquid during dry

frosty weather in winter, and when mowing commences in spring a layer of Grass from the lawn is placed between the trees. This keeps the ground moist during summer, and also assists in keeping down weeds. E. B. L.

INDOOR GARDEN.

BILLBERGIA BREAUTEANA.

HORTICULTURALLY, the genus *Billbergia* is the most important of the Bromeliad Order, on account of its containing a large number of noble flowering plants, most of which are also ornamental in the form and colours of their foliage. There are, of course, other Bromeliads besides the *Billbergias* which possess powerful claims to popularity as handsome flowering or foliage plants, many of the *Pitcairnias*, some of the *Tillandsias* and *Vriesias*, most of the *Caraguatas* being noteworthy in this respect. As winter flowering stove plants many of the members of this family are exceptionally valuable, although they have not as yet forced themselves into prominent notice with



Billbergia Breauteana.

English horticulturists, notwithstanding their popularity in many Continental gardens. This latter fact is abundantly testified to by the many new species that are introduced annually into Belgian and French gardens, and by the prominent place they are awarded in the illustrated gardening and botanical periodicals of those countries, where, in fact, the taste for Bromeliads, the competition for the possession of the choicer, rarer kinds is almost, if not quite, on a par with the keen interest displayed in this country for Orchids. Tastes differ, no doubt, but that fact does not explain the wide difference observable between English and foreign gardeners in their admiration for Bromeliads. In the accompanying illustration we have one of the most striking of the *Billbergias*, which has been obtained by M. Ed. André by crossing two of the finest species, viz., *B. pallascens* and *B. vittata*. Both parents are first-rate blooming plants, and in their offspring all their best characters are

combined. The habit of the plant is shown in the woodcut, but the brilliancy of colour and the large size of the inflorescence are almost beyond description. The flower-stalks are drooping and are of a rich indigo colour; the lower half bears large boat-shaped bracts, 3 inches long by 1½ inches wide, and coloured a light scarlet; above the bracts are the tassell-like bunches of long flowers, which have blue petals, rosy sepals, and bright orange anthers. The whole spike measures nearly 2 feet in length, and almost the whole of it is clothed with bracts and flowers. It is usual for the *Billbergias* to develop only one, rarely two spikes together, but in this hybrid as many as five have been produced from one tuft. The flowers are developed in the winter months, and remain in perfection about a week. B. W.

NERINES IN GUERNSEY.

N. FOTHERGILLI MAJOR flowers with us in September. It pushes up tall, nearly round flower-stems, surmounted by large heads of bright scarlet flowers. It possesses when in bloom more foliage than some varieties; it is long, broad, and dark green. This variety, which is one of the best, does not produce seed with us.

N. SARNIENSIS, the Guernsey Lily, has, as is well known, deep rose-coloured flowers, which are produced before the foliage makes its appearance. The latter is long, narrow, and of a bright green colour.

N. ATRO-SANGUINEA is a hybrid between *N. Planti* and *N. flexuosa*. Its charming flowers, which are blood-red, are produced on rather short, thick stems before the leaves appear. The latter are short and of a light green colour.

N. UNDULATA.—This has small pale pink flowers, which form a rather thin umbel; their segments are narrow, recurved, and undulated, and the foliage is long and grassy.

N. ELEGANS CÆRULEA (O'Brien).—A hybrid raised between *N. pudica* and *N. Planti*. It produces heads of fine large crimson flowers, with a tinge of blue in them, and set on tall stems, which appear before the foliage. The latter is long, narrow, and pale green.

N. PLANTI.—This is one of the best of Nerines. It has fine heads of cherry-crimson blooms borne on tall, erect stems. The leaves, which are long and narrow, resemble those of *N. sarniensis*.

N. PUDICA.—The flowers of this are white, tinged or striped in the middle of each petal with deep rose. The stem is small and rather weak. The leaves, too, are small and narrow—a very pretty kind, but rather delicate.

N. CORUSCA MAJOR.—The heads of this, which are large, are bright orange-scarlet, and produced on stout, erect, rather flat stems before the foliage appears. The latter is short, broad, and pale green. Seeds in the case of this kind are produced freely. It is certainly one of the best of Nerines. It blooms freely in October, and sometimes continues till the end of November. Some say this variety is the same as *N. Fothergilli major*, but I find them to be quite different in several respects, particularly as to time of flowering, foliage, and seeding.

N. FLEXUOSA.—This has pretty heads of pale pink flowers, with a stripe of deeper colour running through each segment. The individual flowers are not erect, as in most of the Nerines; on the contrary, they are rather drooping, while the segments are all turned upwards, leaving the stamens protruding. The flower-stems, which are rather short, do not appear till the leaves are nearly full grown. The latter are long, arched or curved, and bright green in colour.

N. MANSELLI.—This variety we have had now upwards of five years and we consider it one of the best, if not the best, of all the *Nerines*. It begins to bloom towards the end of November and continues till the beginning of January. Its bulbs are large and strong, and it is free in flowering. The pot which we have of it contains six bulbs, all of which have bloomed this season. The largest bulb, I may state, has done so four years in succession; the second in size two years. Its flower-heads, which are large, each contain from ten to eighteen flowers, which are of a beautiful clear rose colour, and are borne on strong stems about 2 feet in height. Its flower-spikes begin to show themselves when the leaves are about 6 inches long. The latter, which are slightly glaucous, are long, broad, and abundant. I am of opinion that this variety is a hybrid between *flexuosa* and *corusca* major. With the varieties just enumerated we have had *Nerines* in bloom from the middle of September till the new year set in; their names are placed in the order in which they bloomed with us this season. We have also the following varieties, but they have not yet bloomed with us, namely, *N. pulchella*, *rosea*, *venusta*, *curvifolia*, *humilis*, *angustifolia*, *amabilis*, *japonica*, *Fairy*, *elegans*, and *elegans carminata*.

As to cultivation, as soon as the bulbs have done flowering we place them on the front shelf of a warm greenhouse to get as much sun and light as possible, giving them plenty of water till their growth is matured. When the leaves begin to turn yellow we gradually withhold water, till when the bulbs get ripe we discontinue it altogether, but we expose them still to sun and light. In July we repot those which require it; as a rule, however, we do not repot till the pots become filled with bulbs (unless we wish to increase our stock), but only top-dress with good loam, well rotted manure, and a little sand. When potted or top-dressed we give a little water, and gradually increase it as the bulbs make growth. They are placed in a cool greenhouse after they are potted, and plenty of air is given till they come into bloom, when they are removed to the conservatory. E. PETERS.

The Gardens, Somerset Terrace, Guernsey.

EUPHORBIA JACQUINIÆFLORA.

THIS *Euphorbia* blooms in winter, when flowers are most in demand, and its flowers are amongst the best that can be used in a cut state. Moreover, the plant, even in its most vigorous condition, does not grow to an inconvenient size. It looks well trained round a pillar, and will succeed on a back wall; but when occupying such a position the house, if a lean-to one, should not be lofty, or the lower portion of the plant will not get light enough to keep it in a healthy condition, or the flowers sufficient to give them that brilliant colour for which they are so much prized. On the contrary, if the house happens to be low with a hip-roof it will suit in every way, especially during the blooming season, as this form of roof will give the light required. Against the end of a house of any form, particularly if there is a portion of it glass, this *Euphorbia* will be equally at home. I feel the necessity of speaking fully about the position affording light enough for the guidance of those who have not had much to do with the cultivation of this plant, or who may not have tried it otherwise than in the ordinary way of cultivation in small pots. Plants of it intended to occupy any of the positions noticed should be strong and vigorous, such as have been flowered one or two seasons in pots. Small newly-struck examples are not

likely to succeed, as the tops, to begin with, will be too far from the glass to admit of their getting sufficient light to promote the right kind of growth which is required from the commencement. In fact, the bigger they are the more likely are they to succeed. This *Euphorbia*, even in its strongest form, makes but few roots; consequently when planted out the space allotted to it must be much smaller than that which would be required by most plants. The bottom must have plenty of drainage material, with means for the water to get away after it has passed through the soil. Good fibrous loam suits it, mixed with sand enough to keep it open.

THE BEST TIME to plant is just as it breaks into growth, after the flowering points of the shoots have been removed when the bloom is over. The loose soil of the old ball should be got away, but not to an extent to injure the roots, which ought to be loosened out so far as can be done without much disturbance, as from their shy nature they are slow in making good any injury they receive. No more water must be given than is needed to prevent the soil getting too dry for the roots to act in it until the plants have got fairly into growth, and even when shoot extension is going on freely it must never be applied with an incautious hand. During the summer syringing overhead in the afternoon will be beneficial. By midsummer if all goes well the plants will be in full growth, and will be benefited by the frequent use of manure water. The growth forthcoming should be greatly in excess of that which the plants make when grown in pots, both in the strength and number of the shoots, which should be allowed to project from the wall, and not kept tied in any more than may be necessary to furnish the available space and keep the plants in position. Towards the end of summer, when the growths cease to lengthen, give less water, keeping the soil somewhat drier than required by most stove subjects, and maintain this condition through the winter, during which time every shoot will produce a dense spray of the vivid scarlet flowers for which this *Euphorbia* is so remarkable. After the points of the shoots have bloomed fresh growth will break lower down on the current season's wood, yielding a second crop of flowering sprays much more numerous, but not so large individually as the first. As these begin to go off, allow the soil to get nearly dry, giving no more water than needful to keep the leaves from flagging; then shorten the shoots as far as necessary; they may be reduced to the extent of from one-half to two-thirds of the length made the preceding summer. Keep the soil in what may be termed a half-dry state until the plants have broken fairly into growth, when more water may be given, but it is necessary to still have the soil in a somewhat drier state than most stove plants require until the shoots have made considerable progress. It is between the time of the completion of the flowering and the plants getting fairly into growth again that they usually go off. As much of the surface soil as can be removed without disturbing the roots should be taken away each spring, replacing it with new. It will be necessary to apply manure water more freely after the first summer, so as to maintain the fertility of the bed; concentrated manure sprinkled on the surface at intervals through the growing season will answer the same purpose, as it will get washed down to the roots in the operation of watering. Plants of this *Euphorbia* treated as advised will last for a number of years, after which all that is necessary is to replant, at the same time clearing out the bed and re-making it with new soil.

PILLARS may be covered by plants in pots, care

being taken not to give too much root-room until the plants are strong enough to bear it. I have never found that this *Euphorbia* is in any way difficult to manage, except that it will not bear the soil being kept so moist as most other stove subjects, except during the season of active growth. Anything in the way of serve-all-alike treatment with the water-pot, from the time that the flowering is nearly over until the spring after the plants have again got fairly into growth, is almost sure to end in their destruction. Few high-coloured flowers equal this for cutting in winter; associated with white *Camellias*, *Eucharis*, or anything similar in character, its brilliant sprays of bloom have a charming effect; whilst growing on the plant their appearance is equally beautiful. In these times of poverty in plant houses, when, with the exception of *Orchids*, it seems that the more fine things there are within the reach of cultivators the fewer they grow, the re-appearance of this old plant in the condition it can be had in would do one's eyes good. T. B.

Fuchsia procumbens.—We have grown this plant for several seasons for standing on brackets and for suspending from cross-rods in the conservatory, a purpose for which it is admirably adapted. This *Fuchsia*, though not generally known in private gardens, is well worth growing for this purpose. It is quite distinct from the majority of *Fuchsias* both in habit of growth and flower. In fact, so much is this so, that few people would at a first glance take it to be a *Fuchsia*. The flowers are very diminutive and of a greenish yellow colour, but it is when in fruit that the plant is most effective, bearing, as it does, a number of large cerise-coloured seed-pods covered with a delicate bloom. Our plants are in 5-inch and 6-inch pots, and carry from four to six dozen pods each, which keep in perfection for several months. The plant is of easy cultivation, and may be increased either by means of seed or cuttings. We repot early in spring, and place our plants in a house a little warmer than the conservatory for a few weeks. After that they will, if carefully supplied with water, be suitable for the conservatory during the rest of the year.—E. B. L.

Eucharis mite (S).—The *Eucharis* plant which you forwarded is attacked by one of the bulb mites (*Rhizoglyphus echinopus*). This pest is apparently on the increase, and should be dealt with at once when discovered. Usually the mites confine themselves to the bulbs, but in this case they have worked their way up the flower-stem to a point 6 inches above the bulb. These mites are very small, and much resemble grains of sand; but, if examined under a strong magnifying glass, they will be found to be rounded and smooth instead of angular like the sand. Numbers may often be found huddled together. If the bulbs be very badly attacked they had better be burnt, together with all the earth in the pot. If they are not past recovery, cut off all the diseased parts, wash them thoroughly with water, and then with sulphide of potassium a quarter of an ounce dissolved in 1 gallon of water, or Fir tree oil half a gill mixed with 1 gallon of water. Water at a temperature of 110° Fahr. will kill them. If the bulbs would bear it, stand them in water at 115° Fahr. for an hour; this would no doubt kill the mites.—G. S. S.

NOTES ON THE INDOOR GARDEN.

A crimson Calla (p. 66).—What is the American idea of "crimson"? I cannot understand *Arum pedestale* being so described. It is the most intensely black flower known. It is figured in *Botanical Magazine*, 5509, and was described by Mr. Brown, of Kew, as having "velvety black inflorescences" "as black as anyone could wish for." It certainly is so here.—HENRY N. ELLIACOMBE, *Edin. Veicrage*.

Forcing Lilies of the Valley.—A friend who grows these extensively for market has just sent me a box of them to show how well imported roots flower with him. He says: "The flowers are from imported roots, and the leaves which accompany them from English grown roots." He adds, "I force the roots for the sake of their flowers, but I cannot get

them to produce both flowers and leaves at the same time. I therefore force along with them for the sake of their leaves roots of our own raising, because the leaves are almost of as much value as the flowers."—J. C. C.

ORCHIDS.

REMARKS ON CŒLOGYNES.

THIS genus of Orchids owes much of its importance to the fact that such a useful flowering plant as *C. cristata* belongs to it. Its charming white flowers blotched on the lip with yellow would be valuable at any season of the year on account of their exquisite purity and the freedom with which they are produced, but, coming as they do during the early spring months, they are doubly welcome. *C. cristata* was introduced from Nepaul in 1837, and the first recorded instance of its being exhibited was in 1841 by Mr. George Barker, of Birmingham, who sent a small specimen of it bearing a three-flowered spike to one of the meetings of the Royal Horticultural Society, then held in Regent Street. This was so highly valued, that a Knightian medal was awarded it. There are now-a-days few gardens of any pretensions in which this species is not grown. It is one of those Orchids that can be maintained in good health, and can readily be propagated by division for an indefinite period. It seems to succeed best in the Cattleya house, or in what is usually termed a cool stove. It may be repotted once in three years when it has acquired a large size, and when plants of it become unwieldy they may be separated with the fingers and placed in smaller pots. A good time to do this is when the flowering period is over. When the plants are in full growth in summer they require a plentiful supply of water at the roots, but this has to be lessened when the bulbs are formed, and during winter they require but little water. Of this species there are several varieties, and amongst these *C. cristata* *Lemoniana* is even more beautiful than the type. It flowers rather later than *cristata*, even when grown under the same cultural conditions, and the blotch on the lip is lemon instead of deep yellow, as in *cristata*. *C. cristata alba* has pure white flowers in which there is no trace of colour. This variety is at present scarce.

C. CORRUGATA.—This, one of the prettiest of the Cœlogynes, was introduced from the Neilgherries in 1863. It succeeds best cultivated near the glass in the Cattleya house, potted in peat and Sphagnum. The flower-spikes appear simultaneously with the young growths, and the flowers are expanded before the pseudo-bulbs are formed. It is easily known by the peculiar wrinkled appearance of the bulbs.

C. OCELLATA, also a pretty species, was introduced by the Messrs. Loddiges. It is figured in the *Botanical Magazine* from a plant which flowered in 1839 in the collection of Mr. John Allcard, Stratford Green. It also flowered with Messrs. Loddiges in the same year. It has flowered frequently since, and should be grown in every collection of Orchids.

C. BARBATA.—This has been freely introduced recently, and is now grown in many gardens; but, although one of the easiest to import, it does not take kindly to artificial treatment. Some say all it requires is plenty of water and cool house treatment. We have tried to grow it in that way, and in other ways also; but after six years' trial, have not yet flowered it. Its blossoms, and also the manner in which they are produced, are distinct from any other Cœlogyne. It has the pure white sepals and petals of the genus to which it belongs; but the labellum is stained as it were with soot, and thickly bordered with brownish

hairs. It is possible that some varieties of this species are more easily flowered than others; and those who purchase such plants by the dozen may have had better success than I have had, but I cannot recommend this Cœlogyne as a plant of easy culture like *C. cristata* and its varieties.

C. PANDURATA.—This remarkable species is not to be recommended perhaps for general cultivation, but it is one that should be represented in every good collection of Orchids. Excellent specimens of it were imported and sold at Stevens' some four or five years ago. It pushes out large pseudo-bulbs, from which stout spikes are produced as the bulbs are being formed. The flowers, which are large in size, have yellowish green sepals and petals, and a labellum also of that colour, with a black blotch at its base, the upper portion being marked with lines and spots of the same tint. It is a native of Borneo, and was first imported by Messrs. Low, of Clapton, and it flowered in Messrs. Loddiges' collection in December, 1853. I have not yet had an opportunity of growing it, nor have I seen it as yet in what I would call vigorous health. It was exhibited at the Crystal Palace in May last, by Mr. Southgate, carrying two spikes from one bulb. It has also been recently flowered in the garden of Baron Schröder, near Staines.

C. MASSANGIANA.—This remarkable and easily grown species has been introduced during the last few years. It is usually grown in teak baskets, in which it produces its long pendulous spikes of yellowish buff flowers in profusion. I have seen several examples of this species associated with a plant or two of *C. Dayana*, also a pendulous-flowered kind; and from about six plants of the two species, some of them are always either in flower or showing spikes in process of development. Plants of *Massangiana* increase rapidly in size, and should be placed in fresh baskets as soon as these are required. It succeeds well in the Cattleya house.

J. DOUGLAS.

Proposed Orchid society.—If a new society is to be formed for the purpose of advancing the culture of Orchids, let us hope that it will also enforce a more correct method of dealing in regard to them. It is a source of constant irritation to all to continually find that what they have purchased as a certain choice variety, after months of care, time, and money spent, frequently turns out to be something inferior to that which it ought to have been. The complaint that plants are sold under wrong names is loudly made on all sides, and yet no one appears to think it worth while trying to remedy it. Take, for instance, *Lælia anceps Dawsoni*; surely it is scarcely honest to sell an ordinary variety as this, and yet this is well known to have been done repeatedly. Here, therefore, is an opportunity for some society to show its usefulness.—ST. GEORGE.

—The call that is now being made in favour of the establishment of a special Orchid society seems rather to reflect on the Royal Horticultural Society, which has of late shown itself in a singularly friendly aspect towards Orchids and growers. Not only did the society properly conduct the famous Orchid show and conference of last year, and no finer display of Orchids at any one time or place has perhaps ever been seen, but it has very liberally distributed its new plant certificates to these flowers also. Indeed, we see now quite one half of the floral committee consisting of orchidmen, perhaps an unduly large preponderance of that element, remembering that the functions of the floral committee are very wide, and, in including every description of tree and flower, necessitate on the members of that body knowledge of the widest range and most liberal conception. It is perhaps characteristic of Orchid culture that it seems more to limit or restrict the mind of the devotee to that particular form of horticulture than does almost any other specialty; hence orchidists are apt to be orchidmen and not much else. And

if these form a distinct Orchid society, they are in danger of getting into one groove and line of thought far more than now, when in their South Kensington associations they are compelled to mix so largely with men holding broad horticultural views. Still farther, if this special society be formed, as suggested, and Orchids largely withdrawn from the meetings of the Royal Horticultural Society, then an entire recasting of the present composition of the floral committee will be necessary. Apart from the fact that the maintenance of such a new society will tend to withdraw subscriptions from the Royal Horticultural Society, there remains also the fact that very little more in aid of Orchid culture can be done than is done already.—A. D.

WINTER TREATMENT OF ORCHIDS.

ORCHIDS that require the warmest treatment are usually termed East Indian Orchids. Some years ago I used to make an effort to maintain the temperature of the house in which they are grown at 65° at night rather than allow it to fall to 60°. If the higher temperature can be kept up without over-heating the hot-water pipes well and good, but if not, it is, I think, better to allow it to drop to 60°. Last summer quantities of *Oncidium ampliatum majus* were imported, and those who purchased and placed them at once in the warmest house will now be rewarded by having good plants, throwing up vigorous spikes. I do not know any hot-house Orchids of which the young spikes when pushing up are so attractive to slugs and woodlice as those of this *Oncidium*. It is, therefore, necessary to carefully watch for them. *O. Lanceanum*, a beautiful species, I have grown successfully in the warmest house for many years. It should now be starting into growth, and the roots must have the choice of pushing out into the atmosphere of the house or into the compost, which should consist of fibrous peat, Sphagnum, and lumps of charcoal. It does best placed in teak baskets and kept near the glass. The singular-looking *O. phymatochilum* is also a difficult subject to manage. It is now pushing out its roots quite freely over the sides of the pots or baskets in which it is grown. Pot or re-basket now if necessary, but on no account injure the roots. *Angræcums* have become within the last few years important plants in the warmest house, and they are the more valuable because of the habit which most of them have of producing their flowers in winter. The new species, *A. Leonis* or *Aeranthus Leonis*, proves to be not only a distinct, but a beautiful plant, and easier to establish than any other. It cannot, however, be said to equal *A. sesquipedale*, which is now either in flower or the spikes are in course of development. These Orchids are easily grown—the large species such as the above and *A. eburneum* in pots being on the stage, and the small growing species, such as *A. hyaloides* and *A. citratum*, suspended in baskets and pans from the roof. If thrips are supposed to be upon the plants they ought to be fumigated several times during the winter. I have reason to remember purchasing several plants of *A. sesquipedale* with thrips upon them, and the extreme difficulty we had in getting them cleared from that pest. Dipping in tobacco water as well as fumigating was tried. *Cattleya Dowiana*, *C. gigas*, and *C. Sanderiana* do best in the cool end of this house during winter; they have been kept in the coolest part of the Cattleya house, and comparatively dry, but not so much so, as to cause the leaves to turn yellow. The best treatment now, if starting to grow, is to give them a high temperature, say about 60° at night, instead of from 50° to 55°, as heretofore. The only *Odontoglossums* which we grow in this house are the various varieties of *O. Roezli*. It is quite necessary to keep them free

from thrips, or this pest will speedily ruin them. When the house is being fumigated these must be removed, as they are injured by the smoke, and the thrips must be destroyed by dipping the whole plant in diluted tobacco water. The weather being very severe during the last few weeks has caused us to keep up the heat in the pipes rather higher than usual, thus causing considerable dryness in the atmosphere. Under such circumstances the paths and stages should be damped at daybreak, and if the temperature is a few degrees too low in the morning make up a good fire at once, but put no more fuel under the boiler than is absolutely necessary to get up the temperature quickly. Thus managed, by nine or ten o'clock the stoker will have his fire completely under control, and if the sun bursts out, it can be damped down or allowed to burn moderately. On the other hand, should the day be cloudy, fires will have to be kept up nearly as much as at night.

JAS. DOUGLAS.

Ilford.

LÆLIA ANCEPS AND ITS VARIETIES.

ON a recent visit to a well-known collection of Orchids I was glad to find the *L. anceps* I found sufficient to fill a good sized house. Amongst them I noticed the queen of all, *Dawsoni*, with three leads and two spikes, furnished with eight fully expanded blooms of the very best form. *Percivaliana*, *rosea*, *Williamsiana*, *Horsmani*, and *Hilli* were also all looking extremely well and producing bloom. *Alba* had made three bulbs from two back breaks and a lead. These, with a number of ordinary varieties, made a grand show. Of last year's importation of the white varieties there were here over one hundred plants of various sizes, and although they did not equal those of Mr. Simpkins in size of bulb, as regards roots and growths they were at least fully equal to anything I have previously seen in other collections. Only one, however, was showing a flower-spike, and that was from a second growth. The house in which they were growing, one of a range specially designed for Orchids, was about 25 feet long, by 12 feet 6 inches wide, and 9 feet from floor to ridge, with a broad centre path and side stages. Over the path the aneeps were in baskets, while on the side stages those in pots stood on a layer of broken coal. Tanks of water were sunk in the ground, with special ventilators over them, so that in very hot weather the air admitted by the ventilators gets cooled. During summer a temperature of as near 70° as possible is maintained, rising to 73° in the afternoon, when the paths and walls are damped down. The ventilators are never entirely closed, so that a continuous supply (more or less) of fresh air is admitted all through the summer. During the growing season a good supply of rain-water is given, but when the plants are at rest they are only watered when necessary. Plenty of light is given, shading being used only when absolutely necessary, and then *Williams' Orchid* shading is employed. This admits light freely. "In fact," said the gardener, "the rule is plenty of light, perfect cleanliness both in regard to plants and house, and a temperature of not more than 70° for our aneeps; this sometimes rises a little, but we keep to 70° as near as possible. In the late autumn and winter we reduce this to from 60° to 63° by day, and from 55° to 57° at night. An excess of pipe power is provided, so that a plentiful supply of mild heat is obtainable to enable us to give ventilation at all times."

It will thus be seen that the treatment is somewhat cool compared with that which Mr. Simpkins

gives his plants; but as the result has been so perfectly satisfactory as to growth, I shall watch with interest how it succeeds in regard to obtaining bloom. Would it be asking Messrs. Backhouse too much if I venture to request a statement of their treatment, as they appear to have been very successful with their *Lælias*?—ANCEPS.

— Our treatment of the above *Lælias* differs but very little from that described by Mr. Simpkins (p. 73), and the results have been without exception the same. Our plants were broken up into small pieces and potted up into 4½-inch pots (in crocks) and placed in the *Cattleya* house. The house runs east and west, and is a curved span 40 feet long and 16 feet wide with middle and side stages. The plants were placed on the north side close to the glass, and were syringed right and left two or three times a day all through the summer; they broke away freely and several looked like making flowering growths, but, to our disappointment, they, like Mr. Simpkins, seemed to stop growing for a time and although they pushed away again and made nice bulbs none has flowered. They are just now pushing fresh roots from the newly made bulbs and will be potted into fresh compost at once. The temperature of our *Cattleya* house ranges from 70° to 80° during the day with a night temperature of from 65° to 70°, or thereabouts, in summer, and during the winter from 60° to 65° by day and from 50° to 55° at night with air on. Indeed, we always have air on night and day all the year round. We have some of the recently imported white aneeps, some of which we have put into three different houses so as to find out if possible what treatment suits them best. Our impression is that they will do best with cool treatment.—S. COOKE, *Rosefield, Sevenoaks*.

"The pruned *Lælia* and the floral committee."—Under this heading (p. 74) are some remarks by "S. W.," written evidently without sufficient knowledge of the way in which the *Lælia* in question had been treated. I carefully examined the plant, and therefore am in a position to say that it was not an example of a pruned Orchid. It had a number of "leads," six or eight (I did not count them), but I found on tracing back the bulbs that had been formed year after year, that the oldest bulbs were six or seven years old, and that they were furnished with healthy green leaves—evidence of good culture, but certainly not an example of pruning. The old naked bulbs more than six years old had been removed, and on such a large specimen their removal was a mere matter of culture, and could not add to or impair the health or vigour of the plant. It was well grown certainly, but about it there was nothing very remarkable; it received a cultural commendation, but that award was not unanimously voted. It could not have been exhibited "to show that pruning did not kill an Orchid," seeing that it was not a pruned Orchid at all. The gardener doubtless thought it was an example of a pruned Orchid, and said so; therefore it is only right to point out that he was in error.—JAS. DOUGLAS, *Great Geieries, Ilford*.

Odontoglossum Phalænopsis and *O. triumpans*.—"Pot these *Odontoglossums* in February," remarked a successful grower of them to me, "and give them plenty of water at all times," and through following this advice I have been very successful. When imported plants are taken home from a sale such as that which took place last week, clean off all dead and decaying portions and pot them in small pots, using ordinary compost, consisting of turfy peat, Sphagnum and crocks. Place them on a shelf or suspend them near the glass in the *Cattleya* house. If they succeed, as they ought to do, the pots will soon be packed full of roots, and by this time next year they will again require repotting. When they shall have become very large they may be divided into smaller pieces, but from such a disturbance they take

a long time to recover. It is, therefore, best not to divide them often. *O. triumpans* is the best of all the yellow-ground species. Its colours are the richest and brightest, and the flowers produced on long branched spikes during the spring months lack nothing in size when compared with others of the same type. It grows freely in the coolest house treated in the same way as *O. crispum*. All these easily established Orchids should be potted in the usual compost at once. *O. nævium*, also included in the sale to which I have alluded, is another cool house species, and a charming little plant. Its flowers, which are small, are pure white, and the sepals and petals are densely spotted with crimson. It ought to be grown in the warmest end of the cool house.—J. DOUGLAS.

GARDEN FLORA.

PLATE 529.

THE EREMURUS.*

THE genus *Eremurus*, when Baker made his monograph of it, numbered eighteen species; now it numbers about twenty-eight, including *Ammolirion* and *Henningia*. The additions have been chiefly made from Turkestan, by Dr. Regel, and include *E. bucharicus*, *E. Korolkowi*, *E. Alberti*, and *E. Suwarowi*. Four described in the *Journal of Botany*, for 1879, by Mr. Baker, were collected in Persia, in 1858-59, by Dr. Bunge, viz., *E. Bungei*, *E. luteus*, *E. albo-citrinus*, and *E. pauciflorus*. One, called *E. Capuci*, and one from Afghanistan, *E. Aitchisoni*, is described in the *Linnean Society's Journal*. There seems to be little reason why the majority of these valuable garden plants should not be found quite amenable to cultivation in ordinary borders, provided the necessary care is taken to ward off damp during the resting season. In favoured localities, notably in Mr. Gumbleton's garden in Ireland, as well as in that of Mr. Elwes at Cirencester, the success attained with them has far surpassed the highest expectations. We are also deeply indebted to Herr Max Leichtlin not only for showing us how to grow them, but also for putting so many good kinds within our reach. In order to grow these plants well, they not only require the sunniest position they can get during summer, but they also need the driest or most sheltered place that can be had during the winter. Those who have had dealings with them know that their long fleshy roots must have a deep free soil, and the richer the better, as they seem to be voracious feeders. In our not naturally rich soil they require an annual top-dressing or mulching of good manure. They dislike root disturbance, and therefore transplanting or shifting is always injurious to them, often retarding the flowering period, and in not a few cases greatly injuring the plant.

PROPAGATION.—The only way apparently in which these plants can be increased is by means of seeds, which, fortunately, they ripen well in this country in hot summers. The seeds should be sown in the same autumn in which they ripen, and the young plants should be pricked into small pots as soon as they can be handled. They should be kept indoors the first two years or so, or until they have gained sufficient strength to enable them to stand the cold of our winters; they may then be planted out in the beds or borders in which they are intended to flower. The principal evil to be guarded against is damp lodging in the crowns; this causes decay, and makes the spike unsightly. Dr. Aitchison, in his travels in Afghanistan, says *E. aurantiacus* "is the only vegetable upon which the inhabitants of the Hariab district depend for fully two months of the year. It is hard and crisp without being either tough

* Drawn in Messrs. Paul & Son's nursery, Cheshunt, in July.



EREMURUS ROBUSTUS. (SMALL PORTION OF SPIKE.)

or fibrous, and it might prove under cultivation a welcome addition to our list of spring vegetables." This plant, which is already in cultivation, proves to be one of the easiest to grow. At present there are about eight under culture, the most useful of which are the following:—

E. AURANTIACUS.—This, owing to insufficient material being at Mr. Baker's disposal when compiling his monograph, was placed by him in the section *Henningia*. Dr. Aitchison, however, brought home a good series of specimens, which proved it to belong to *Eremurus* proper, the fully developed stamens being twice as long as the segments. It is found at elevations of from 7000

E. BUNGEI.—This is closely allied to the above, with which it has already been confounded. It seems to succeed under almost similar treatment, with the addition of fibry loam and plenty of grit. The leaves, which are cotemporary with the flowers, are about a foot long and about a quarter of an inch broad. They are smooth on both sides and slightly ciliated along the edges. The flower-spikes, which are stoutish, are about a foot or 18 inches long, and about a third of the stalk is covered with bright yellow flowers about an inch in diameter; the segments reflex from above the middle and have a distinct green keel on the under side; the stamens at first are not so long as in *E. aurantiacus*, but finally become twice as long as the perianth segments. It flowers about the end of June and July. It is a native of Persia, between Nischapur and Meshed.

E. HIMALAICUS.—This, next to *E. robustus*, is perhaps the best known plant belonging to the genus in gardens. It was introduced, and flowered for the first time in Europe, some few years ago by Mr. Gumbleton, in whose garden at Belgrove the flower-spike measured 8 feet in height, and about one-third of the stem or more was covered with flowers. It is perhaps the hardiest of all the *Eremuruses*, and as it is later in starting to grow than most of them, it is not so liable to be disturbed by spring frosts; the leaves are smooth and leathery on both sides; the flowers are closely set on the stem and pure white, each being as large as a florin. The stamens have large, conspicuous orange anthers, but, unfortunately, not long enough to exceed the length of the segments. It starts to flower about the end of May and extends well into June. It is a native of the Himalayas about Kunawur, at an elevation of from 7000 feet to 10,000 feet.

E. OLGE.—Of this comparatively new species a grand example was shown at one of the Horticultural Society's meetings at Burlington House by Mr. Maw, of Broseley. It was about 2 feet long, and entirely covered with flowers. It proves to be perfectly hardy, and bids fair to become a popular plant; care should, however, be taken to protect the young growth, which begins to push up too early for our unsafe springs. The leaves, which are narrow, are from 1 foot to 2 feet long, and the flower-spike ranges from 2 feet to 4 feet long, the upper half being thickly studded with handsome lilac or purple-tinted flowers about 1 inch in diameter. Herr Max Leichtlin, who has flowered it, says it is one of the handsomest and most conspicuous of the family. It flowers in May and June. It is a native of Turkestan, whence it was introduced by Dr. Regel some eight or ten years ago.

E. ROBUSTUS, a small portion of the flower-stem of which is shown in the accompanying plate, is perhaps the best known of the genus. It was first discovered in the Alatan Mountains at an elevation of from 2000 feet to 3000 feet, but it was afterwards found by Madame Olga Fedjenko at 10,000 feet in Turkestan, and finally by the traveller Korolkow. It flowered for the first time in Europe in the Moscow Botanic Gardens, two years afterwards by Herr Max Leichtlin, and since then it has become fairly common in gardens. It seems to be the easiest of the family to deal with, and appears to be the one most likely to succeed in our ordinary borders. In the south of the kingdom it hardly ever fails, and but for its starting to grow so early necessitating protection from damp, even in the south, it gives little or no trouble when once established. A specimen of it that flowered in America a few years ago is well worth alluding to. It had leaves 3 feet long and about 3 inches wide. The flower-spike was 8½ feet high, 3½ feet of which was thickly furnished with pale pink

flowers, each measuring about 2 inches across. With Mr. Elwes the spikes reached 10 feet in height, and in France the same height was attained. It requires good free rich soil, say to a depth of about 3 feet, as the roots, even in the case of young seedlings, are very long. It flowers in the end of May and beginning of June.

E. SPECTABILIS.—This is found in gardens under the name of *E. caucasicus*. It is perhaps the least valuable of those just enumerated as a garden plant. It is, however, very variable, and we possibly have as yet only seen the least ornamental forms. The flowers are of a poor pale yellow or sulphury colour, and the spikes reach from 2 feet to 4 feet in height. It flowers in June, and is a native of Siberia, Caucasus, &c.

The following is a list of all the species yet known to us, some of which are in cultivation, although we have not yet seen them in flower, viz., *E. altaicus*, *E. tauricus*, *E. turkestanicus*, *E. cappadocius*, *E. stenophyllus*, *E. inderiensis*, *E. angustifolius*, *E. Kauffmanni*, *E. aucherianus*, *E. Korolkowi*, *E. Aitchisoni*, *E. Stocksii*, *E. Griffithi*, *E. bucharicus*, *E. pauciflorus*, *E. persicus*, *E. anisopterus*, *E. luteus*, *E. Suwarowi*, *E. Capusi*, and *E. albo-citrinus*. D. K.

RAINFALL IN ENGLAND AND IRELAND.

I HEREWITH send you, as I have done on other years, the rainfalls at Belvoir Castle, 237 feet above sea level, in a central part of England, and that of Belvedere House, 367 feet above sea level, in a central part of Ireland.

BELVOIR CASTLE, LEICESTER.

Rain gauge: diameter of funnel, 8 inches; height of top above ground, 1 foot.

| 1885. Month. | Total depth. | Greatest fall in 24 hours. | | Number of days on which '01 or more fell. |
|-----------------|--------------|----------------------------|-------|---|
| | Inches. | Depth. | Date. | |
| January. | 1.71 | .35 | 11 | 18 |
| February. | 2.78 | .70 | 17 | 19 |
| March. | 0.74 | .22 | 4 | 11 |
| April. | 1.67 | .40 | 2 | 16 |
| May. | 1.90 | .30 | 6 | 26 |
| June. | 2.83 | .99 | 9 | 13 |
| July. | 0.17 | .7 | 20 | 5 |
| August. | 2.65 | .68 | 22 | 11 |
| Sept. | 3.07 | .75 | 11 | 20 |
| October. | 4.90 | 1.12 | 7 | 26 |
| Nov. | 3.04 | .50 | 1 | 19 |
| Dec. | 0.85 | .31 | 31 | 12 |
| Total.... | 26.31 | | | 196 |

March and July were characterised by long periods of drought. October was the wettest month of the year. Fruit was abundant. Turnip crops irregular often a failure. Potatoes free from disease and abundant.—WM. INGRAM.

BELVEDERE HOUSE, WEST MEATH.

Rain gauge: diameter of funnel, 5 inches; height of top above ground, 1 foot.

| 1885. Month. | Total depth. | Greatest fall in 24 hours. | | Number of days on which '01 or more fell. |
|-----------------|--------------|----------------------------|----------|---|
| | Inches. | Depth. | Date. | |
| January. | 2.55 | .45 | 27 | 14 |
| February. | 2.68 | .50 | 8 | 15 |
| March. | 2.54 | .65 | 19 | 11 |
| April. | 2.26 | .77 | 21 | 7 |
| May. | 1.67 | .47 | 29 | 9 |
| June. | .86 | .45 | 22 | 4 |
| July. | 2.11 | .62 | 19 | 10 |
| August. | 3.71 | .92 | 30 | 10 |
| Sept. | 5.45 | .83 | 1 | 12 |
| October. | 2.88 | .85 | 6 | 17 |
| Nov. | 2.57 | .53 | 26 | 12 |
| Dec. | 1.07 | .18 | 3 and 30 | 9 |
| Total.... | 30.35 | | | 130 |

—JAMES BATLISS.



Eremurus robustus, showing habit of growth.

et to 9000 feet, and is said to be one of the most common plants on rough stony ground, a fact which may afford some clue to its cultivation. In the south it grows with freedom in an ordinary peat bed, and has flowered annually ever since it was introduced. Last summer it ripened a few seeds, by which means we hope to increase our stock of it. It produces five or six narrow linear leaves, about a foot long, and about half an inch broad. The flower-spike is from 2 feet to 3 feet high, the upper half of it densely covered with good sized yellow flowers, the segments of which reflex prettily and show off the stamens to advantage. It flowers about the end of April or early in May.

The rainfall in Ireland exceeded that in England by 4.4 inches; but, what is curious, the number of rainy days—or days on which 0.1 fall—exceeds by sixty-six at Belvoir Castle the number of days marked at Belvedere on which the same quantity fell. It will be observed that the spring was much rainier in Ireland than in England. The year was unusually dry in Ireland, and plants bearing berries were in much richer fruit than usual. Altogether in my part of Ireland the season was a good one for most classes of flowers and plants.

BRINSLEY MARLAY.

St. Katharine's Lodge, Regent's Park.

KITCHEN GARDEN.

CELERY AND ITS CULTURE.

It has often been said that those who have the means of growing their own vegetables are much more favourably circumstanced, in being able to have the best varieties, than those who have to depend on the market gardener's produce, which is quite correct as regards most things, but not in the case of Celery, as the market growers are careful to confine themselves to good varieties and are equally particular that the strain is pure. If it were otherwise, the produce would be of so little value as to entail certain loss. In many cases the market growers grow their own seed so as to make sure of its being such as they can depend on. There are few things connected with gardening operations more provoking than to find in autumn, after all one's labour attending the growing and blanching of Celery, that just as it should come in for use it is bolting, which simply means that the season's work has been thrown away. When this occurs it is not unfrequently attributed to something wrong in the cultivation; whereas if the sort grown is what it should be there is scarcely a possibility that bolting can be caused by defective treatment. No doubt there are some varieties that, if subjected to severe checks, will thus prematurely run to seed. There used to be a prevalent idea, which is not yet altogether exploded, that frequent transplanting tended to prevent bolting. I recollect some time since meeting with an instance of this. A gardener, who had come from a school in which one might have supposed better things would have been taught, was complaining that the principal crop of Celery on which he had to depend for the supply of a large family had all started at the bottom, and he said he could not account for the mishap, as the stock had been transplanted three times. I told him that the number of checks thus sustained had doubtless caused the premature starting. As gardeners well know, most of the white varieties are more inclined to run in autumn than the red sorts, especially if sown very early, or they have suffered through the summer from want of water. But these so-called early kinds are better avoided, as even where Celery is required very early it can be had with some of the later varieties by simply sowing earlier and getting the plants on without any loss of time.

MANCHESTER CELERY.—There is no part of the kingdom in which Celery is grown and consumed in such vast quantities as about Manchester; the teeming population of that manufacturing town use it to an extent that would scarcely be credited by those who have not resided in the district and had an opportunity of seeing the extent of the demand in the three or four last months of the year. As might naturally be supposed, some of the best varieties have been raised in that locality, in most cases, if not all, by selection, where an odd plant or two amongst a crop has been noticed as being sufficiently different from the rest to be worth taking care of. Little has been done in the way of crossing by hand-fertilisation; this

may be attributable to the minute character of the parts of the flower, making them difficult to manipulate; but the more likely cause is through there not being much prospect of anything distinct enough being obtained to make the attempt worth trying. Taking into account all its properties, including solidity, flavour, hardy constitution, and disinclination to run to seed until late in spring, there is probably no variety that has ever been in commerce that has surpassed Dunham Red, which was raised by the late Mr. Wilcock, who was for a long time gardener to the Earl of Stamford, at Dunham Hall, near Manchester. Like many other good things, this Celery has come in for a good deal of re-naming; Leicester Red, Williams' Matchless Red, Turmoss Red, and I do not know how many more aliases have been given it. There is no sort that the market growers can put more dependence on. One of the best properties it possesses is, that from its solidity the stalks after a severe frost do not decay lower than to where they have been frozen. Like other red Celeries, it requires more time to blanch than the white kinds. For many years I never grew but two varieties, this and a pink sort that I raised, like the Dunham Red in every way except that it is lighter coloured and sooner ready than it after being earthed up.

ONE SOWING is all that it is necessary to make of these two varieties about the middle of February, in pans or boxes in a little heat, such as a newly startedinery, taking care not to put the seeds in too thickly—in which way they always get drawn—and placing them from the time they come up where there is plenty of light, and as soon as the plants are large enough to handle pricking them out into cold frames in prepared soil composed of about half loam and half rotten manure, 4 inches deep on a solid bottom of coal ashes so hard that the roots will not enter it. The plants I put 4 inches apart and kept them well supplied with water until big enough to plant out in the trenches. For the earliest to come in at the end of August, I put two rows 9 inches apart and 12 inches between the plants in the rows; the winter crop was confined to a single row 9 inches apart. This never failed to give a supply to the middle of April, up to which time it did not begin to run. As soon as it was necessary to protect from frost, sticks like broom-handles were stuck in line in the rows at about 6 feet apart; to these a strand of strong tar twine was fastened about a foot above the soil to keep the stable litter used for protection from lying close down on the leaves. In this way there is less inclination in the leaves to rot after severe frost.

There are other good sorts of Red Celery besides the variety named, such as Major Clarke's, Cole's Defiance Red, and others, but none that I ever tried are so late in spring before they begin to run to seed, or are so uniformly solid. In a score of years, during which time the stock used to run to a thousand or over yearly, I never saw a single plant with any inclination to become hollow. Cole's Crystal White and Sandringham Dwarf White are both good varieties.

HOLLOW CELERY.—The cause of disappointment so often complained of in Celery become hollow is through the seed of worthless kinds being sold under the name of a good variety, which latter can always be had fairly true if the right sources are gone to; it is usually the low-priced article that turns out disappointing. Anyone who is anxious to make sure of always having some particular sort of Celery true need have no difficulty in doing so when they have once got the sort; if at planting-out time a dozen plants are put in anywhere in an open place at about a foot apart, taking no further notice of them after

they have once begun to grow, except just seeing that they do not get smothered with weeds, they will give as much seed in the autumn but one following as will suffice for a good sized garden for three or four years, in about which time another supply should be provided. One very common mistake in the cultivation of Celery is to make the trenches in which the manure is put too narrow, through which cause the roots too soon get out of the rich bed prepared for them into the poor soil outside; this occurs just at the time when the most support is required, and interferes considerably with the weight of the crop. Another and equally common mistake is in having the rows too near together, by which means when the crop requires to be earthed up the roots have extended so that quantities of them are cut away with the spade in the operation. To have Celery crisp and right in texture there should be no check in its growth, such as follows the injury of the roots in the way described. Celery is by nature a moisture-loving plant, and suffers more than most things from any deficiency of water, which often occurs with such as is intended to come in early after the earthing up is completed, and to some extent with the general crop when partially earthed, through which the rain is thrown off, so that the roots get next to none. Where there is any danger of this occurring, water should be given freely, especially to that intended to be used early, for when deficient of moisture it is always tough and indifferent. In the London hotels, as well as in some private establishments, a good deal of Celery is used all the year round for flavouring, which is effected very differently by the use of the plant than by that of seed, which is often employed instead. A few of the market growers have a regular supply all through the summer months, keeping on planting so as to provide it; needless to say, at this time it is useless for eating raw, as it is running up for seed and often considerably advanced when the soil is put round it. For this purpose it is grown in beds of about four or five rows, planted 8 inches or 9 inches apart. It is blanched about 10 inches or 12 inches.

T. B.

Chou de Burghley.—I find that by a slip of the pen I asserted (p. 12) that this winter Cabbage requires as long a season of growth as Broccoli. In fairness, however, I ought to have said early Broccoli. Our first sowing was made in April, and large heads were cut in November, a good succession being secured by sowing more seed early in May, and we still have plenty both forming and fit to cut. Veitch's Autumn Broccoli similarly treated is now over, and Snow's Winter White just becoming useful, the latter also being sown in April and May. What becomes of the assertion made by "A. D." that Chou de Burghley is fit to cut at Christmas "some three months, or even more, before Broccoli is fit to cut?" Living in the midst of market gardens, he must be aware that Snow's Broccoli is extensively grown for market, and also other sorts to afford a succession, none of which need be sown before Chou de Burghley. I may not speak "too favourably" of this vegetable, but "A. D." evidently errs in the opposite direction.—W. I. M.

Carter's Leviathan Bean.—"A. D.," in THE GARDEN, of January the 2nd, states: "Having grown Leviathan, Aquadulce, and Seville Longpod, I must say that I find absolutely no difference in them either in height, character of plant, length of pod, or productiveness." In your issue of January 9, "W. I." writes: "According to my experience, Leviathan and Aquadulce are synonymous, but Seville Longpod each time I grew it beside Leviathan and other presumably distinct and long-podded sorts proved rather earlier than the kinds just named, and the pods were a trifle shorter." Mr. Muir, in his notes on vegetables in your issue of December 19, 1885, writes as follows: "Leviathan pods from 10 inches to 15 inches in length, not early, not very pro-

life, but excellent for exhibition. Aquadulce, a very fine Bean, the best of all, more prolific than Leviathan, good both for show and table, and a capital main crop sort. Seville Longpod, a capital sort for general use, pods long, produced abundantly, and excellent in quality; a profitable Bean." "When doctors disagree, who shall decide?" Perhaps you will allow us to assist the discussion—not to enlarge upon the question of the Beans being identical, because we know such is not the case, but rather to state that we introduced Leviathan in 1879; whereas, so far as we can trace, the first reference to Aquadulce in any English retail catalogue appears in that of Messrs. Sutton's for 1882, so that Leviathan had been before the public at least four years before Aquadulce was heard of. It would appear that "A. D." had obtained his supplies from some irresponsible source, and we shall have much pleasure in sending him a pint of Seville Longpod and a pint of Leviathan Beans, when we think he will see that not only in their growth, but also in their dry state, there is a sufficiently marked difference for anyone to admit that they are not identical.—JAMES CARTER & Co.

EARLY TURNIPS.

TURNIPS are remarkably scarce this winter—never more so, to my knowledge. The late sowings hereabouts were complete failures, and what Turnips we have left are fit only for soups, the seed being sown on a cool border early in July, and not intended for the late supply. This state of affairs I believe to be very general, and therefore some means of maintaining a supply must be adopted. At one time when we had to depend on Snowball for an early crop, it was no easy matter to force Turnips; but the short-topped, quick-maturing Early Munich, and the still better and earlier sort called Early Milan, readily force in frames, or may be forwarded in fairly light spots in orchard or late Peach houses. In the latter case the seed should be sown either thinly on the border or in boxes of rich soil. We form one large hotbed with leaves and stable manure at the rate of two parts of the former to one of the latter, the whole being well mixed and firmly built to a uniform depth of about 3 feet. On this a great variety of frames are placed, the greater part being devoted to early vegetable culture, not the least important being early Turnips. The frames intended for the latter are generally the largest we have, affording, as they do, most light, and therefore the most conducive to early bulbing. If the frames are deep, some of the shortest heating material is spread over the bottom; on this we put a little short, nearly rotten manure, and finish off with about 6 inches of fairly rich loamy soil, thus filling the frame to within 4 inches of the glass. The soil being in good working order admits of being beaten down firmly with the back of a spade, a loose soil encouraging top-growth rather than early bulbing. As there is little or no danger of the bed becoming violently hot, we sow at once, thinly and broadcast, covering with about half an inch of fine soil. Those who may use rather dry soil, or say that which has been stored in a shed, ought to water freely through a rosed pot before the soil is spread over the seeds, but in our case this is unnecessary. The frames are kept closed and covered with rough litter till the seeds germinate, which they very quickly do, and from this date a little air is given whenever the weather is at all favourable, the frames being closed every night and protected. When large enough to handle, the seedlings, where crowded, are lightly thinned out, this operation being repeated later on, so as to leave the plants about 6 inches apart each way; no further thinning is needed in the case of the two short-topped varieties above mentioned till the bulbs are about 5 inches in circumference and of a usable size. According as the Turnips require

more head room the frames are blocked up all round and more air is given when the bulbing time has arrived, or too much top-growth will be formed. If kept properly supplied with tepid water, these little Turnips will be fairly tender and juicy, and will always be fully appreciated. Even if only fit for soups they well repay for the trouble taken with them, seeing that they mature, if sown any time during February, several weeks before the earliest sowings on warm or, better still, east borders are fit to pull. A white Turnip of the quality of Snowball, and with the habit of Early Milan would be of great value. If this were forthcoming, no further additions to the list would be needed, seeing that in Snowball, Veitch's Red Globe, and Chirk Castle Black Stone we have a succession that ought to give satisfaction to everybody. W. I.

PEAS, OLD AND NEW.

It is interesting to find that of the Peas being put into commerce for the first time this season, several have obtained the highest awards given at Chiswick after a season's trial. Most probably better results would be obtained if all new vegetables could have at least two successive seasons' trial there before certificates of merit are awarded them, but last summer being so hot and dry was a peculiarly difficult one for Peas; hence kinds which turned out well then under trial certainly must have no inconsiderable merit. The most recent sorts are recommended because of their robust habits, high cropping qualities, good flavour, and general excellence. Whatsoever critics may say about novelties, sorts which have such recommendations must be good, but whether they materially excel many older kinds remains to be tested. Judging by what was seen at Chiswick, where many old kinds are grown for comparison, the best of the new sorts are decided improvements. Still, something may be due to their comparative youth. If, however, raisers continue to produce sorts that really show some advance upon earlier kinds, we may look for a kind of Pea millennium some few years hence. It will be very difficult for raisers to secure for us any earlier kinds than we have, for the simple reason that in the matter of earliness the season has much to do about it, and we are quite at the mercy of spring frosts. We may, however, hope that good as our earliest kinds now are, that some more prolific and finer podded sorts may yet be introduced. At present we can hardly find any Pea that is earlier or harder than a good stock of Sangster's No. 1, and if William the First is a better Pea, at least it is no earlier. Earliest of All may be a day or two earlier than Sangster's, but the pods of the first named kind are small, and, judging by the produce of a plant, the earliness may be more assumed than real.

Those who disapprove of the newer Peas seem to object chiefly to the size of pod and the assumed absence of flavour. Not a few think that quantity more than counterbalances some trifling lack of flavour, and from their point of view they may be right, for each one must be the best judge of his own requirements and the best way to meet them. It is true that some large Peas that have obtained considerable popularity do not share the quality of flavour in the highest degree, but still they are far from being bad. If these give such abundant crops that some lack of flavour is more than compensated for, then growers can hardly be complained of if they grow these kinds. Still, no one will dispute the fact that a first-class Pea must have good flavour. It is most likely that the best of the new Peas now being sent out will show this quality in a marked degree, because raisers now

have that quality in mind in cross-breeding. Still more with such a wealth of sorts in commerce we can hardly conceive the fruit committee giving an award to any but good flavoured kinds now. As with Potatoes, so with Peas, really superior new kinds are fast driving big and inferior sorts out of commerce. The best antidote after all to the introduction of indifferent things is found in the further introduction of superior varieties.

Putting aside the question of flavour, however, it is a fair matter for discussion whether most new Peas do not err on the side of size. Common rule and taste have fixed for all kinds of garden products certain sizes which seem to be in popular favour; taste objects to big Potatoes, Peas, Beans, Cabbages, Cauliflowers, and similar garden products. Big things may be like fat prize bullocks—something to look at, but not very desirable for food; hence Peas when shelled, if of moderate dimensions, are preferred to those big as marbles. Here we find perhaps more common ground of agreement, for there are few who do not coincide with the opinions just expressed. Raisers have gone far enough in the matter of size of pod and Pea, and if they recede a little they will not go wrong. Pods of good length which give from ten to twelve medium sized Peas each are better than those which give a less number of Peas half as big again. Perhaps such pods would not meet so readily with the approval of judges in all cases as big ones would; but that result justifies the statement that our system of exhibiting Peas is altogether wrong, and that prizes for half-a-dozen plants of any one kind showing true height, character, and prolificacy would be far better in every way. Of course this plan is not feasible in the case of collections of vegetables, and it is advised only in the case of special prizes for Peas. Generally I think the tone of judging is favourable to quality rather than size, in spite of all that may be averred to the contrary. At South Kensington last year, for instance, that feature was distinctly encouraged, and few good judges now place more size above higher considerations. A. D.

Forcing Lettuces. This has been a bad season for outdoor Lettuces in many parts. The weather for weeks past has been one perpetual round of freezing and thawing, which is worse than a long period of frost for tender vegetables. To meet any deficiencies a pinch or two of seeds of the Paris Market Cabbage, and the Early London Cos might be sown in boxes and placed in a temperature of 60° or so, in a light position. When the young plants appear, ventilate, in order to give strength, and move to a cooler place. As soon as they are large enough to handle, prepare a bed of leaves on which to set a frame and some old lights. Make in it a bed 6 inches deep of light rich soil, and therein prick a part of the plants 6 inches apart. The other part may be pricked out at the foot of a south wall, and be sheltered for a time with Yew or Laurel branches.—E. HODGKIN.

Sowing Cauliflowers in heat.—Whether we do or do not raise the main stock of Cauliflower plants in August, it is certainly a good plan to sow a pinch of seed of two or three kinds now, not forgetting Veitch's Autumn Giant. We sow ours in a temperature of from 55° to 60°, keep the pans near the glass in a light house, and prick the young plants singly in small pots. As soon as they are large enough to handle, we grow them on in the same temperature till well established, and then harden off in a cold frame and plant them out early in April, or as soon as the weather permits. I have cut Cauliflowers as early from plants raised in January as from autumn-sown plants, and the autumn plants sometimes "button" prematurely, but those raised in heat and pushed on without any check invariably do well. Cauliflowers submit to forcing as well as any other vegetable when potted on into 6-inch pots, and the strongest plants placed in 8½-inch pots, the pots

being half plunged in a bed of leaves where there is a genial warmth. Their growth is rapid. Some kinds force better than others. The best with which I am acquainted is Veitch's Forcing Cauliflower. It has a small white, firm heart, and the growth of the plant is compact and sturdy, and all that a forcing Cauliflower should be. Liquid manure should be given freely when the plant gets strong enough to utilise it properly.—E. HOBDAV.

GARDEN IN THE HOUSE.

THE MISUSE OF FLOWERS.

PERMIT me to add my protest to that of "G." (p. 42) against this crying evil; the three cases cited of decorating muffs, parasols, and handrails of stairs present the matter in some of its more ludicrous aspects. But the abuse of cut flowers is by no means confined to such senseless vagaries as "G." so forcibly ridicules. The excessive use of cut flowers in rooms and on dinner tables has degenerated in numerous cases into such sheer abuse, that in not a few gardens a fair specimen plant in bloom has become a rare sight. Almost before the flowers expand the knife or scissors of the decorator is down upon them, and the plants are stripped bare or stumped up, and a l in pursuit of crowding drawing-rooms and loading dining-room tables with cut flowers. The more the better, is too often the cry, until mere masses have banished taste out of the question. Table decoration, too, instead of being more or less intermittent, has become constant daily, in not a few cases twice or even thrice a day, that is distinct and fresh decorations for breakfast, lunch, and dinner. Such demands strain the resources of the largest gardens, especially when coupled with supplies of button-holes or ladies' dress bouquets twice a day. All this may be good for trade and also for horticulture, but personal and table decorations seem in a fair way of running riot, and so surely as it does so there will be a reaction that will prove injurious alike to trade and taste.

Not a few are already beginning to long for dinner off a clean tablecloth as a relief from the excessive piles of flowers which not seldom almost cover the viands and obscure the guests from each other.

Chaste decorations in moderation are, and ever will prove, attractive; but one of their chief charms consists in their lightness, and where fresh designs are demanded every day, a flowerless cloth might be tried once a week as a relief. Could a half of the labour now expended in most gardens on mere decoration be devoted to the improved culture of plants, and more of the latter left to display their beauty as Nature intended, instead of being hacked to pieces by mere decorators, cultural as well as artistic horticulture would gain immensely by the change.

D. T. F.

Keeping Lent Lilies fresh in water.—

Mr. Woodall, in THE GARDEN of January 9, and "Lex," January 16, complain that Lent Lilies will not keep fresh in water. The latter suggests the use of a glass shade. No doubt this is effectual and useful in recovering specimens which have faded in passing through the post; but there is no necessity for this treatment under ordinary circumstances. My practice is this: Instead of placing the Lent Lilies in an upright vase, I always lay them horizontally in a soap plate or china bowl of similar shape. Under this treatment they last fresh for many days, and if, in the first instance, it has been convenient to have them for a time in an upright position, a few hours in a horizontal position will make them fresh as ever.—T. H. ARCHER-HIND, *South Devon*.

Winter Heliotrope.—Yesterday was frosty and cold here in Dublin, but in the morning sunshine

I was out at Mount Merrion, and in Foster's Avenue beneath great-boled Elms, Tussilago fragrans, usually called the Winter Heliotrope, has naturalised itself by the road, even if not by the acre! Even on the canal banks, quite near to the city, this sweet breathed little stranger from sunny Italy has made itself thoroughly at home. It is a desperate Rambler in a well-kept garden, but as a roadside weed, or for naturalisation on wood margins or in out-of-the-way places where it can do no harm, it is worthy of attention. Its plucked flowers and Ivy leaves in a big old china bowl are quite refreshing at a time when almost all outdoor flowers are scarce.—F. W. B.

FLOWER GARDEN.

ERITRICHIMUM BARBIGERUM.

THIS belongs to a genus in which there are twenty-eight species, of which not more than half-a-dozen are in cultivation. The latter include *E. nanum*, with which all growers of alpine plants have had more or less experience. Imported plants of it are difficult to establish, or even induce to flower once. A year or two ago we were very much deceived in the case of a plant bearing the name *E. floribundum*. It had certainly abundance of flowers, but it was quite useless as a garden plant. Last year, however,



Eritrichium barbigerum.

Mr. Thompson, of Ipswich, introduced *E. strictum*, a charming deep blue-flowered species, and one which is likely to prove a useful companion to *E. barbigerum*, which has large, pure white Forget-me-not-like flowers. It rarely grows more than a foot high, and has a stoutish, shrubby stem, clothed with narrow oblong leaves. The flower-spikes elongate somewhat loosely. It is a good addition to hardy annuals, and may be sown towards the middle or end of March. It is found wild from Santa Barbara to Fort Trijon, and from San Diego and eastward to Arizona and Southern Utah. K.

Hellebores.—I quite agree with Mr. Woodall, when he says in THE GARDEN for January 9 that the Bath variety "represents the type of the Christmas Rose in perfection." It is a far more abundant bloomer than any of the other varieties of niger, and in shape and colour more perfect than Mr. Brockbank's variety. I wonder why *H. niger major* is called the Bath variety? It is far commoner in South Devon than in the neighbourhood of Bath; in fact, a florist who grows a large number of this variety told me a few weeks since that last January he sent several hundred blooms to a market grower at Bath. I think this variety instead of being termed the Bath variety should be called the Devonshire variety. With regard to the Lenten Roses, they are, indeed, extremely early this year;

we have the following varieties in bloom here at present, viz., *H. guttatus* Commenzienrath Benary—a barbarous name to a *prima donna* among Hellebores—*H. g. Leichtlini*, antiquorum major, oriental s, *colchicus punctatus*, Gretchen Heinemann, orientalis purpureus, and purpurascens. The flowers will last but a short time in water, but the length of time during which they remain perfect on the plant is simply wonderful. Several of the varieties just named have been in bloom here since the beginning of December, and up to this time show no signs of fading in spite of the sharp frosts and heavy falls of snow which we have had during that time. Another remarkable feature about these Lenten Roses is their leaves show no signs of being attacked by slugs, although the latter are fond of the niger varieties.—H. S., *Bishop's Teignton, Devon*.

OXALIS LUTEOLA.

IN THE GARDEN (p. 369, 1884) I find an enquiry regarding this *Oxalis*, and although more than a year has passed away since the enquiry was made, I take the liberty of referring to the subject in the hope that my information may be useful. I regret my inability to inform the enquirer as to whether or not the *Oxalis* named is still in cultivation in England, over twenty years having elapsed since I left her shores, but in this part of the world (India) we have plenty of it—at least, we have a plant known by the name of *O. luteola*, but whether that is the correct name or not I cannot be certain; at any rate, if Herr Max Leichtlin was not successful in obtaining a satisfactory answer to his question in 1884, and if he would care to have the variety I have mentioned, I will, with the greatest pleasure, send him, not one bulb, but one hundred bulbs or more of it.

During the whole of this month (December, 1885) I have had a bed of this *Oxalis* in full bloom, and it makes my front garden look quite gay during the daytime. I think this variety is better suited for the open border than for pot culture. The bed to which I refer measures 6 feet by 5 feet, and is bordered by a line of *Alternanthera* on the four sides, which I allow to grow to a height of 5 inches only; inside this edging the foliage of the *Oxalis* stands, like a thick carpet of Clover, 4 inches above the *Alternanthera*, while the flower-stalks in hundreds rise 7 inches above the foliage. The flower-stalk is light green, erect, round, herbaceous, and I would describe the inflorescence as a compound umbel of four sections, bearing between thirty and forty deep sulphur-coloured flowers on pedicels three-quarters of an inch long; the flowers keep forming and opening out in succession for a couple of months or more.

It may interest some of your readers to know that I have had one variety of *Narcissus* in flower in the open border as well as in pots during the whole of this month; no one about here seems to know the specific name for it (if indeed it has one), although the plant is common enough among amateur gardeners like myself; it is a shy bloomer. I had to study the treatment of it for some years before I could induce it to flower in pots; in the border, sheltered by high trees, it used to bloom occasionally if the bulbs were left undisturbed for years. I fear any description I could give of the plant would not be sufficient to enable an expert to identify it, but I might mention that the flower-stalk grows to a height of from 16 inches to 18 inches, and bears an umbel of four flowers usually, but occasionally five. The flower has five pure white petals and a rich yellow cup; the breadth of it is $\frac{1}{3}$ inches, that of the cup half an inch, stamens three, pollen yellow, tube 1 inch long, pedicels $\frac{1}{3}$ inches. The leaf-blades grow to a length of 20 inches,

and some are 1½ inches broad at the base, tapering to a point. The flower is deliciously fragrant, and keeps a good while in perfection.

VANDA.

WATERSIDE VEGETATION.

WHAT even a few common plants can do in the way of ornamenting the bare sides of streams and other pieces of water is surprising, especially if a little taste is displayed in their arrangement. Many ponds, lakes, and little rippling streams to be found in pleasure grounds, with well-kept and closely-shorn banks, may be all very well in their way, but that is not the kind of beauty which we look for in well furnished gardens. Unquestionably such banks may be made very interesting by a judicious use of plants, many of which may be had for the gathering. The common Flag (*Iris pseudacorus*), of which a few varieties exist, all with yellow flowers, and two with variegated foliage, one silver and the other golden, is quite indispensable for work of this kind, and instead of being planted on the bank, where space ought to be precious, it may be planted in shallow water at the edge, where it is quite capable of taking care of itself when once established. *Iris sibirica* and its varieties, many of them very beautiful, may also be placed in shallow water in a similar situation, where they will be found to thrive well without more attention than that of planting and a general trimming annually. Then, as to other Irises, the *lævigata* or *Kämpferi* section seem to be well adapted for such positions, and they are just as varied in colour as the common sorts. They may be planted on the bank close to the water's edge, in peat beds, or in other soil, the main essential being to allow their roots to reach the water. Many of the lovely garden forms of *Iris spuria* may also be utilised further up the bank, as they require a little, but not so much, moisture as the others. Another plant seldom seen in good condition in gardens is *Spiraea palmata*; it requires treatment similar to that recorded for *Iris Kämpferi*. In free soil it never fails to produce flowers in profusion far surpassing those of the same plant in any other situation. Water would seem to also just suit such plants as the *Gunneras*, both *scabra* and *maucata*, as when planted near it they attain enormous proportions, i.e., when once fairly established. The finest plant of the latter probably in this country grows under such conditions at Pendell Court, and there is also one at Cambridge in a similar position. Daffodils (*poeticus*, *Pseudo-Narcissus*, and others) may be planted with good effect on the higher ground away from the water; and close to the water's edge *Fritillaria Meleagris* and *Colchicum autumnale* never fail to attract attention. Ferns, too, and many semi-aquatic Grasses would be attractive under such circumstances. Pampas Grass, and in sheltered spots *Arundo donax* and many of the Bamboos, *B. Fortunei* and some of the dwarfed kinds, are quite hardy, and may be thus used with advantage; nor should such banks be entirely devoted to plants found associated

with water in their wild habitats, but all such plants as require a cool bottom may also occupy such positions. Many other plants, too, might be introduced to the stream side, using discretion as to the distance from the water at which they should be placed. K.

THE BIG IRISH SPURIUS.

WITH your remark that this Daffodil deserves a better name I quite agree, for it is nearly the finest variety of *Narcissus Pseudo-Narcissus* in cultivation. Nobody knows its origin any more than they know the origin of *N. maximus* or *N. bicolor* of modern gardens. I first received flowers of it, followed by a hamper of bulbs about seven years ago, from a lady on whose father's land it grew near the river Blackwater, in the county of Cork. It grows there still, mixed with, but flowering earlier than, the typical *N. Pseudo-Narcissus*. It flowers with me here nearly as early as the Tenby Daffodil, coming out in average seasons the first week in March, and a fortnight



Waterside Irises.

before the common *N. spurius* of Barr, and I believe of Haworth, which has flowers of scarcely half the bulk of the Irish form. The name *spurius* seems to have been suggested to Haworth by *Pseudo-Narcissus* when he was hard up for names to distinguish his many so-called species. Neither Salisbury nor Herbert, contemporaries of Haworth as they were, recognised it, and the characters given by Haworth are too vague for his species to be identified with certainty. I do not think the large variety was known in England until I distributed some about five years ago. It increases slowly, making bulbs larger than any other trumpet Daffodil, some of the bulbs producing four or five scapes. The flower, though less bright in colour and different in shape, rivals in size those of the true *N. maximus*. Last spring flowers of this same variety were sent to me from two different parts of Ireland, where they grew in gardens. I saw some flowering last spring in Mr. Barr's nursery, who has, I think, given it a better name than "Big Irish."

It is quite distinct from all the several forms of *spurius coronatus*, about which some of us will have something to say when they flower. One of them, exhibited by Messrs. Krelage, of Haarlem, received a first-class certificate from the Royal Horticultural Society during the Daffodil conference last year.

I may add, with regard to the comparative floriferousness of this variety, that all my pot Daffodils, of which I grow many, were last summer out of my own garden. Of the Tenby, which does not make nearly such large bulbs as this, but multiplies faster, I planted two pots, each having five bulbs. These gave only three flowers to each pot of the "Big Irish;" two pots with three bulbs each are giving out twelve flowers, and the other, eleven, now fully out. All the bulbs were selected and taken up at the same time early in July, but the *spurius* makes very much larger bulbs, and very distinct in shape. In fact, the bulb character is nearly as distinct in Daffodils as the flower character, when one gets accustomed to them.

Edge Hall, Malpas.

C. WOLLEY DOD.

Romneya Coulteri.—This glorious plant is easily propagated, I have found out by taking up the roots, laying them on the surface of the ground and covering them with soil. Some roots from Glasnevin have thrown up such big shoots in a fortnight, that I mistook them for some bulbous plant coming up. They were laid in wet cocoa fibre, rather in the dark, on the floor of a greenhouse. Sir Wm. Bowman will, perhaps, confirm my experiment, as I suggested this mode of growing this difficult plant to him. We were rather duffers not to have guessed it years ago, as the plant has a great tendency to throw up big shoots from the neck. I suspect it requires dryness in winter, and a great quantity of water in summer. The most glorious plant I saw of it was at Glasnevin ten years ago. Perhaps Mr. Moore can tell us something about it.—FRANK MILES.

Flowers 200 years ago.—The following lists of plants from an old diary may interest your readers. The garden was probably at Richmond, Surrey:—

"TREES IN MY GREENHOUSE IN OCTOBER, 1692.

Great Greenhouse.

| | |
|----------------------------|----------------------------|
| 8 Orange trees in vases. | 1 White Mirtle. |
| 34 in pots. | 3 Orange Stocks. |
| 3 Barmodes Cedars. | 1 Yellow striped Philirea, |
| 5 White striped Philireas. | edged. |

Little Greenhouse.

| | |
|--------------------|---------------------|
| 26 Potts Mirtle. | 2 Sp. Jessamin. |
| 2 Great Baies. | 1 Persian Jessamin. |
| 4 Amomum, Pliny's. | 15 Orange trees. |
| 1 Honey plant. | 12 Stocks, Orange. |

FLOWERS IN MY GARDEN, OCTOBER, 1692.

| | |
|----------------------------------|------------------------------|
| Auriculas. | Auriculas. |
| 3 Dr. Eccles. | 2 Striped purple. |
| 6 Blind's Painted Lady. | 14 Scarlet and white. |
| 4 Amarant, striped. | 15 Great striped brindle. |
| 4 Mr. Andrews, fine and striped. | 16 Large ruffled black. |
| 7 Fine striped brindle. | 17 Small brindle, Edwards's. |
| 11 Monument. | 18 Mr. Borfet's purple. |
| 12 Olive, striped. | 19 Double dark red. |
| 1 Blind's brindle. | 20 Painted Lady. |
| 9 Double stripe | 21 Fine Painted Lady, new. |

OCTOBER, 1697.

| | |
|--------------------------|---------------------------|
| 6 Potts flos cardinalis. | 17 Potts double Likenes." |
| 55 Auricula potts. | |

—W. S.

Self-supporting gardens.—Few are more competent to deal with this subject than "W. L." (p. 41), for he has had many opportunities of ascertaining what to grow in order to produce the best returns, but, as I understand the question, he has not answered it in the way in which the querist desired. Whenever the subject has cropped up, and it has done so several times of late years, I always understood that the querist wished to know how to make a garden self-supporting and at the same time to supply the proprietor with all that he wants. Now, with all "W. L.'s" experience he is obliged to confess that he cannot show how this can be done, and I question if there is anyone else who can do so. The fact is, there are so many unprofitable departments in a gar-

den, principally in order to make it enjoyable, that the cultivator has no chance whatever to make it pay. If, however, as "W. L." suggests, the garden was accredited with the labour devoted to the preparation of bedding plants and other decorative work, the balance would doubtless be on the right side.—J. C. C.

Narcissus poeticus.—Beautiful in form as most of the Narcissi are, *N. poeticus*, according to my idea, rivals them all; it is simply exquisite, and ought to be grown largely for use in a cut state, as it is very effective in vases, and lasts fresh in water almost as long as the plant. The double-flowered variety is even more valuable for this purpose than the single kind; it is better than a *Gardenia*, inasmuch as it is less stiff, while the flowers are quite as sweetly scented. Last year they were quite lovely in their fulness, the rain having come just in time to help them out, while in dry weather and under a hot sun they seem to have a difficulty in opening. The soil in which they appear to do best is a light one, as our clumps increase in it quickly, and are always full of bloom in the spring. The time to lift and replant the bulbs is after the tops die down; but, unless for the purpose of singling them out and making other patches, they are best left undisturbed in the ground where they grow.—S.

WORK DONE IN WEEK ENDING JAN. 26.

JANUARY 20.

A CLEAR frosty day, and the barometer registers as low as 28.90", which, it is to be feared, means more snow, and we have made our arrangements accordingly by getting in supplies of green vegetables, Parsley, Parsnips, and Celery, and have thickly covered up all cold frames, and covered over with straw Cauliflower, Cabbage, and Lettuce plants that are pricked out on the wall-sheltered borders. Our other outside work has been the same as for some time past, namely, grubbing and trenching new ground, cutting down large overgrown Portugal and common Laurels, Hollies, Yews, and Rhododendrons, and thinning out the branches of old Apple trees in orchard. Began to turn over vegetable or leaf-soil heaps, a slight sprinkle of salt being given as the work proceeds; this kills slugs and worms, and for our light soil salt is a most excellent manure. We have never ventured to apply salt to the heaps reserved for potting purposes, but soot is given instead. Put a little additional covering on outside Vine borders, and covered the early border with tarpaulin to throw off rain and snow, for, on examination, we find it completely sodden, notwithstanding that there is abundance of drainage. Though I have no faith in artificially warm borders, either by pipes or manure, I like to keep the border as full of natural warmth as possible, first, by covering up the border early in the autumn with leaves and Bracken or straw litter, and next by preventing the soil getting so wet as ours has before the discovery of the evil. The covering will now be kept constantly on till there is a prospect of continued dry weather. Partially disbudded the early Vines where the "shows" were prominent; all shoots but two at each spur have been taken off; in other cases only the very weakest were rubbed off, the others being left till it can be seen which are likely to be the best bunches. During this cold weather the night temperature is kept at 60°, but soon as milder, we shall go another five degrees higher; 65° to 70°, with the small amount of sunshine we get, is sufficiently high by day. Early Peaches, during the prevalence of such severe weather, we still keep at the lowest safe temperature, 50° to 58°, and they seem to be setting well. When the air is dry we give the trellis a shake to disperse the pollen. Figs are being started very slowly, and are syringed at mid-day only. Potting Ferns and stove plants. Potted off Cucumbers and planted Tomatoes in large pots for training on back wall of Peach house.

JANUARY 21.

A heavy snowstorm, which began in the early morning and continued with but slight intermission the day through; most fortunately for the coniferous plants, there was no frost, and the snow nearly all melted from the boughs of the trees as it fell. It is now freez-

ing (8.30 p.m.) and the outlook is a truly wintery one, and most unusual for Hampshire. Except enforced snow sweeping, outside work of every description has been quite at a standstill, but we have abundance of inside work to fully occupy all our hands. Root and Potato stores are again being examined, to pick out all that are decayed. Label-making and pointing sticks for use in the flower garden, also making boxes for bedding plants and seed sowing; mending netting, tying mats, washing pots, and sponging the leaves of Camellias and Oranges. The year's supply of new seeds has been put in their drawers; old seeds that look good are kept, but are marked as old, as a guide when sowing to sow them thicker than new seeds. Put in more Seakale to force, and laid the old roots that have been forced in sand to keep them from shrivelling till such times as it is convenient to plant them as cuttings. Potted Tuberose, top-dressed all Tea Roses that are intended for forcing in pots, and put a couple of dozen in heat to succeed the plants already in full bud.

JANUARY 22 AND 23.

Snow and frost still continues, and besides grubbing up old tree stumps, gravel digging, and turning over manure heaps, all other outside work is quite at a standstill. Were it not for the snow we should go on with shrub pruning, but having a little regard for the comfort of the men, this work must wait till it is dry under foot; meanwhile, the sheds are having a thorough clean out and the walls lime-washed. All useless and worn-out tools, baskets, boxes, and hampers are being got rid of, and new ones numbered and initialed. These kinds of jobs get scamped except in such a winter as this, so that in the interest of neatness and order, hindering wintery weather is sometimes desirable. Work can always be found for an extra hand or two indoors at such jobs as washing pots, scrubbing paint, sponging plants; every leaf and twig of Camellias and Oranges are all undergoing the latter process by the handier out-door labourers. Put in cuttings of various bedding and stove plants. Sowed Sweet Peas in small pots for planting out about end of March. The scarlet, rose-coloured, and white varieties are the only colours we grow. The dark purple and other washy shades of the same colour, if grown at all, ought to be kept separate, and planted at a distance from the light and more brilliant colours, with which they don't harmonise, and, in fact, greatly detract from the beauty of the lighter colours. People have often remarked on the beauty of our Sweet Peas, never for a moment dreaming that it was simply the exclusion of dingy colours that had led to such remark. Planted out Cucumbers. Potted on second lot of Melons. Picked surplus fruit and weak blossoms off Strawberries, and shifted a few of the earliest on to a shelf in Pine stove, where, under the influence of additional heat, the fruit not only swells quicker, but larger. So early in the season manure water makes but little impression, and at present we only use it about once a week, but we are most particular in using water that is of the same temperature as the atmosphere of the house, and as we have a hot-water pipe running through the water-supply cistern, we have no difficulty on that head. Picked over flowering plants of zonal Pelargoniums, Carnations, Primulas, and Cin-rarias. Just now, in respect of these, damp is the one evil to be guarded against, but by timely picking off decayed flowers and careful use of water, with just sufficient warmth in the pipes to keep the atmosphere buoyant, there need be no anxiety on that score.

JANUARY 25.

Other very heavy falls of snow both yesterday and this morning have again rendered it impossible to do any other work in the open air than that named above, of which, luckily, we have plenty to keep all hands going for some time to come. Indoor work, too, has been much of the same description as for some days past. Grape and fruit rooms have had their weekly overhaul and sweep up to-day, some Pears on which there was a little mildew being wiped with a dry cloth; Beurré Sterckmans and Ne Plus Meuris being a little specky, are the most subject to this mildew. Fruits free of spot seldom take mildew however damp the weather may be, but for all that

it is desirable, by way of preventing the spread of the parasite, to put, when storing, all the speckled fruit apart from the others. Cut all Lady Downes Grapes; we had not space for all on the Grape racks, and therefore the surplus has been put in bottles and arranged on the floor round sides of Grape room. The firing necessary in this severe weather to keep out frost had started the sap of the Vines into activity—bleeding, in fact, had commenced—and so we were compelled to cut the Grapes and turn off the heat to stop further mischief. Finished pruning the Vines.

JANUARY 26.

A thaw set in last evening and still continues, but there is little prospect of doing much on the land for some days to come, as it is in such a wet state, but, having plenty of shrub-pruning, hedge-clipping, and road-mending work, we shall push this to a close in order to be in readiness for garden work proper soon as weather conditions and state of soil are favourable. Cutting Pea sticks and rods for Roses, Dahlias, and herbaceous plants. Pointing and tying them in their various sizes will afford employment in bad weather. Work in the houses has been potting off bedding Pelargoniums, putting in cuttings of Dahlias and Begonia weltoniensis, castanifolia, and Princess Beatrice. The latter is a fibrous-rooted variety, raised by the Messrs. Sutton, and by its hardness, effectiveness, dwarf habit, and persistency in flowering in the open garden will, I think, prove to be one of the best summer bedding plants of recent introduction.

HANTS.

HARDY FRUITS.

THE nailing in of Morellos and the pruning of bush fruits generally bring up the rear in the fruit garden. Then follows a slack time, but it does not last long, as an active mind always finds profitable employment amongst the many subjects under cultivation. Since my last article on hardy fruits was written we have unfasted and washed all the Peaches and Nectarines, and they are now made secure from injury from strong winds and heavy falls of snow, which have been unusually prevalent since the commencement of the new year. The young wood is perhaps not quite so ripe as it has been at the end of more genial years; but it is clean, healthy, and well furnished with flower buds, and the low temperature which has prevailed during the past three weeks has exercised a beneficial influence in checking the flow of sap, not only in these, but in all other kinds of wall fruit trees. All the trees have been pruned, but not shortened back, as shoots that are left full length generally resist severe frost better than others that present a number of fresh wounds to the elements. Then, again, I am a believer in extension training, and being enabled to keep every part of a tree well furnished with fruitful wood, shortening back to maintain the proper balance is deferred until the time arrives for nailing in. This, however, is a very trifling operation, as Peaches that are well disbudded in the spring and judiciously pruned as soon as the fruit is gathered invariably ripen their shoots quite up to the points; and I have yet to learn how a tree can be improved or the balance between root and branch be retained by shortening back every shoot, no matter how well furnished with flower-buds or how kindly it may be growing, simply because it was the fashion fifty years ago to do so. I have often stated that I shorten back the roots of the preceding summer to within a few inches of their origin or start from the previous pruning every autumn, and fill in the trench opened for the performance of this operation with fresh loam corrected with old lime rubble. When systematically followed up, this work occupies very little time, as a set of men, guided by a leader, can operate on a number of large trees in the course of a fine October day. I also cope all my trees either with broad boards or glass lights, 2 feet in width, from the time the first flower opens until the fruit is safe under the foliage, and I never know what it is to have to pick off blistered leaves, and many years have elapsed since the trees missed bearing a full crop of fruit.

BUSH FRUITS,

notably Gooseberries, are left in many gardens until the spring; but really there is no necessity for this delay in pruning, unless other work of greater

importance can be assigned as the reason. Birds, it is true, are now very numerous, and soon ruin the crop of fruit if allowed to attack the trees and go on with their depredations unmolested. Thin threads of cotton are sometimes drawn across the bushes to scare the bullfinches, and shooting is not unfrequently resorted to. The first operation is an unsightly two-days' enigma to the birds. The second of two evils is the greatest, as dust shot flying about a walled-in garden injures many a clean healthy tree to an extent from which it never recovers. And yet the feathered depredators contrive to take their tithe, and the quarters remain uncultivated when a few gallons of finely strained limewash with a handful of soot added syringed over the bushes would keep the buds safe during the winter, and prove a certain preventive of caterpillars in the following summer.

FILBERTS.

Last of all we have the much-neglected Filbert on our hands, and quite proper is delay, as practical nut growers do not approve of pruning until the male catkins appear. This, however, is not absolutely necessary, as regularly pruned trees can be taken in hand at any convenient time after the leaves fall. The one great fault on the part of owners of a few trees lies in not pruning at all, or in allowing many-stemmed bushes to rob the fruit-bearing branches by throwing up a number of useless suckers annually. In a paper recently published in the last volume of THE GARDEN I gave a few useful hints to amateurs on the propagation and after management of Filberts. There still remains time to reduce those remarks to a practical form, and as few gardens exist in which a dry sunny corner suitable to their profitable culture cannot be found, attention to this hitherto neglected subject is worthy of immediate consideration.

THE ORCHARD.

I said at the commencement of this paper there comes a slack time, but that remark hardly applies to owners and managers of extensive grass land orchards, as it rarely happens that pruning, cleansing, top-dressing, and last, but not least, draining are not put off from time to time or imperfectly performed, simply because that slack time never dawns. In my own locality we have hundreds of acres of orcharding overgrown with useless spray and Lichen, and depressed with the weight of tons of Mistletoe awaiting the pruner's knife and saw. Hundreds of tons of inferior Apples and Pears from neglected trees are ground into poor cider and perry, which does not pay the rent; but then it not unfrequently pays the grower in another way, as gallons of this vile stuff are eked out to the poor labourers to the detriment of their families in lieu of wages. Many of these orchards contain excellent sorts of Apples and Pears, which would realise good prices in our northern and midland markets if the trees were properly pruned, thinned, and cleansed. Others containing kernel and Norman fruits rejoicing in local names which, by the way, the Normans at the fruit congress, recently held at Rouen, did not know, would make the best of all stock for heading back and grafting, simply because they have been raised in this country and are indigenous to the soil. Upon these occupiers should exert their skill, and owners of the land, alive to their own and their tenants' interests, should lead the way. In a few short weeks the sap will be rising, and another opportunity will have passed away, but there still remains time for doing good and profitable work: dead and cankered trees and branches can be cleared away, the ground can be drained and top-dressed, and kind-growing wildings can be cut back for grafting in March and April. Now is the time to select wood from healthy trees for grafts, which should be laid in by the heels under the shade of a north wall or fence until wanted for use. If for grafting large trees, two-year-old wood as thick as one's finger answers best, as it stands driving home with the mallet, and is not likely to become gorged when the sap begins to flow freely. Orchard in which grafting has been carried on for some few years generally furnish the best of all wood for this purpose; but where this cannot be obtained well-ripened pieces from healthy-bearing trees will answer equally well. When, however, the system of renovating established

orchards has been fairly started, the first set of trees yield a quantity of thinnings, as it is good policy to insert more grafts than eventually will be wanted to form a good head, for the two-fold purpose of providing many channels for the first flush of sap as well as to give a supply of good wood for future operations. Of equal importance is the selection of sorts, as all localities are not alike suited to the growth of the numerous choice varieties met with in catalogues or distant orchards. It will therefore be well to look round the district and make note of a few of the best sorts that do well and produce good crops of fine fruit. If such kinds as Cox's Orange, King and Ribston Pippins, Blenheim Orange, Court Pendu Plat, and Worcester Pearmain do well, these may be duplicated to any extent, and it is questionable if six more profitable varieties can be met with. If, on the other hand, the locality is too cold or the soil does not suit them, harder sorts possessing size and colour must be selected. These two points, the last especially, tell wonderfully in the market. The first consideration, therefore, should be flavour combined with colour, as one or other of these qualities is absolutely necessary to the profitable sale of English Apples.

Another excellent guide to the making a judicious selection of Apples for any particular district is a visit to a good local fruit show in November. Excellent exhibitions of Apples and Pears have been held at Hereford, and it is to be regretted that they have been discontinued. The best show in this part of England is and has been held in Gloucester for a great number of years, and the members of the committee are deserving of the highest praise for the instructive way in which it is managed. There, in addition to substantial prizes for collections of dessert, culinary, and vintage fruit, classes are formed for many of the leading varieties which do well in the neighbourhood; and unobservant, indeed, must be the visitor who does not note that the finest Blenheims, Ribston, and King of the Pippins England ever produced are staged there in quantity, not occasionally, but annually—a most convincing proof that these varieties may be extensively planted in the western counties. Great conferences may have done good work in discouraging the growth of an endless number of useless varieties and bringing new fruits of decided merit to the front, but I question if well-managed local societies established over the kingdom would not result in greater benefit to fruit growers generally.

Since the preceding remarks were written I have read an article in the *Daily Telegraph*—a paper, by the way, which generally expresses its ignorance when dilating on its discovery of some grand horticultural mare's nest. It quotes largely from a practical writer, who correctly asserts that Apples of English growth are quite as good as the fine-t examples imported from America, and goes on to say that English gardeners neither know how to grow nor pack their fruit when by some lucky accident, I presume, they do succeed in coaxing their trees into a bearing condition. It then asserts that an exhibition at Reading proved a complete failure, through ignorance or incapacity on the part of the framers of the schedule. To this indictment the Reading horticulturists can, I have no doubt, bring forward a satisfactory reply, as I have yet to learn that a district containing a Sutton and a Wildsmith is behind in the growth and exhibition not only of Apples, but of the finest horticultural produce generally. Much might be written upon this subject, but sufficient has been said to show my horticultural confessions that gross ignorance, apathy, and want of commercial enterprise have been laid at our doors. As to our ability as packers not only of Apples, but of the most tender and perishable fruit which our British orchards and hothouses produce, permit me to direct the writer to Covent Garden Market, where at all hours he will see arriving from every station between the Land's End and John o' Groats fruit of every kind packed as none, save British growers, know how to pack. I have often pointed out to owners and occupiers the great importance of putting our old English orchards in better order. Well managed modern orchards are a credit to their owners, as our recent conferences have testified, and it now remains to be seen when British

enterprise, already heavily handicapped by the superior American climate, can overcome the difficulties by which we are beset, not the least of which is a strong prejudice on the part of the British public in favour of highly coloured, but indifferently flavoured, foreign produce.

W. COLEMAN.

Easton Castle, Lebbury.

TREES AND SHRUBS.

PLANTING TENDER CONIFERS.

THOSE coniferous trees that are injured by frosts in this country may be divided into two classes. There are those that are constitutionally tender, and, therefore, either killed outright or greatly disfigured during severe winters; and then there are those that, though perfectly hardy as far as the winter frosts alone are concerned, start into growth so early in the spring that the young shoots are frequently killed by late frosts. In planting any of the tender kinds as sheltered a position as possible should be chosen, as so situated many plants will often tide over a severe winter to which they would succumb if in an exposed spot. Those liable to injury only by late frosts need just the opposite course of treatment, as the more exposed they are so much the longer will the buds remain dormant, and consequently the risk will be lessened of their falling a prey to spring frosts. The most susceptible to injury in this way are the Deodar, some kinds of Abies, and, notably, many of the Silver Firs. So much do they suffer at times, that it is almost impossible to get a good specimen in low warm valleys, while on more elevated ground, even in the immediate neighbourhood, no damage is sustained, the reason being that while those in warm spots are covered with young tender shoots before late frosts are over, the specimens in more elevated regions still have the future growth protected by the resinous scales of the unopened buds. As the principal damage is done by the action of the sun on the plant while the shoots are still frozen, it is at once apparent that where there is a risk of the specimen being injured, it is less liable to be damaged if so situated that the sun in early morning does not reach it. An illustration of this may often be seen in the case of an injured specimen, the shoots of which will frequently be all killed on the side exposed to the sun's rays, while the reverse will be quite uninjured. Probably a good deal might be done to minimise the injurious effects of spring frosts if, where seedlings are raised in quantity, especial care was taken of those that showed a tendency to be later than usual in starting into growth, as perhaps a race could be perpetuated in the second generation with the late growing character completely fixed; meanwhile till such an event happens, exposed planting must be resorted to in order to retard growth.

T.

A desirable Yew (*Taxus adpressa*).—This forms a low dense growing shrub, with spreading branches and much shorter leaves than in the common Yew. Its rate of growth is slow, and it is well suited as an isolated specimen on Grass where anything of rapid growth is undesirable. When so situated that it is not interfered with in any way, this Yew forms a bush of regular outline, the upper portion being generally much flattened on account of the horizontal arrangement of the branches. It is of a very dark green colour, even deeper than the common Yew. This Yew is generally regarded as a native of Japan, but in the "*Manual of Coniferae*" this assertion is questioned. The probability is suggested of its having originated in a once famous nursery in North-east London. There is a variety of the above in which the branches, instead of spreading, are arranged in an upright manner, thus stamping it as very distinct from the type. Another name for this Yew, and one that it is frequently found under, is *T. tardiva*.—ALPHA.

THE BEST CONIFERS.

PRETTY though *Libocedrus chilensis* (p. 58) may be, it is too tender to be recommended for ornamental planting unless in especially favoured localities, while *L. decurrens*, which is quite hardy and withal a beautiful tree, was not mentioned on p. 58 in the notice of the best Conifers. *L. decurrens* is a native of the northern parts of California and Oregon, where it is said to form the largest of trees, reaching at times a height of 120 feet to 140 feet, with a trunk 6 feet to 7 feet in diameter at the base, and free of branches for 70 feet to 80 feet of its height. It was introduced into this country in 1853 and appears to be of rather slow growth; consequently no very large specimens are to be met with. As seen here it is of a dense columnar habit, very suitable for planting where but a limited space exists, as there is no fear of its encroaching on neighbouring walks or buildings. The colour of the foliage is of a deep yet bright green, which is retained during the whole of the year. It is certainly one of the most ornamental of medium sized Coniferae, and must on no account be omitted from any selection, however choice. Though this *Libocedrus* is not fastidious as to soil or situation, it is seen to the greatest advantage in a good, well-drained, yet fairly moist loam. Through some error it was distributed as *Thuja gigantea*, under which name it is even now often found, but the *Thuja* just mentioned is correctly a synonym of *T. Lobbi*. *L. chilensis* inhabits elevations in South America, where it reaches a height of 50 feet to 60 feet, and is valued as a timber-producing tree. In this country it is of a pyramidal habit, with glaucous green foliage, partially silvery underneath. It is of rather dense growth, and when about a dozen feet high, provided it has escaped injury from frosts, is a beautiful object; but, unfortunately, it generally suffers a good deal before it reaches that height. Differing as these two kinds of *Libocedrus* do in all prominent features, there is yet another point to be noted, and this is the fact that the Chilean species will strike at least fairly well from cuttings, while *L. decurrens* is among the most difficult of Conifers to root in that way. When cuttings are put in, many of them form a large callus, and then remain in that stage without any attempt to push forth roots. When this occurs the cuttings should be taken out of their pots, and a few of the excrescences cut off from the tuber-like mass, after which they can be put in again as before, and many will then strike. There are a couple more species of *Libocedrus* in this country, but they both require the protection of a greenhouse, and are by no means common. The most frequently met with of the two is *L. Doniana*, a native of New Zealand, where it reaches the dimensions of a large tree. In its young state it forms a narrow pyramid of a beautiful bright green colour. The branches are frond-like in character, and arranged rather closely together, so as to form, generally speaking, a dense-habited specimen. When from 6 feet to 8 feet high, it is a most beautiful object for the greenhouse or conservatory, but mostly after

that time the lower branches get thinner, probably from the want of such a free circulation of air as they would get if planted in the open ground.

The same treatment as to soil, temperature, &c., required by the greenhouse *Araucarias* will suit this *Libocedrus*. *L. tetragona*, the last to mention, forms a loose growing bush, with no very strong claims to beauty. It is, however,

minds one to a certain extent of some of the larger kinds of *Rhus*. It has a clear stem, as a rule not very straight, and large pinnate foliage, rather thinly arranged on the branches. The flowers are yellow and borne towards the end of the summer in terminal panicles, at which time the plant is very handsome, but even from a foliage point of view alone it is highly ornamental. The *Kœlreuteria* is more often planted on the Continent than with us, for though introduced into this country from China somewhere about 100 years ago, it is still but rarely met with. The rich yellow of the decaying foliage and the curious inflated capsules (when they are present) tend to form an attractive autumn feature. It is perfectly hardy in this country, and, failing seeds, can be propagated by cuttings either of the roots or branches, but the first named is the method generally used, as root cuttings grow away very freely.—ALPHA.

The Kentucky Coffee tree.—We have two very good examples of this tree (*Gymnocladus canadensis*) mentioned in THE GARDEN (p. 84). They are growing beside a good *Deodar*, and are just about 55 feet in height, and girth respectively, at 3 feet from the ground, 6 feet 6 inches and 6 feet 10 inches. They were well sheltered on all sides until they attained a height of 12 feet, but are now thoroughly exposed. The situation is low and moist at the bottom of a slope, and the soil is a sandy loam. The remarks made last week as to the free flowering and the non-production of seed are fully borne out in the case of these two trees. One other characteristic I may notice, and that is they are the latest of all our deciduous trees, both native and exotic, in developing their foliage in spring.—E. BURRELL, *Claremont*.

Grafting Euonymus.—The common *Euonymus* is often used as a stock on which to graft the various evergreen Japanese kinds, and, strange as it may appear, the deciduous character of the stock does not seem to affect the scion in the least—at all events so far as my experience extends, and I have some hundreds treated in this way as well as on their own roots. The grafted plants certainly grow the faster, and suckers or shoots from the base of the plant do not seem likely to be any trouble. One thing with regard to grafted plants is that by employing strong vigorous young seedlings as stocks, standards can be formed if desired, for the *Euonymus* is by no means difficult to graft. They had better be kept under glass till the union is complete. In this way I have seen the creeping *E. radicans* in quite a new character, viz., grafted on a branching head of the *Spindle tree*, about 5 feet high. As several grafts were put on closely together, a dense head of foliage was formed, whence the long, flexible shoots hung down for some distance.—ALPHA.

The Fremontia as a standard.

In some parts of the country this shrub succeeds perfectly as a standard. In the Tooting Nursery, in Mr. Parker's time, it used to grow and flower well in the open, and in Mr. A. O. Walker's garden at Nant-y-Glyn, Colwyn Bay, a bush of it grows in the centre of a lawn. It measures 7 feet high and about 8 feet in diameter. It has rather long, flexuous branches, covered along the greater part of their length with large yellow flowers and buds. It was planted, Mr. Walker tells us, in November, 1872, and previous to 1879 had much the habit of a pyramid *Pear*, but, we regret to say, the severe winter of that year quite killed the leading shoots.



The Great Corsican Pine at Kew, the largest tree of the species in this country. Present height, 88 ft.; girth at 4 ft. up the stem, 8 ft. 10 in.; girth at base of trunk, 12 ft.

said to be greatly valued by the Chilians as a timber tree. ALPHA.

Kœlreuteria paniculata.—To anyone requiring a small growing lawn tree that will bloom towards the end of the summer this can be recommended, especially if the soil be light and sandy. It is also spoken of as a good tree for chalky soils, but of this I have had no experience. The habit of this tree re-

DIED, at Stanstead Park, Forest Hill, on the 20th inst., FRANK DESKINE, youngest son of John Long, nursery and seedsman, in his twenty-second year, after a long and painful illness.

WOODS & FORESTS.

HOME V. FOREIGN TIMBER.

THERE is little to explain to Mr. Webster (p. 85) on this subject. The gloomy picture he draws himself of the state of the home timber trade is sufficiently corroborative of my statements. The coal I spoke of belongs to the owner of the timber, but the colliery, which is an example of others, is let to a company who cannot be dictated to as to where they are to procure their plant and materials. They pay the landlord the maximum royalty for the coal, perhaps, and having to take all risks connected with prices and strikes, &c., as a matter of course they please themselves where they will get their timber. Your correspondent, Mr. Webster, does not seem to realise that it is not so much a matter of agreement between the tenant and his landlord as a question of values. Probably, if the landlord was to engage to pick his Larch and Oak for the purpose, and deliver it at a price that would enable the colliery proprietors to prepare it for their purpose cheaper than foreign timber, a bargain might be struck, but this is just what the landlord cannot afford to do, unless he parts with his timber at about cost price or less. I am informed that foreign pit props and other timbers are now being delivered at these pits at 8d. per foot, all cut to the desired size and ready for use. Colliery owners do with the timber dealers as they themselves have to do with the gas companies and other consumers of coal—they have their timber provided by contract by the year, or for a shorter period. Mr. Webster writes, "No one need be surprised that the miner will not make a purchase when he can get foreign stuff of a proper size at a cheap rate." Exactly, that is where the shoe pinches, and quite knocks on the head Mr. Webster's counter proposal for the miner to "give his landlord a fair price for his timber." If Mr. Webster knows anything whatever of the miner's wants and the quality of foreign timber, he must know that no English timber merchant could supply pit props (which represents the bulk of colliery timber) of the uniform size of the foreign stuff, unless the woodman was to cut one or two out of every Larch or Fir he felled, and have the fragments left on his hands. Short of doing this we do all we can to accommodate customers. I have contracted to supply so many feet of Larch bound by the condition that the trees are to average 10 feet, and all to be as near that size as possible. The price offered is not high, and the big trees are left for whoever will take them. I offered the latter also at a price that would have enabled the miner to halve or quarter them for props, as is sometimes done, but could not deal, the round props being better and more convenient.

At these collieries foreign Oak and other woods are supplied in logs and planks of a workable size and cheap, and that is where the English timber is cut out. The cutting up of English timber is an expensive department at collieries where it is used, and that is one of the main objections to its use, otherwise it is generally acknowledged to be superior to the foreign in quality. It is all very well for Mr. Webster to talk of growing the kinds of timber likely to be wanted. I presume that is what landlords have tried to do in the past, and what Mr. Webster and I have to do now is to dispose of it profitably as it stands. That is the problem at present. Mr. Webster says he looks upon "the landlord's and tenant's interests as being identical," which may be in the case of agricultural tenants having patches of land let by the year; but with collieries with forty years' leases, and no other connection with the landlord than paying the rent,

whether the stipulated quantity of coal be raised annually or no, there is not the same common interest, nor is such a thing ever expected or insisted upon. The landlord buys his coal at the market price, and perhaps uses as much in one year as a regular consumer will take at one time. But be these matters as they may, it is a fact that there are collieries surrounded by estates containing any quantity of timber ready for sale that will use none other than foreign timber. YORKSHIREMAN.

DRAINING PLANTATIONS.

ALL who have much to do with plantations cannot fail to see the advantage of draining, although some proprietors, on account of the expense, consider it unnecessary; by draining, I mean particularly surface drains; these can be made at a very small cost—about 1d. per rod for the ordinary sheep drains, which they resemble, 20 inches wide at top, 14 inches at bottom, and about 12 inches deep. The benefit of these drains is immense in drying the ground, and it is worthy of attention to observe that along the line of drain, upon the stuff thrown out, the trees beat their neighbours; and you can often follow out the line of drain by looking along the tops of the young trees, which in the above situation are so much more vigorous than their neighbours, that they sometimes resemble a hedge on a bare part of the plantation.

If a stone dyke is made, there ought to be, in about every hundred yards, a set of steps, forming a stile, for crossing into the plantation. This will be found a great saving to the wall, if sportsmen and their dogs are in the habit occasionally of following game into it, for both man and dog will prefer the easiest point for getting over the fence, and they will not pull down a stone or two every time they pass, to the danger of their legs and the detriment of the fence.

Young plantations are a great shelter for hares, and if it is wished to give them access, let pens or conduits, 12 inches by 9 inches, be made also every 100 yards or 200 yards in the dyke. Neither these nor the stiles will add a sixpence to the original contract price of the dyke. Let these pens or conduits, however, be shut up in autumn whenever the corn is cut; as when the hares lie in the plantation, and feed out of it, they are easily snared on the runs leading to the pens. The pens for the hares should be opened about the beginning of March; and the keeper should look sharp after them. Any gate to the plantation should be boarded, so as to prevent hares passing in or out; for if this is not done, it is the poacher's harvest field with his net. During the months of October to March, inclusive, the hares will take the dyke at any part when they wish access, but the young ones are not able to do it. The pens are useful also for young partridges and pheasants passing to and from the cover. SCOT.

Timber trees in ravines.—Some of your correspondents appear to have missed the point in supposing that the reason why timber trees are taller in ravines than elsewhere is that the roots are usually in a richer soil in such places. Mr. Webster goes quite into the geology of this subject. The soil, as a matter of fact, has nothing to do with it. Trees in the bottoms of ravines are taller than those at the sides and tops because they are "drawn up" exactly like plants in a seed-bed, or where the light has access to their tops only. The tallest are always in the centre, as anyone may notice who will examine the first bed of Cabbages they come across. We set out a fall of Ash and Oak lately in a deep ravine,

where the trees in the bottom are the tallest and straightest on the estate, although comparatively young and in poorer soil than those growing on the level ground at the top, once pasture and good and rich soil.—S.

RATE OF TREE GROWTH IN A YORKSHIRE PLANTATION.

THE following details concerning the rate of tree growth on an estate in mid-Yorkshire may be of interest to some of your readers. It is interesting, as the trees recorded have all been raised from seed obtained principally from America. The soil consists generally of a sandy loam on a sub-soil of clay or sand, and at the time previous to finally transplanting the seedlings the ground was trenched about 3 feet. The situation is moderately exposed:—

Quercus tectoria, ten years from the seed: height, from 14½ feet to 15 feet; diameter of the trunk 1 foot from the ground, 2½ inches to 3 inches; diameter of space covered by the branches, 8 feet.

Q. coccinea, ten years from the seed: height, from 14 feet to 16 feet; diameter of the trunk 1 foot from the ground, 2½ inches; diameter of the space covered by the branches, 11 feet.

Q. Cerris, seven years from the seed: height, 12 feet; diameter of the trunk 1 foot from the ground, 2½ inches.

Gleditsia triacanthos, ten years from the seed: height, 13 feet; diameter of the trunk 1 foot from the ground, 2½ inches; diameter of space covered by the branches, 9 feet.

Platanus orientalis, eight years from the seed: height, 14 feet; diameter of the trunk 1 foot from ground, 3 inches; diameter of space covered by the branches, 10 feet.

Fraxinus excelsior, nine years from the seed: height, 20 feet to 21 feet; diameter of the trunk 1 foot from the ground, 3 inches.

Ulmus montana, ten years from the seed: height, 13 feet; diameter of the trunk 1 foot from the ground, 4 inches; diameter of space covered by the branches, 8 feet.

Cerasus virginiana, ten years from the seed: height, 14½ feet; diameter of the trunk 1 foot from the ground, 3½ inches; diameter of the space covered by the branches, 9 feet.

Liquidambar styraciflua, ten years from the seed: height, 11 feet; diameter of the trunk 1 foot from the ground, 2½ inches.

Juglans nigra, ten years from seed: height, 17 feet; diameter of the trunk 1 foot from the ground, 3½ inches to 4 inches; diameter of the space covered by the branches, 6 feet to 11 feet.

J. nigra, eight years from the seed: height, 14 feet; diameter of the trunk 1 foot from the ground, 4 inches; space covered by the branches, 7 feet.

Carya alba, ten years from the seed: height, 10 feet; diameter of the trunk 1 foot from the ground, 3 inches; space covered by the branches, 5 feet.

Liriodendron Tulipifera, ten years from the seed: height, from 14 feet to 16½ feet; diameter of the trunk 1 foot from the ground, from 2½ inches to 4 inches; diameter of the space covered by the branches, 5 feet.

Robinia Pseudacacia, ten years from the seed: height, from 26 feet to 23 feet; diameter of the trunk 1 foot from the ground, from 6 inches to 8 inches; diameter of the space covered by the branches, 14 feet. Another tree, eight years from the seed, is 23 feet high; diameter of the trunk 1 foot from the ground, 4 inches to 5 inches; diameter of the space covered by the branches, 10 feet.

The foregoing measurements are taken of average-sized trees among the seedlings that were planted out to remain permanently. These facts show what may be done in tree-raising even in a brief interval of ten years. J. C.

Canadian forestry. The High Commissioner for Canada informs us that he has received a number of pamphlets relating to the forests of that colony, and states that he will be pleased to send a copy to any reader of Woods and Forests who may forward his name and address.—*Victoria Chambers, London, S.W.*

No. 742. SATURDAY, Feb. 6, 1886. Vo XXIX.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

GRAPES AND FLOWERS TOGETHER.

I HAVE, in former communications, endeavoured to show what may be done by a professional man at a small expense in growing Grapes and flowers in the same houses for home and other uses. It may interest some of your readers to give the results of the past autumn and winter. First, as to Grapes, all from outside borders and with moderate heat. In my first house I had a grand crop of a small highly-flavoured Black Muscat of a kind now gone out of cultivation, very early Black Hamburgs, and Muscat of Alexandria, all Vines of 20 to 40 years old (rods cut out in succession about one every year), with Palms, Grevilleas, Cytisuses, Geraniums, Abutilons (full of flower now), Petunias, Cyclamens, Ferns, Tradescantias (for foliage cutting, always green), and Acacias, all growing either on a bed in the middle, on narrow shelves round the sides, on a broader shelf or stage running along the south front, or on a clinkered back wall; outside borders well mulched with manure in the autumn, and meal bone-dust carefully raked in when the mulching, or rather what is left of it, is removed. First Grapes ripe in August. In my second house, lean-to, with a Plumbago capensis on the back wall, I have Black Hamburgs and Lady Downes, the latter still hanging with the bloom on the berries and beautifully coloured, with a shelved stage against the back wall and a broad shelf or stage along the front, on which there are varieties of Begonias, many in flower all winter, Vallotas, and hard-wooded plants, Geraniums and such like. Ficus repens, for foliage, creeps about the walls wherever it can force its shoots. In the third house, lean-to with back lights, there are two Black Hamburg Vines (of which I am cutting the last bunches in the cool end), with a stage holding Daphnes, Cytisuses, and such like plants, and a large Clematis indivisa lobata potted trained to the glass at the sunniest end, besides my Pelargoniums on a broad shelf at the front near the glass. In the warmer end, the house being partitioned off with glass, there are three Vines, which are my earliest, with a Stephanotis trained to the glass, together with Coleuses, Lasiandras (in bloom all winter), various delicate Ferns and Begonias, a Euphorbia splendens, Coleuses, and Dracenas. Adjoining is a small propagating house, in which, to my great delight, two varieties of Cypripedium, a Zygopetalum (the large-flowered species), and a few other Orchids bloom splendidly. Three cuttings of Euphorbia jacquiniæflora potted in an 8-inch pot were placed here last summer, and have been of great service for ball bouquets. Primulas, Roman Hyacinths, Campernelle Jonquils, Paper-white Narcissi, and Tritelia uniflora have been in bloom for some weeks, and are scattered about wherever there is room for a pot. At the present moment, by a judicious combination of cold frame, cool house, and propagating house, our earliest Hyacinths, Tulips, and Cinerarias make us very gay even in January. Our Chrysanthemums (brought in on the 8th October every year) carry us over Christmas; then come the Christmas Roses, Roman Hyacinths, Paper Narcissi, and Campernelle Jonquils, so that the church, house, and button-holes have always been kept supplied. Having only one gardener with occasional help,

my expenditure is not extravagant, and the relaxation afforded me by my little horticultural experiments is priceless. The houses are kept as dry as possible during the winter, and are always open more or less during daylight if it is not freezing. There are many things I cannot attain to, which I read of in the pages of THE GARDEN, for want of sunshine, even with forcing, such as blooming Roses, Marguerites, Carnations, and the like, but I shall make a good show with Gloire de Dijon and Cheshunt Hybrid Roses in pots (summered out of doors) and trained up to the glass as soon as spring fairly opens. It is, perhaps, worth naming that our bulbs were buried as soon as potted in a spent Mushroom bed in an old stable instead of in ashes outside, and they seem to be stronger and earlier than we have ever had them before. My Daphnes, once prized for button-holes and bouquets, have mysteriously died for two years, but as a neighbour of mine, who has six men in his gardens, has had similar losses with his, I cannot blame myself. Can any of your readers suggest a remedy? NORTH-WEST CHESHIRE.

INDOOR GARDEN.

HOVEA CELSI UNTRAINED.

AMONGST the many beautiful flowering plants that seem destined ere long to be lost to cultivation is this Hovea; at one time it might have been met with in any greenhouse containing a fairly representative collection of hard-wooded plants, but at the present time—gem amongst blue-flowered subjects though it be—it could not perhaps be met with in a dozen places in the kingdom. If the plant was difficult to manage, there would be some cause for its non-appearance; but that is by no means the case, as with ordinary attention it will go on thriving for a number of years, having its numerous wiry shoots each spring crowded with pea-shaped flowers, which, when the plants have attained a goodly size, present a sight such as cannot fail to attract even the least observant. Not only are the flowers of this Hovea produced from end to end of the preceding year's shoots, but they come also on the older wood at the base of the old buds, whence flowers have been borne before. The plant is an Evergreen with comparatively small leaves, which it retains well; the flowers spring from the base of the leaves. It is naturally slower in growth than some things, especially in the earliest stages of its existence; but the reason of its taking more time to attain size than many plants of a kindred nature when grown as pot specimens in the ordinary bush form is the fact that it has a persistent disposition to spire up to a considerable height before it shows an inclination to branch out. In order to correct this, when required to be low and bushy, the shoots have to be repeatedly stopped, which checks the root action to an extent that prevents the plant from getting on as it would otherwise do had it more of its own way. When the shoots are not stopped it will usually run straight up for some 3 feet or 4 feet with a single stem, and then begin to branch out, which it does as freely and with no more inclination to confine itself to a leader than ordinary bush-habited plants.

THE NATURAL CHARACTER of growth which it thus exhibits points to the way in which, to do it justice, it should be grown; a position at the end or in a corner of a moderately high greenhouse or a conservatory is the best place for it, and admits of the full beauty of the plant being seen; so placed, it will attain a height of 9 feet or 10 feet, forming a moderately close head 5 feet

or 6 feet through. Enough use is not made of plants possessing the character of growth such as this Hovea has in conservatories—where something is wanted besides the ordinary things that are grouped together on the floors or stages—but if they were oftener present, the effect would be infinitely better. Roof plants there are in plenty of the usual climbing or twining description, but the majority of those used are so rampant in growth, that unless the knife is continually at work, with the result that the plants so cut make less bloom, one may give up the idea of anything underneath doing much more than exist; whereas if a few informal bush-headed plants, on sufficiently high stems, were grown in the corners and at the ends of such houses, with well-selected and well-managed basket plants suspended from the roof and fewer of the climbers, a better effect, more variety, and a more satisfactory condition of the general occupants would be secured. Where this Hovea is to be grown in the manner here recommended, plants should be selected that have not been stopped, but have been allowed to go on in their natural erect form with a single stem until they have got stems high enough to suit the position they are to occupy; and if before the stems are high enough the plants show a disposition to make side shoots, these should be rubbed off before they have made further progress than starting to grow; in this way the stem will quickly attain the requisite height. Up to this it is better to keep the plants in pots no larger than will suffice to keep them growing freely, as in common with other things—especially such as are not quick growers—if placed in too large a body of soil whilst small, the roots are not present in sufficient numbers to take possession of the material in time to prevent its getting into an unsuitable state.

PEAT is the best soil for the plant, and it should be of a moderately light nature, with plenty of fibrous matter in it so as to keep it in good condition for a lengthened time, as with this and similar subjects there must be no attempt at shaking out the roots with the object of replacing the old soil with new in the way that strong-rooted deciduous plants will bear, as they can readily make good any injury their roots may receive. Sand must be added to the peat in more or less quantity proportionate to the amount which it contains. Although the plant, as already said, is not delicate, it does not make nearly so many roots as some things; consequently at the annual repotting, which should take place each season before growth commences, which is shortly after the flowers have faded, large shifts are not necessary, and must be avoided. Pots about 2 inches bigger than the plants have before occupied will be large enough, except in the case of any examples that may be unusually vigorous. When the specimens get large and strong they may require pots 16 inches or 18 inches in diameter. Hovea Celsi is not a delicate-rooted plant, such as many hard-wooded species are that come from the same country (New Holland), and is not so impatient of water as they are, but still it will not bear the extremes of either having the soil saturated or of its being allowed to get dried up through careless treatment such as some things would stand. When the plants have attained a size that enables them to grow away freely they will be benefited by weak manure water in the height of the growing season, but stimulants of this nature require to be given with judgment, and not applied except when both root and top growth are in full motion.

INSECTS trouble this plant but little, the hard texture of the leaves not affording food congenial to their tastes. Nor is it at all subject to mildew,

the nature of its foliage being proof against this pest, which is so troublesome on some hard-wooded species. It has now got so scarce, that there is difficulty in procuring seeds, by means of which it is best increased. Nor would it seem that growers abroad are much better off for a supply of these seeds than we are, as I have had enquiries from several of the leading Continental growers as to whether seed was to be procured in this country. T. B.

Lily of the Valley.—Mr. Henderson, of Thoresby, says (p. 88) that he finds bulbs prepared by himself in a manner which he goes on to describe came away much more freely than foreign bulbs, and "J. C. C." states (p. 89) that his friend who grows Lily of the Valley extensively for market fails to get leaves as well as flowers from foreign bulbs, and that he grows English roots for their leaves. Now my experience does not in the least agree with either of these growers. Indeed, the question at once suggests itself, is it not possible to get both flowers and leaves from foreign pips, such as those who buy from nurserymen are sure to get? I herewith send you a potful of this Lily, which I think would disabuse the minds of the most sceptical on this point. Failures in Valley Lily growing, I know, are common, but in no instance that has come under my notice has it been so much the fault of the bulbs as their after treatment. For the last seven years I have forced some thousands of Valley Lilies annually and, I rejoice to say, without a single failure, and this, taking into consideration that I have had pips from six of the principal nurserymen, seems to tell me that my treatment of them must be right. I will, however, await your comment before I venture to tell you how I succeed in producing such Lilies and leaves as I send you in about twenty-one days from the time of putting them into heat any time from December onwards.—WM. ELPHINSTONE, *Shipley Hall, near Derby.*

* * Nothing in the way of Valley Lilies could possibly be finer than the potful in question, both flower-spikes and foliage being all that could be desired. It will, therefore, be most interesting to know how such excellent results are obtained.—ED.

SHORT NOTES.—INDOOR.

Double Poinsettia (p. 88).—We grow this largely for church decoration at Christmas. We have also two varieties of pulcherrima, one in every way superior to the other.—LECOMBE, PINE & Co., *Exeter.*

Franciscæ confertiflora.—This plant flowered last November, and was in rather a dirty state, so I cut it down till there was not a leaf left. It broke again freely, and now it is, singular to say, flowering again at every break, its beautiful dark purple blossoms and shiny green leaves contrasting well with Eucharis in flower on either side of it.—W.

Small Daffodils in pots.—In October last I put two dozen of the Irish Trumpet nanus (nanus angustifolius of Hartland) into pots in a cold frame, and to my surprise and delight they sent up their charming little blossoms to gladden me on January 10. I consider them a great acquisition, and hope to have many potfuls next winter. What a boon they will be for table decoration!—MAUDE SAUNDERS, *Ardmore, Torquay.*

Cypripedium insigne.—I have three very fine plants of this Lady's Slipper, one of the good old things now somewhat neglected, and I may mention another, viz., *Dendrobium nobile*, of which a plant now in my possession is in great beauty, bearing, as it does, nearly 300 blossoms. Half a dozen large plants of this *Dendrobium* in flower at this season are most useful and also most beautiful.—R. GILBERT, *Brighton.*

Eucharis amazonica.—I have two pots of this, 12 inches in diameter; they have not been reported for three years, and have been in a small Fern house. One or the other is generally in flower; both have had, when growing and in flower, liberal allowances of liquid manure and a top-dressing of Thompson's Vine manure. They were in flower four times each during last year, and one is now in bloom.—H. J. GREEN-HAUGH, *Cotham Road, Maresfield, Notts.*

Iris reticulata.—As a pot plant in a cool house this Iris is now very sweet and beautiful, its rich purple tints contrasting with golden Crocus buds and blossoms. Its variety *cyanea* opened with us in the open border without any shelter on New Year's Day, and *Krelagei* is now showing buds, and a few sunny days will bring out its flowers among the winter Aconites and Cyclamen leaves. What has become of the lovely *cærulea* raised by the late Mr. Nelson? *I. reticulata sphenophylla* has just bloomed with Prof. Foster, of Cambridge, the flowers appearing before the leaves, and *I. histrio*, from Palestine, is also now in flower. These netted Irises are the loveliest jewels in the new year's garland so far.—F. W. B.

Late Chrysanthemums.—Of these the three best varieties now in bloom are Mons. Lemoine, Madame Délaux, and Tokio. In order to have late flowers my mode of treatment is as follows: All growth is allowed to develop without any stopping or disbudding whatever; every shoot produces a flower more or less, the leading shoots producing six or seven in clusters. The lower shoots of all three varieties named generally produce from two to three flowers. A large china bowl filled with such blooms and scarlet Camellias associated with good foliage forms a striking object on the breakfast table. Cuttings are put in during December, January, and February in 2½-inch pots, plunging them up to the rims in a cold frame. At the present time I have a one-light frame of cuttings put in the first week of December, and plunged in burnt earth, this being handy and free from worms or slugs. During the late severe weather they were looked at every three days to see if any damp had settled on them. They have had no water for a month; on turning several out of their pots I found most of them to be rooted. I have a three-light frame filled with rooted offshoots in large 2½-inch pots, under what I consider entirely cold treatment, an important point in reference to success in flowering Chrysanthemums. The frames are covered when the weather is very cold with a double thickness of canvas, and a light covering is put over all of dressed canvas to throw off the wet. It is fastened down with eyelets and cords, and is a capital thing for covering cold pits in severe weather, being cheap and durable. I at one time grew all my stock of Chrysanthemums in vineries up till March; then I had to turn them out in any place I had for protection; they thus got a check from which they never recovered. I give two shifts before their final potting into 11-inch and 12-inch pots, putting two plants into a pot; the latter has a cross groove on bottom. The compost which I use is fibry turf, old cow manure, crushed bones, and a little sand. I drain well and put a sprinkling of bones over the crocks. When potting finally allow room for a top-dressing to be put on when the plants are housed in October. This keeps them going and soon gets filled with fresh roots. I have to put my plants in vineries and remove them to the conservatory when in flower.—GEO. BOLAS, *Hopton.*

* * With this communication came some good Chrysanthemum blooms for this season of the year. They consisted of Early Red Dragon and Tokio, two bronzy yellow-coloured sorts; Madame Clemence Audiguier, lilac and white; The Sultan, somewhat similar in colour; Madame Délaux, a lovely golden flowered kind tinted with red; and M. Lemoine, a profuse flowering and effective yellow variety. ED.

NOTES OF THE WEEK.

Auricula and Carnation shows.—The usual exhibitions of the National Auricula Society will be held on April 20, and that of the National Carnation and Picotee Society on July 27. The Auricula show will be of exceptional interest this year, inasmuch as the Primula exhibition and conference will be held in conjunction with it.

Galanthus Elwesi.—The first flowers of this fine Snowdrop that we have seen this season came from Messrs. Barr, of Covent Garden, who send us a large gathering of large blooms; they were produced in the open air, but, for the sake of preserving the blooms from damage by rains and frosts, a handlight was put over them. We shall now have a succession of Snowdrops up till April, when G. Redouté will finish the season.

Mr. Philbrick's Orchids.—The choice collection of Orchids in Mr. Philbrick's pretty garden at Oldfield, Bickley, contains just now a number of beautiful kinds in flower. Among the Phalenopsis which are grown here uncommonly well there are flowering specimens of *P. casta*, a delicately-tinted hybrid, the rare *P. Dayana* and *P. Sanderiana*, the latter an extremely fine variety remarkable for its deep rosy purple tint, probably the darkest yet flowered in this country. *P. Stuartiana*, *nobilis* and *Schilleriana* also contribute to the display of bloom. The Cattleya

Trianae varieties are just commencing to flower, and already there is the superb *Backhousiana*, the one with the large and high-coloured flowers heavily blotched and feathered on the lateral sepals with carmine-crimson. It is amongst the choicest of the select forms of *Trianae*. *C. speciosissima* is also very fine in this collection.

Narcissus Minnie Warren.—Mr. Hartland, of Cork, sends us flowers of this little gem, which is doubtless the smallest of all the white Trumpet Daffodils. The blooms are no larger than those of nanus and of similar shape, and scented like Violets. Their colour is a soft creamy white. It is a most welcome flower so early in the season. Mr. Hartland says that it is "a long lost flower which he has had the good fortune to find." He considers it to be the single form of *N. capax*.

Lachenalia quadricolor superba.—Mr. Moore sends from the Glasnevin Botanic Garden a spike of a most beautiful Lachenalia under the name of *L. superba*. It is clearly a form of *L. quadricolor*, but the colours are richer and more distinctly defined than in any other form of this variety which we have seen. There are four different tints—yellow, pale green, orange-red, and crimson-purple, the tips of the bell-like flowers being tipped with the latter colour. This variety combines elegance with attractive colours in a very charming way.

Bomarea frondea.—This is one of the new species of *Bomarea* lately introduced from South America, and of which Mr. Moore sends a flower cluster from the Glasnevin Botanic Garden. The flower-heads resemble those of *B. Caldasiana* and number about 30 in a cluster. Each bloom is nearly 2 inches long. The sepals are yellow, spotted interiorly with brown. Such a beautiful plant must have a fine effect as a pillar or roof plant in a greenhouse, and no doubt it habitually flowers in winter, as the Glasnevin plant has done. Has anyone else flowered this species?

Barleria flava.—The Barlerias have not found as much favour in English gardens as their cousins the Aphelandras, Justicias, Ruellias, &c., have found, and, if we except two or three species, none of those known are worth growing as ornamental plants; the three exceptions are *B. cærulea*, *B. Mackenii*, and *B. flava*. This last may now be seen in flower at Kew. It is a Pentas-like plant both in habit and foliage, and its branches bear on their ends erect spikes or heads of bright yellow tubular flowers 1½ inches long, with the segments recurved; at the base of each flower there is a pair of green ciliated bracts, not unlike what is seen in the Justicias. There are, of course, many better plants than this among the Acanthads, but most of the known ones flower in summer, so that we may safely recommend this as a useful and ornamental winter-flowering plant.

Narcissus monophyllus.—The white Hoop-petticoat Daffodil and its cultivation has been the subject of discussion in the pages of THE GARDEN on several occasions, and we are glad to observe that this beautiful little winter-flowering plant is now cultivated with success in many gardens. At Kew, for instance, we saw a 4-inch pot with four plants growing in it, and upon these were six flowers, two plants with two flowers each. Lasting in flower at least a fortnight, it is easy to see how a few potfuls of this Narcissus could be made to fill a large gap in a cool greenhouse during the months of January and February. The secret of growing and flowering this species is simply this. From March or April till October place the pots containing the bulbs on a shelf in full sunshine, and don't allow water to come near them. In October dip the pots in water for an hour and keep the soil regularly moistened afterwards, and if flowers do not soon make their appearance something other than treatment will be to blame.

Bauhinia variegata.—There are a great many species of Bauhinia which are worthless as garden plants, owing to their requiring much more pace for development than an ordinary greenhouse admits of, or to the difficulty of growing them in this country so as to obtain their flowers. A few are, however, exceptions in this respect—*B. corymbosa*, the beautiful trailer so finely managed at Pendell Court; *B. natalensis*, a small white-flowered, free-blooming

plant; and *B. variegata*, sometimes called *B. purpurea*, being the most familiar. The last named species was the subject of a plate in the *Botanical Magazine* last year, a large plant of it having flowered in the Palm house at Kew. This plant is now again showing flower. It is a scandent shrub and covers a space of about 120 square feet; the branches are numerous and twiggy, the leaves a dull glaucous green and of the curiously bi-lobed form common to plants in this genus. The flowers are borne in terminal clusters on the ends of the ripened shoots, half a dozen flowers being the usual number in each cluster. In form the flower is like a very large *Pelargonium*, the petals being broad, stalked, $1\frac{1}{2}$ inches long, spreading, their colour pale blush except the uppermost one, upon which is a large blotch of crimson; the edges are slightly crisped and undulated. This species is a native of India, and requires stove treatment.

Roydsia suaveolens.—None of the Order to which the genus *Capparis* gives its name are ornamental, either in flower or in leaf characters, but some of them are deliciously fragrant, and one, the well known Caper plant (*Capparis spinosa*) is valuable as yielding the condiment known as Capers, which are simply the flower-buds preserved in salt and vinegar. *Roydsia suaveolens* belongs to the fragrant flowered plants of this Order; it has smooth, shining green, Laurel-like leaves, which are arranged alternately along the branches, and from their axils on the ends of the young ripened shoots the flowers, arranged like Bottle-brushes on stalks 4 inches long, are developed during autumn and winter. They have no petals, but from a round, leathery-looking calyx spring the stamens in a spreading cluster. So far we have said nothing that would commend the plant to a gardener, but its charm resides in, or rather comes out of the flowers, the fragrance they emit being both powerful and delicious, a mixture of Orange blossom, Lilac, Violets, and Narcissus being the description given of it by a keen-scented friend. A large plant of this Indian climber may now be seen in the Palm house at Kew, where it is planted in a bed and trained along the roof of the house, close by the side of the *Bauhinia variegata*.

Encephalartos villosus.—It is not generally known that the cone fruits of some of the Cycads are exceedingly ornamental, thus adding to the garden value of these plants, which are usually looked upon as being attractive only as regards their pinnate foliage. The handsomest fruited among the Cycads in cultivation with us is the above-named *Encephalartos*, a fine specimen of which bore a beautiful cone in Mr. Bull's nursery about two years ago, and an equally beautiful fruit may be seen at the present time on a plant in the Palm house at Kew. On this plant the leaves are 7 feet long, gracefully arched, and composed of regularly arranged pinnules, 1 foot in length and three-fourths of an inch broad, their colour a dark shining green. The cone is 15 inches high by 6 inches in diameter, and is made up of numerous large fleshy green scales, with a ridge of a yellow colour along the front of each. As the cone ripens these scales separate from each other and reveal the large Chestnut-like seeds, the colour of which is shining orange-scarlet. Unfortunately, when this stage is reached, the cone soon falls to pieces; but if seen when at its best it is really beautiful, and singular, too, nestling amid long, graceful, Fern-like foliage.

Double Chinese Primulas.—A beautiful series, comprising about a dozen sorts of double Primulas, has been sent to us by Mr. R. Gilbert, of Burghley, who was the first to bring these charming flowers before the public a few years ago. The sorts are much the same as they were then, except that some new ones crop up occasionally. For instance, the present gathering includes a new one called Mr. Marriott, which made its first appearance this season. It is in the way of, but superior to one called Lord Beaconsfield, a deep rose-pink. The flowers of the new sort seem to be larger and more compact. Other sorts sent include the Marchioness of Exeter, white freckled and dotted with purple; Princess, pure white; White Lady, pure white; King of Purples, deep rose-purple; and lastly, the old Double White, which still remains a favourite, being surpassed by none in purity and floriferousness. These double Primulas are invaluable at this season, being so useful for

cutting, and, unlike the single flowers, they do not drop from the stalks readily. The flowers being on long stalks enables them to be used for button-hole and other bouquets.

Single Camellias.—What "Veronica" says in praise of these beautiful flowers (in another column) is fully justified by some flowers which Mr. Scrase-Dickins has sent to us from his garden at Coolhurst, Horsham, where single *Camellia* raising is largely carried out in a systematic way. Mr. Scrase-Dickins sends us on this occasion four sorts—the cream of those which he has now in bloom—and they are indeed very beautiful; three are whites, each differing in size and form. One of the finest we have yet seen measures $4\frac{1}{2}$ inches across, and has six large round petals so broad as to overlap one another. They are snow-white, and being of firm texture stand out so as to form a symmetrically-shaped bloom. The tuft of stamens in this variety is shorter than usual, and, all things considered, it is probably the finest of all the Coolhurst seedlings. A second sort forms quite a contrast to this in point of size. It is quite a "button hole" flower, being only 2 inches across, pure white, and with the tuft of stamens in the centre nearly devoid of anthers—an advantage, as there is in this case no pollen to soil the purity of the petals. The third white is intermediate between the big and the little one just referred to. It is a finely shaped bloom with five petals, not so rounded as in the large one. The coloured sort is also a grand flower of a rich *Lapageria* red; it is not such a single flower as the whites, but is nevertheless noble in appearance. The finest of these Coolhurst single Camellias ought certainly to be named for distinction and for the sake of convenience of reference.

Eremurus himalaicus.—I cannot honestly claim the honour (erroneously attributed to me in THE GARDEN, p. 97) of being the introducer into Europe of this handsome hardy plant, which belongs by right to my friend and neighbour, Mr. J. J. Smyth, of Rathcoursey, to whom seeds were sent some ten years ago by a friend travelling in the Himalayas. He kindly gave me three seedlings when they were about six years old, one of which bloomed in my garden the following year, almost simultaneously, I believe, with a sister seedling also presented by my friend to the late lamented Rev. H. Harpur Crewe, who cut off the spike and took it to South Kensington, where no one knew what it was, nor was its identity ascertained till I sent a pip or two to Mr. Baker to the herbarium at Kew, who promptly sent me its name on comparing my flowers with the dried specimens from India. Neither have my flower-pikes ever reached within a foot of the height mentioned by your correspondent, my tallest stem wanting an inch or two of reaching 7 feet. I should feel greatly obliged to any of your readers who could put me in the way of adding to my collection any of the varieties introduced by Dr. Regel, such as *E. buchaicus*, *E. Korolkowi*, *E. Alberti* or *E. Suwarowi*, as I only grow four, namely, *E. robustus*, *E. spectabilis*, *E. Bungei*, and *E. himalaicus*.—W. E. GUMBLETON, *Belgrave, Queenstown, Ireland.*

Clintonia Andrewsiana.—In that interesting list of plants flowered during the year 1885 in the Edinburgh Rock Garden, published a week or two ago, I observed the name of *Clintonia Andrewsiana*, a plant on which I, and possibly other amateur gardeners, should be glad to get a little information. These North American plants (barring always the yellow Composites and Michaelmas Daisies) are not the least beautiful, while they are perhaps the most interesting subjects with which we have to deal, and of these the peat-loving species (especially *liliacea*) are the very quintessence. I should be grateful, therefore, if any of your readers who have succeeded with this *Clintonia* can tell us a little about soil and situation (whether, for instance, an absolute bog is necessary), and especially what is the best time to plant it out. My experience is that unestablished plants are apt to damp off or rot through the influence of sudden cold and thaw. Will it stand an ordinary English winter, such as the present? The New Plant and Bulb Co. in their catalogue, quoting some anonymous authority, mention it as "said to be the

finest hardy plant in cultivation." Does it, in the opinion of anyone who has flowered it in England, justify this encomium? and has it been figured, and if so, where? I do not know that I can claim to have noted the list in question very carefully or accurately, and I no longer have it by me for reference, but it struck me at the time that for so long and good a floral bill of fare, the percentage of Gentian-flowered plants was somewhat small—as to which I may some day, perhaps, revive an old controversy and have something to say. Other rare alpine, too, e.g., *Lithospermum Gastoni*, were absent, unless I am mistaken. I noticed, however, among other choice things two plants that I must confess I had always hitherto regarded as belonging to the horticultural "spirit world," i.e., as ghosts which I had not indeed seen myself, or known personally anyone who professed to have seen or grown them, but which, nevertheless, I had heard of in a misty and legendary way. I refer to *Vinca major* fl.-pl. and *Vinca major alba*. Can anyone tell us whether these plants are fairly robust and floriferous? and if so, where can they be procured? I do not remember to have seen either of them in the catalogues of any of the principal hardy plant nurserymen, though there is an Italian Periwinkle that may perhaps be identical with the latter.—J. C. L.

GARDEN ECONOMY AND CONIFERS.

THE remarks made lately by "W. I. M." and "J. S." on economy in the garden are very likely to bring into prominent notice the desirability of the more extensive planting of Conifers in the immediate neighbourhood of mansions, in lieu of so many deciduous trees. An immense amount of labour is entailed where the latter arrangement exists; indeed, if deciduous trees are planted in great variety anywhere near large stretches of lawn, the broom is constantly at work from early autumn until after Christmas, swelling to considerable proportions the weekly pay-sheet. I cannot help thinking that if the question of unremunerative labour is likely to be strongly opposed in all garden matters in the future, we cannot better serve the interest of posterity than by curtailing as far as possible pleasure ground expense, and this cannot be more surely effected (where constant neatness is an absolute necessity) than by using a large proportion of Conifers in all planting operations, as much, at any rate, as may be practicable with the necessities of the case; and there are now so many types of beauty among the many members of this family, that there should be little difficulty in selecting varieties to meet all cases. I do not for one moment wish to disparage our deciduous trees, but let them find a place as much as possible where they do not entail so much labour, and where it is necessary to use them let those varieties be grouped together which are nearly alike in the time of their leaf-shedding; for it is an undeniable fact that lawns covered with trees whose seasons are as wide apart as the Lime and the Oak, with all intervening leaf-shedders, are responsible for a large share of garden labour. Distinct varieties of trees are not always the only offenders, for one of our most objectionable lawns (from a labour point of view) is devoted to Oaks in variety; from the scarlet, which has its season with the Lime and Horse Chestnut, which, despite the severe weather, has hardly lost a leaf, and which in fact always retains its sere and yellow foliage until the young growth is bursting out. "J. S." (p. 83) was no doubt perfectly justified in removing his extinguisher Conifers if they were objectionable to him, but I fail to see that it was altogether necessary to record the fact, especially when accompanied by such sweeping condemnation of the Wellingtonia. If the tree in question is somewhat formal in growth, is it necessarily ugly? On the contrary, I maintain there are few objects more worthy of admiration in the

pleasure ground than specimens of this particular tree from 20 feet upwards in height and well feathered to the ground; and although mistakes were doubtless made in its early planting, there are sites in the majority of gardens to which it is admirably suited, in common with many other Conifers of stiff and formal habit. If everything approaching an extinguisher in shape is to be banished from our gardens, where are we likely to stop? *Abies Pinsapo* and *Cedrus atlantica* (to my thinking, two of the handsomest Conifers) certainly come under this head, so in many cases does *Abies cephalonica*, *Nordmanniana*, and many others, not to mention such as *Cryptomeria*, *Cupressus*, and *Taxodium sempervirens*, which, however feathery they may be in actual growth, present to the eye as specimens very sharply defined branches either equilateral or isoseles. To the true lover of trees nothing in the shape of tree life is absolutely ugly, and he is not at all likely to condemn anything simply on account of its formality; given only a proper site and free healthy growth, and there is not a Conifer under the sun that will not find plenty of admirers.

In conclusion, I must protest both from an ornamental and an economical standpoint against the condemnation of Conifers. To those who, like "J. S.," contemplate their removal, I would say, think twice before using the saw or axe.

E. B.

THE PRIMULA CONFERENCE.

THE following is a provisional programme of the exhibition which is announced to take place on April 20 and 21 next:—

- Class 1. Will include the Auricula.
1. The Primrose and Polyanthus.
 2. Varieties of *Primula Sieboldi*.
 3. Varieties of *Primula sinensis*.
 4. European species, varieties and hybrids of the genus *Primula*.
 5. Himalayan and other Asiatic species.
 6. Chinese and Japanese species.
 7. American species.
 8. Plants allied to the genus *Primula*, such as *Cyclamen*, *Dodecatheon*, *Androsace*, *Cortusa*, &c. (of these species only, not garden varieties, will be admitted).
 9. Primulaceous plants grown to illustrate special modes of culture, &c.
 10. Specimens, models, and drawings, illustrative of the structure and mode of growth of primulaceous plants.

The conference will be held on April 21, when the following programme will be carried out:—

Introductory paper by Mr. Shirley Hibberd on the origin and history of the florists' Auricula.

Introductory paper by Mr. Samuel Barlow, on the direction in which efforts should be made with the view of improving the florists' flowers belonging to the genus *Primula*.

Introductory paper by Mr. J. G. Baker on the nomenclature of alpine *Primulas*.

Introductory paper by Dr. M. T. Masters on root structure and mode of growth as affording indications of the probable best mode of culture.

In order to assist in the arrangement of the European *Primulas* at the exhibition, Mr. J. G. Baker has drawn up for the committee the following provisional list of European *Primulas*, classified in three groups, viz.:—

1. Well-marked species distinguished from one another by broad clear characters.
2. Sub-species or varieties distinguished from the types under which they are placed by slight characters.
3. Probable hybrid types which have received names as if they were species.

The list may serve as a preliminary basis for the discussion at the conference. Meanwhile the committee suggest that exhibitors, in giving names to the plants which they exhibit, should follow, as far as they feel able to do so, the nomenclature and arrangement thus suggested by Mr. Baker. The names which are printed in *italics* are synonyms,

SECTION 1. PRIMULA STRA.—Young leaves revolute, not mealy beneath, calyx strongly ribbed.

1. *Vulgaris*, *Huds.*; *grandiflora*, *Lam.*; *acutis*, *Jacq.*; *Sibthorpi*, *Reich.*; *amara*, *Hort.*
2. *Elatior*, *Jacq.*; *Pallasi*, *Lehm.*; *Perreiniana*, *Flugge*; *carpathica*, *Fuss.*
3. *Officinalis*, *Scop.*; *seris*, *Linn.*; *macrocalyx*, *Bunge*; *suaveolens*, *Bart.*; *Columnae*, *Ten.*; *Tommasinii*, *G. & G.*

SECTION 2. ALEUTICA.—Young leaves revolute, mealy beneath. Flowers small, with a long corolla-tube.

4. *Farinosa*, *Linn.*; *scotica*, *Hook.*; *Warrei*, *Stein.*; *stricta*, *Hornem.*; *frondosa*, *Janka.*
5. *Longiflora*, *All.*
6. *Sibirica*, *Jacq.*; *Amarchea*, *Jacq.*; *norvegica*, *Retz.*

SECTION 3. AURICULASTRA.—Young leaves involute. Calyx short.

7. *Auricula*, *Linn.*; *Balbisi*, *Lehm.*; *ciliata*, *Moretti*; *dolomitica*, *Hort.*; *Obristi*, *Stein.*; *similis*, *Stein.*
8. *Palinuri*, *Petrag.*
9. *Carnicula*, *Jacq.*; *integrifolia*, *Scop.*; *multiceps*, *Frey.*; *Freyeri*, *Hoppe.*
10. *Marginata*, *Curt.*; *crinata*, *Lam.*
11. *Viscosa*, *Willd.*; *pedemontana*, *Thom.*; *commutata*, *Schott.*; *latifolia*, *Lap.*; *graveolens*, *Heget.*; *ciliata*, *Schrank.*; *confinis*, *Schott.*; *villosa*, *Wulf.*; *hirsuta*, *All.*; *Berriane*, *Kero.*
12. *Daonensis*, *Leyb.*; *venensis*, *Thom.*; *Steliviana*, *Vulp.*; *cadinensis*, *Hort.*

SECTION 4. ARTHURICA.—Young leaves involute, calyx long.

13. *Calycina*, *Duby.*; *glaucescens*, *Morett.*
14. *Spectabilis*, *Teutt.*; *Pollaniana*, *Morett.*; *Kitaibeliana*, *Schott.*
15. *Wulfeniana*, *Schott.*; *longibarda*, *Hort.*
16. *Clusiana*, *Tausch.*; *Churchilli*, *Hort.*
17. *Integrifolia*, *Linn.*; *Candolleana*, *Reich.*
18. *Allioni*, *Lois.*
19. *Tyrolensis*, *Schott.*
20. *Minima*, *Linn.*; *serratifolia*, *Gussm.*; *Sauteri*, *Schott.*
21. *Glutinosa*, *Wulf.*

Hybrids of section *Primulastra*.

- Brevistyla*, *D.C.*; *variabilis*, *Goup.*, 1—3.
Digenica, *Kerner*, 1—2.
Flagellicaulis, *Kerner*, 1—3.
Media, *Petera unicolor* *Lange*, 2—3.
Tenoriana, *Kern.*, 1—3.

Hybrids of sections *Auriculastria* and *Arthritica*.

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| <i>Biflora</i> , <i>Huter</i> , 20, 21. | <i>Muretiana</i> , <i>Moritz</i> , 17—11. |
| <i>Alpina</i> , <i>Schleich.</i> | <i>Obovata</i> , <i>Huter</i> , 7—18. |
| <i>Rhætica</i> , <i>Koch</i> , 7—11. | <i>Peyritschii</i> , <i>Stein.</i> , 7—11. |
| <i>Arctotis</i> , <i>Kerner</i> , 7—11. | <i>Portae</i> , <i>Huter</i> , 7—12. |
| <i>Dinyana</i> , <i>Lagger</i> , 17—11. | <i>Pubescens</i> , <i>Jacq.</i> |
| <i>Discolor</i> , <i>Leyb.</i> , 7—12. | <i>Rhætica</i> , <i>Goud.</i> |
| <i>Dumoulini</i> , <i>Stein.</i> , 20—14. | <i>Helvetica</i> , <i>Dani.</i> , 7—11. |
| <i>Facchini</i> , <i>Schott.</i> , 20—14. | <i>Pumila</i> , <i>Kern.</i> , 20—12. |
| <i>Floerkeana</i> , <i>Schrad.</i> , 21—20. | <i>Salisburgensis</i> , <i>Flörke</i> , 21—20. |
| <i>Forsteri</i> , <i>Stein.</i> , 20—11. | <i>Steini</i> , <i>Obrist</i> , 20—11. |
| <i>Gobeli</i> , <i>Kern.</i> , 7—11. | <i>Sturi</i> , <i>Schott.</i> , 20—11. |
| <i>Huteri</i> , <i>Kern.</i> , 20—21. | <i>Venusta</i> , <i>Hort.</i> , 7—9. |
| <i>Intermedia</i> , <i>Portenschlag</i> , 20—16. | <i>Venzoti</i> , <i>Huter</i> , 19—15. |
| <i>Kernerii</i> , <i>Gobel & Stein</i> , 7—11. | <i>Weldeniana</i> , <i>Reich.</i> , 7—14. |

ALLEN'S EVERLASTING APPLE.

To whatever causes canker in fruit trees may be attributed, an adverse soil is certainly by far the most common. Some years ago I requested Mr. Rivers to send me the names of a few varieties of the Apple that he had found least liable to canker, and he named, among others, Allen's Everlasting. The tree so named came with a few others on his list, and last year it bore for the first time. It is a valuable Apple, not only on account of its long-keeping property, but also for its productiveness, if one sample only of the tree may be allowed to establish that point. The tree has been grown in the pyramid form, and is about 7 feet high. When I came to gather the fruit, I asked my gardener how many Apples he thought I should get from the tree. He said, "Perhaps forty." The exact number proved to be 108. It generally happens that the produce of a fruit tree is numerically greater than the appearance indicates; but the peculiar habit of this tree may easily occasion a false estimate to be made of the number of Apples it carries. I found that on nearly every fruit-bearing branch the Apples were in threes, forming a ring round the shoot; nor were the single ones appreciably finer than the rest.

I have found excision of the part affected the best remedy for canker, even if the cut extends two-thirds round the branch; but not a particle

of the damaged part should be left, and the edge of the wound should present a perfectly healthy appearance all round. By this simple process an important branch or shoot (on an espalier, for example) may be preserved, which but for this operation would have perished in the following season. B. S.

THE LAKE IN BATTERSEA PARK.

THE illustration opposite represents a view of the lake in Battersea Park, as seen from the sub-tropical garden looking towards the Albert Palace. It is one of the finest points in the park, as it shows well that part of the lake which is so beautifully fringed with waterside vegetation, as we see it naturally by riversides. The trees on the islets also form a fine feature. They are now old enough to display their peculiar habits of growth; we have the White Poplar bending to the water, the Lombardy Poplar towering like a spire in the middle of the group, and the Black Italian Poplar spreading out into a huge rounded head. These three Poplars alone are sufficient to produce a beautiful effect on the islets, but around the margins one sees greater variety. Willows, Alders, and other water-loving trees are associated with the Poplars, and these are allowed to grow in their own way, thus forming a highly picturesque margin. With such a beautiful natural-looking piece of water as an example, why is it that lake margins in the other parks are so horribly bare and ugly? Look at the Serpentine and the St. James's Park lake. The margins of both are repulsive, paved as they are with cement and stones, without a scrap of plant growth to relieve their ugliness. A broad mass of gravel running close to a bare-edged lake is just the opposite of what should be found in a London park—avowedly a place for the representation of beautiful gardening. No doubt the paved margins of the Serpentine are maintained for the convenience of the miniature boat sailers and the duck feeders; but that water fowl do no harm if left to themselves is exemplified at Battersea, while the boat sailing might easily be confined to the spot set apart for bathing. If the Serpentine and the St. James's Park lake were embellished in the way in which the Battersea and Victoria Park lakes are, the thousands of visitors who throng the parks during summer would appreciate the improvement.

Pruning to promote vigour.—Many look for guidance to articles in THE GARDEN, and one on the 30th ult. (p. 57), written by "J. S. W.," may mislead a novice to put in a hundred Hybrid Perpetual Roses and leave them unpruned for two or three seasons. "J. S. W." does not tell us how to grow fine Roses to cut, which is the object of most people who plant, but appears to argue against a broader question than that raised by his quotations from two first-rate authorities. Treating Hybrid Perpetuals as he suggests produced in his own case "clothes-baskets full of Rose leaves for drying," and such treatment is not likely to produce them fit for any other purpose. The result in three-fourths of all the gardens I have ever seen is, when Hybrid Perpetual Roses are so treated, to produce a foul grub-eaten mass of leaves (and perhaps flowers) from which anyone who loves the Rose, or wished to cut a flower, would turn in sorrowful disgust. Mr. Paul says rightly of Rose trees treated after the manner of "J. S. W." that "the flowers continue to degenerate, till at length they can be scarcely recognised." The article gives an excellent definition of "vigour" to commence with, but it is to be regretted that the writer should have taken a Rose tree to support his views, and compare scientific pruning with the constant nipping of "young growths" of Furze bushes on his common by game and cattle.—D. D.

FLOWER GARDEN.

SUB-TROPICAL PLANTS FROM SEED.

BESIDES Palms, Tree Ferns, and other tender fine-foliaged plants that always seem indispensable in sub-tropical gardening, but that, unfortunately, require houses of large dimensions in which to winter them, there are numerous subjects which may be raised from seed or grown from cuttings inserted at the present time. These latter are also equally as useful as the others; in either instance, therefore, their culture may be recommended where sub-tropical gardening has to be carried out. Plants of comparatively slow growth often become much injured by autumn as the result of exposure, and require all the following winter and spring to recruit their strength previous to being subjected to similar treatment the next season. Of course, much depends on the season and the amount of shelter available, which, it need scarcely be said, should be as much as possible. The group of fine-foliaged plants to which attention is here more particularly directed is a somewhat extensive one, and includes many of a free-growing and extremely ornamental character. It is those which, as has been stated, may be annually raised from seed or, if preferred, a few stock plants may be lifted and preserved through the winter in a moderately warm house with a view to their providing cuttings from the stems and in some cases from the roots.

ACACIA LOPHANTHA may first be noted; it is well known and largely cultivated. If sown now and the young seedlings are grown on strong plants may be obtained by bedding-out time that will soon rapidly develop if favourably situated. Cannas are readily raised from seed, but division is a much quicker method where there is already a stock. Nearly all of the numerous varieties are worthy of culture, the dark and the glaucous-leaved kinds being especially noteworthy and attractive. Some of the Centaureas which are of dwarf stature are invaluable on account of their silvery foliage; for an edging to, or for intermixing with, plants having foliage of a darker hue. *C. ragusina*, its variety *compacta*, and *C. Cineraria (candidissima)* are most generally useful. If raised from seed much better plants may be obtained by sowing in early autumn and growing the plants on in a cool or moderately warm house through the winter. Sometimes small plants are preferable for edgings; these may be raised easily from seed sown in pots any time from now up till the beginning of March and placed on a mild hotbed. Young leaves of these Centaureas are always whiter than older ones; consequently

young plants have the advantage in this respect. Two species of *Chamaepeuce*, commonly called Herring-bone Thistles, are most useful for margins or for associating with other dwarf sub-tropical plants; of the two *C. diacantha* is the most attractive on account of the ivory-white spines with which the leaves are armed; *C. Casabonæ* has smaller leaves beset with yellowish spines. Both are readily raised from seed, which should be sown in heat, the seedlings being afterwards potted off singly so soon as they are large enough to handle. One of the most distinct and effective of fine-foliaged plants is *Melanthus major*, the leaves of which are large, pinnate, and of a deep glaucous hue. It is nearly hardy in some localities, especially if the roots are protected, and on rich deep soils forms a bush of about 3 feet in height. Raising from seed is the most satisfactory method of increasing it. *Grevillea robusta* has extremely elegant foliage and is also best raised from seed, which, however, is not always certain to germinate satisfactorily. The plants usually require

autumn. They may be either plunged or planted out in a warm position.

AMONG SOLANUMS there are several worthy of note on account of their easy culture and attractiveness as fine-foliaged plants. They may be readily increased from cuttings, supposing a stock is at command, or seedlings may be raised that will prove equally or perhaps more effective than cuttings. *S. marginatum* has deep green leaves, covered beneath with silvery tomentum, which becomes thick enough to form a white edge. Its flowers are somewhat freely produced, and are also white. A strong-growing and very distinct kind is *S. robustum*. It is provided with strong spines on each side of the large, irregularly lobed leaves, and even seedlings raised early in the season form fine specimen plants towards autumn. The leaves are of a distinct brown or russet colour on the upper surface, particularly near the

top of the plant. In reference to other *Solanums* worthy of note *S. Warscewiczii* must be placed in a foremost position; *S. giganteum* and *S. pyracanthum* are also attractive. Amongst the most noble of sub-tropical plants few, if any, surpass *Montanoa bipinnatifida* (*Polynonia grandis*). Root-cuttings of this strike readily in autumn, and stem-cuttings in spring. If good sized plants can be prepared for placing outside early in June, symmetrical specimens, from 6 feet to 8 feet high, may, under good culture, be obtained. The leaves are opposite, large, and distinctly lobed. A large group of this plant has a very imposing effect. The Blue



The Lake in Battersea Park.

growing in pots until the second year before they are of sufficient size to be of use in sub-tropical beds. They may, however, be used with good effect the first season for greenhouse decoration, and if plunged instead of planted they may often be returned again in autumn almost or quite uninjured. An additional quantity of India-rubber plants (*Ficus elastica*) may be raised from cuttings inserted now. These may be of any procurable size; points of branches on plants that have become leggy soon root and form useful decorative subjects. It is a good plan with these to cut the branches only half through and bind some Moss round at that point. If this is kept moist and the plant in heat, roots will form where the incision has been made and the new plant may be eventually detached without as a rule losing any of its leaves. India-rubber plants gradually hardened off will prove effective in sub-tropical beds from June until

Gum (*Eucalyptus globulus*) demands a reference as being one of the most distinct plants on account of its glaucous foliage. Seeds for this season's display should be sown at once if plants are not already being grown on. For securing good specimens 8 feet or more in height the first summer the seed should be sown in July or August, the plants being kept growing slowly all winter and until June, when if they are planted out they will grow on rapidly.

Or Musas, the most suitable for subtropical work are *M. Ensete* and *M. superba*. The former has enormous pale green leaves, and on that account requires a position sheltered from wind, which proves so destructive to plants of this description. Unless a suitable place can be provided for Musas they should not be placed outside, as torn and injured leaves are invariably the result of exposure to high winds. They are propagated from seeds sown in heat, also in many cases from suckers. Another very tall-growing

subject of easy culture is *Ferdinanda eminens*. This may readily be propagated from cuttings either of the roots or young stem-shoots, and when once established the young plants grow very fast. It may also be raised from seed. In a good soil and suitable position, strong specimens of this plant sometimes attain a height of 10 feet. Amongst *Wigandias* that may be raised from seed, or, better, from root cuttings, *W. caracasana* must be accorded a prominent position, as it forms, under good cultivation, a remarkably handsome object. Specimens with single stems look best, and they are hardly enough to make a luxuriant growth in favourable localities outside. *W. Vigieri*, where it succeeds, is even more vigorous than the last named; it is partly distinguished by the stem and petioles being more hairy, but it is not so generally well known or cultivated. Another indispensable class of plants for sub-tropical gardening are varieties or forms of *Ricinus communis*. These are well known under the popular name of Castor-oil plants, and there are few varieties unworthy of cultivation. Some have green or glaucous foliage; others, again, have purplish stems and bronzy, or, in some cases, almost blood-red leaves. *R. Gibsoni* is one of the best dark-leaved kinds; it should be included wherever any of the Castor-oils are grown. Seeds should be sown about the end of March and placed in heat. They soon germinate, and require attention almost at once as regards potting. It is an excellent plan where space is available to place a couple of seeds each in small pots, and if both grow, destroy the weakest. This admits of potting the other plant on without materially injuring its roots. Variegated Maize (*Zea Mays variegata*) is one of the easiest grown sub-tropical subjects raised from seed in spring. It has narrow leaves conspicuously striped with white lines, and good clumps of it are very attractive amongst other sub-tropical plants with foliage of a different shape and colour. A pretty and useful ornamental Grass of perennial duration is *Eulalia japonica variegata*. It may be raised from seed, and if the seedlings are grown on afterwards in an intermediate temperature, they will grow much faster and soon be available for use, either in the summer beds or in pots for greenhouse decoration. The common Hemp is a strong growing annual, effective and useful in some positions, but rather too coarse for a prominent place in the sub-tropical garden. J. G. K.

Tuberoses after flowering.—These sometimes bloom fairly well if planted out at the foot of a south wall in a dry border of sandy loam mixed with leaf mould. The bulbs will live and thrive in such a position for years, and not seldom throw up a few flower-spikes almost equal to imported ones. By carefully preserving the scant foliage after blooming, growing on till it dies down naturally, potting in fresh soil and growing a second year, ten or fifteen per cent. of the old bulbs may bloom again under favourable treatment; but, as a rule, they are hardly worth the candle. To succeed in this, all suckers or offsets should be carefully rubbed off or picked out before starting. In any case this is advisable, and adds considerably to the strength of the flower-stems and the number and size of the individual flowers. Has anyone specially noted the effect of small *versus* large pots on the blooming of Tuberoses, and the relative effects of 4-inch, 6-inch, and 8-inch pots? Our experience is all in favour of small pots. D. T. F.

SHORT NOTE.—FLOWER.

Narcissus Bulbocodium nivalis.—This little Hooped-petioled Daffodil is a gem, and, so far as I know, the smallest of its race. It is now in flower in a pot in the greenhouse, and was the kind gift of Mr. Octavius Carder, who collected it last year on the Gerez, near Oporto, in Portugal. The leaves are like those of *N. monophyllus*, but shorter, and the tiny golden flower is borne on a scape only

3 inches in height. *N. Bulbocodium citrinus minor*, collected by the late Mr. Harpur Crewe years ago, is also in bloom, its flowers being pale lemon or sulphur colour.—F. W. BURBIDGE.

WATER LILIES.

I was pleased to read my friend Mr. Miles' paper on "Water Lilies," because it will awaken attention to a beautiful class of plants, heretofore greatly neglected. It is now some ten or more years since I commenced their cultivation. I began in earnest with *Nymphaea cærulea* in the greenhouse and *N. odorata rosea* in the open air, and now I have all the kinds worth growing, viz., *N. dentata*, *dentata major*, *rubra*, *devoniensis*, *scutifolia gigantea*, *Daubenyana*, *Lotus*, *stellata*, *versicolor*, *cærulea*, and *zanzibarensis*; and of the hardy sorts, *N. odorata*, *odorata rosea*, *alba rosea* or *rubra*, and *flava*. Mr. Miles sent me *alba candidissima*, but from some neglect I lost it; he also sent me *Nuphar lutea*, which I cultivated easily, and my friends were amused to see me growing the common *Nuphar advena*, which fills almost every little ditch in our neighbourhood, the only difference in the two being a black spot in the centre of the flower. But what a little surprised me was Mr. Miles' account of our loveliest of all Lilies, *N. odorata rosea*. Four years ago I sent him a very strong flowering root of it; but he writes as follows: "Mr. Sturtevant, who sent over here the plants of *odorata rosea*, got it from a lake in Newfoundland, near Cape Cod, on private property." The idea that Newfoundland is near Cape Cod is amusing. But let me now give you the origin of this superb Water Lily. It was found many years ago growing in a small private pond or lake near Barnstable, on Cape Cod, 60 miles from Boston. It had attracted the attention of botanists, and in the Cambridge Botanic Garden, U.S.A., plants of it were growing years ago. But it did not attract much attention until recently, when a grower of it, in an adjoining town, who had a fine Cranberry bog with a stream of running water through it, thought he would procure some of the roots, which are rather scarce, and plant them in a small pond he dug out in his bog. Here they seemed at home, grew luxuriantly, flowered in great perfection, and the beautiful specimens of it which he sent to his friends began to attract much notice. It was about this period when he had his pond, 10 feet or 20 feet square, filled with roots that I visited him in August to see his Lilies, and lovely indeed they were. I at once purchased some of the roots and planted them out in tubs, where they flowered finely. I then began to propagate them, and now have a pond which was covered last summer with hundreds of blooms. Cape Cod is the only place where it has been found, and it was from the place I have named that I, at that period, procured the plant I sent Mr. Miles, as my own were then small, and I wished Mr. Miles to have a strong flowering root. The lady who told Mr. Miles she saw quantities of the flowers when staying in the locality and "was disappointed in not seeing the lake itself" need not be so. She would probably have seen nothing; there are but few roots in the lake, and these are very scattered, mixed with the white, and it is only occasionally that the red flowers are seen, when they are carefully guarded to prevent depredations.

Mr. Miles has certainly been unfortunate in his experience. I have found no difficulty in raising seedlings from perfectly dry seeds, and as my plants seed in abundance, I immediately put them into a paper bag, as I do other seeds. How long they will keep in this way I do not know, or if any longer than one year. A lady friend gave me seeds gathered in the Botanic Gardens of Rio Janeiro, and I raised a fine batch, which

proved to be *N. gigantea*. I have plenty of seedlings of *odorata rosea*, *alba rubra* or *rosea*, *zanzibarensis*, and *cærulea*, and as I gathered seeds of *gigantea* the last autumn from my pond in the open ground, I could not help thinking how correct Pliny was in his description of the Lotus of the Nile. "They have heads," he says, "like those of the Poppy, within which are seeds, resembling Millet, of which the inhabitants make bread." One of my pods was so large, it contained nearly a spoonful of seeds; *cærulea* seeds naturally in such abundance, that the pans 15 inches in diameter are completely covered with young plants every year, which we throw away. Again, Mr. Miles says, "The growth of the white Lily has always seemed singularly slow." If he means *odorata*, he is certainly mistaken, for one or two plants will soon fill a small pond. I trust we may have other contributions to Lily culture from some of your correspondents. Boston, Mass. C. M. HOVEY.

THE OCTOBER SNOWDROP.

I AM so glad to find that after all my first "white dove that won my heart in youth to Nature" and horticulture is no myth. My earliest memories cluster round a patch of Snowdrops that bloomed beneath an old-fashioned parlour window towards the end of October and through November. But though several pilgrimages have been made to the shrine, the October Snowdrops had vanished root and stem, and I had almost begun to think them a myth of memory. But Mr. Allen has brought light out of the darkness, and re-embodied that first symbol of hope and promise of a somewhat distant boyhood. It seems, however, almost beyond belief that the rare Albanian novelty should be the same as the patch in Scotland of many years ago. Or could it have been *G. præcox* only? I distinctly remember that the flowers came well in advance of the leaves, a silvery patch standing up boldly when the tips of green only carpeted the ground. I earnestly trust Mr. Allen or Mr. Peter Barr will be able to multiply these early strains so as to introduce them to general cultivation. It is pleasing to find Mr. Allen's love for *nivalis*, and especially the single variety of the same, bearing the test of such severe competition as that applied through his choice selection. I wish some remedy could be found for the doubling of *nivalis*. In some localities single strains, even in a wild or semi-wild state, are becoming almost extinct. Pigmies of the common species are also far more rare than giants, as well as more charming.

Permit me also to endorse Mr. Allen's views on the great variability of *G. plicatus*. In some cases they seem positively to revert to the *nivalis* form. Nor does this species thrive equally well in all soils and situations, though with us it is even more robust and increases more rapidly than the common species; the leaves with us vary more than the flowers, and I have not noticed an earlier flowering strain among our *plicatus*. The lateness of the latter is one of its greatest merits, and with October, November, and December blooming varieties added to our list, we may yet have a feast of Snowdrops for six months out of the twelve.

D. T. F.

Aster Reine des Halles.—According to the *Moniteur d'Horticulture* this is an old variety which for some years has been brought in quantity to the Paris markets, but the stock of which has hitherto remained exclusively in the hands of a family of market growers who make a speciality of Asters. As regards growth and quality of flower, it is all that can be desired, but its great and exceptional value

consists in the fact that it blooms quite a month earlier than any other kind, coming into flower at the commencement of June. This renders it of special value for market purposes.—J. C. B.

HELLEBORUS NIGER AND VARIETIES.

MR. BURBIDGE has always something pleasant and interesting to say on the subject of Hellebores, and it cheers the "winter of our discontent" to find in your issue of January 23 another contribution from him on the subject. I think he has given an exhaustive list of all the varieties of *H. niger* in which any perceptible difference can be discovered, and very full descriptions whereby they may be identified. For this he is deserving of the thanks of all lovers of the flower.

It is further very satisfactory to find Mr. Burbidge declaring that "all the varieties referred to in his paper are simply seminal or geographical variations of the one species, *H. niger*." I have long felt that the species mongers who loved to seize on minute differences and magnify them into specific characters belonged to those who "darken counsel by words without knowledge."

I trust that Mr. Burbidge will feel that it is in no carping spirit, but in the interests of floriculture, that I venture on the following remarks.

In the first place, I would ask, Is it well to describe so many forms of *H. niger* as "the variety of So and So?" I am not aware that any one of the individuals whose names are so associated with a variety claim to have raised it, to have discovered it, or to have had the exclusive possession of it. Where, then, is the need or the propriety of so describing a plant? It is distinctly misleading.

In the second place, such proprietorial description, if I may so call it, is cumbrous to the already well-taxed memory of florists, and is contrary to the nomenclature of analogous cases in the varieties of other species of garden plants.

In the third place, such a mode of describing the varieties of *H. niger* is totally at variance with that adopted with such satisfaction in the case of the caulescent section of Hellebores. Here, if a man wants Commissioner Benary, or Willie Schmidt, or Irene Heinemann, or so forth, he knows exactly what to order, and a nurseryman knows exactly what to send. I am positive that neither the public nor the trade have anything more than a haphazard conception of any variety of *H. niger* under the existing nomenclature. There is one exception—*H. n. Madame Fourcade*—of which, by the way, I am as much enamoured as Mr. Burbidge.

I would, then, suggest that the varieties of *H. niger* should be named as florists' flowers, and the caulescent Hellebores are named, and as *Madame Fourcade*, among the *niger* family. And if it is thought well, as I think it is, to do honour to an amateur who has preserved or brought into notice some variety, let that variety bear such amateur's name. Thus, *H. n. Miss Hope*, *H. n. J. T. Poë*, *H. n. St. Brigid*, &c., would be complimentary, distinctive, simple, in conformity with the usage in similar cases, and would not be misleading.

This should be done by a consensus of the leading growers of Hellebores. I cannot sufficiently deprecate any individual, amateur or nurseryman, taking on himself to give a name or change the name of a variety long known and widely distributed. Thus, the plant abundantly grown in Lancashire, Cheshire, and many parts of Ireland as *H. n. angustifolius* is now sought to be called *H. n. Brockhurst* variety. *Angustifolius* is a very good descriptive

name, as it is the most narrow-leaved of the *niger* group, and it is not suggestive of something that is not the fact.

I should rejoice if Mr. Burbidge would take counsel with the leading amateurs and nurserymen who grow Hellebores, with a view to putting the nomenclature of the varieties of *H. niger* on a fixed, simple, and not misleading footing.

FREDERICK TYMONS.

ROSE GARDEN.

ROSES FOR THE ROCKERY.

ALTHOUGH the genus *Rosa* is distributed very generally in all those parts of the world from which collections of so-called alpine plants are most largely recruited, and representatives are found throughout the highlands of the Alps and Pyrenees, it is not often that any members of the Rose family are found included among the denizens even of extensive rock gardens. Perhaps the unsuitability of the most obviously "alpine" Roses (*R. alpina* and *pyrenaica*) for any but very large rockeries may have conduced to this result, for the myriads of suckers sent up by these Roses in all directions make them very bad neighbours in a limited space, as they are always encroaching; and as they will grow in any soil whatever, they are difficult to keep within bounds. At one time it occurred to me that, being practically thornless, *R. alpina* would make very comfortable stocks to bud on, and with this end in view I put in about a couple of hundred cuttings. Out of this number, however, only about fifteen callused, and all these succumbed before the summer. It seems that Roses are difficult to strike as cuttings just in proportion to the facility with which they throw up suckers; and I have never succeeded in raising a plant of *R. alpina* (which suckers more than any other Rose I know) from a cutting. There are, however, several Rose species more beautiful than *alpina*, and which are not afflicted with this ungovernable land-hunger. *R. berberidifolia*, though not itself sufficiently tractable in our climate, has given us an intermediate form whose greater vigour enables it to produce freely its yellow purple-eyed flowers when planted on a sunny part of the rockery. This hybrid, *R. berberidifolia* Hardii, has not the characteristic simple leaves of the type, but soon grows into a bushy plant about 18 inches high, and consisting of slender, much-branching stems, at the ends of which the flowers are produced at intervals during the summer. At the base of each of the clear



Rosa sulphurea.

yellow petals there is a maroon or purple blotch, giving the flower the appearance of having a dark eye, by which it is easily distinguished from all other Roses. This plant succeeds very well budded on Brier cuttings, and during the recent hot summer flowered most freely in a very sunny position on light soil. The rockery has been often suggested before as the situation in which there is most chance of flowering the beautiful, but difficult, *R. hemisphaerica* (*sulphurea*), and there is no doubt that this Eastern beauty requires all the heat and sunshine that it can get to ripen its wood and expand its pretty yellow blossoms in England.

Pulverulenta is a name about which there is some confusion; it has been used for one of our native species, to which, however, it is not now applied. Redouté gives a realistic plate of the species from the East for which the name is now retained in lieu of the synonym of *glutinosa*, and which has rosy red flowers. This form I have not grown, but there is a white-flowered variety which makes a distinct and very attractive rockery plant. It is of sturdy, compact habit, with smooth stems generally of a deep red-brown colour, and leaves composed of seven leaflets much rounded at the apex; the flowers, which are freely produced, are thrown well above the foliage, and are less fugitive than those of some single Roses, owing to the creamy white petals being of considerable substance.

A readiness in conforming to external circumstances seems to be as characteristic of the Roses of North America as of its citizens, for two of the most typical species vary very considerably in form of growth and appearance according to their immediate surroundings, and it has been not unreasonably suggested that these numerous intermediate forms are mere seedling variations of one or two original species. Thus there are several forms which have been at times raised to the rank of distinct species, but which appear referable to *R. carolina*; while *R. nitida* is at least nearly related to *R. lucida*, whose variations are considerable.

R. NITIDA is a slender growing plant which is very attractive at all periods of its growth. The



Rosa nitida.

red stems of the young shoots are at first entirely clothed with ruddy spines; these are, however, deciduous, falling off as the wood hardens and leaving the stems smooth and bright. The shining leaves, consisting of from five to eleven narrow pointed leaflets, are a noticeable feature of these North Americans, and this glossy texture of foliage indicates a characteristic which may possibly some day prove of value in raising mildew-resisting hybrids.

R. LUCIDA is a robust-looking plant, though with a certain family likeness to the foregoing, and it may be fairly described as sub-evergreen,



Rosa lucida.

a fact which adds greatly to the effective appearance of the brilliant turnip-shaped scarlet hips which succeed the clusters of rosy-coloured flowers. A pretty garden variety called *Rose Button*, which produces bunches of pretty little round, double, pink flowers, has been sent out by Messrs. Veitch, and is a charming addition to the group. The same firm have also distributed one of the very few Roses with variegated foliage, a species fol. var. *Veitchi*, which is quite worthy of a place among quaintly pretty things, as it makes a pleasing little plant, the variegation being bright and clear.

THAT *R. SPINOSISSIMA* presumes to be a native plant is no doubt sufficient to account for its

rigorous exclusion from the garden, and yet it has better recommendations as a rockery plant than many an unpicturesque, albeit petted, foreigner.

What care I how fair she be,
If she's not from o'er the sea,

might do for the motto of a certain type of horticulturist who, like a would-be art critic looking for the signature to know if he is safe in abusing a picture, only troubles to learn that a plant is indigenous in order that it may be ignored. *R. spinosissima* is a dwarf grower, very hardy, and a most profuse bloomer, while the pure white single flowers of the species are far more attractive than many of the dingy-



Rosa spinosissima.

coloured varieties of the so-called Scotch Roses to the great improvement of our chance of raising brighter coloured seedlings; and if, by using the single-flowered species as a seed parent, some really bright distinct-coloured single varieties should be obtained, the family group on the rockery would gain additional attraction.

The presumably allied form, *R. Beggeriana nigrescens*, is not quite so dwarf-growing a plant, but is very attractive, both from the glaucous blue colour of its graceful foliage, and for its abundance of snowy flowers, which, though rather smaller, are more transparent and fragile-looking than those of *R. spinosissima*.

A place should be found for one or two of the single varieties of *R. indica*, not only for profusion and fragrance, but also as a means of maintaining a bit of flower outside until the advent of November frosts; and the plants are especially tractable in a small space, since no method of pruning affects the freedom with which they bloom.

A good-sized irregular patch also of the sub-species, *R. Lawrenceana (minima)*, makes a very pretty feature, especially in some low situation where it is looked down upon from above, as it will make a complete carpet, and insures, at any rate, that there shall be something in flower in the rock garden throughout the season.

T. W. G.

Mildew on Roses.—In "J. C. C.'s" interesting notes on Rose mildew (p. 68) the following sentence occurs: "Roses in houses can be easily reached by sulphurous fumes." This is dangerously indefinite, as these fumes are not seldom most disfiguring and destructive to the plants. Will "J. C. C." explain how he applies them so as to clear Roses of mildew without injury to the plants?—D. T. F.

Roses from cuttings.—I have read with much interest the remarks on growing Roses from cuttings in THE GARDEN (p. 68). As we do not force Roses during winter or spring, we have to depend for cuttings on the wood from out-of-door plants that bloomed in June or July. Soon after the flowers have faded we thin out the branches that are too thick, and the shoots thus removed are cut into lengths containing from two to three eyes, preserving to each piece a heel, and care is taken to preserve the leaves

in as healthy a state as possible. To a spent hotbed for early forcing we add a fresh lining of fermenting material, so as to produce a slight bottom heat. A layer of leaf mould several inches deep is put on the manure, and finally on the leaf mould we place coarse silver sand about 2 inches deep. The cuttings are inserted as thickly and firmly as possible; the frame is kept close, but not shaded, and we syringe so often that the foliage is never allowed to get dry. The heat in the frame often rises over 100° Fahr. Treated in this way, in about three or four weeks most of the cuttings will have taken root. They are then potted off in small pots and placed in frames in which there is a slight bottom heat, kept close and shaded for a time until they make a little top growth and new roots. Air is then given gradually, and ultimately the lights are wholly removed. By about September these young plants will have become quite established.—LOUIS KROPATSCHEK, *Luxemburg*.

NEW PLANTS FOR 1886.

AMARANTUS TRICOLOR SPLENDENS.—The old *Amarantus tricolor* in its best forms is a highly attractive tender annual, but unfortunately it is variable in its characters, and many of the seedlings raised lack the brilliant hues which are exhibited in others. The new form is introduced by a French firm, and is said to be a taller and more elegant plant than the original type. It is of vigorous growth, attaining 4 feet or even more in height, and at a very early stage the leaves assume their delicate golden yellow, red, dark green, and brown markings, and when fully developed the plant is crowned with numerous lovely bright red plumes. Its early habit of growth and stately appearance make it very valuable as a decorative plant.

CALLIRHOE LINEARILoba.—The well-known *C. involucrata*, though cultivated for many years past, is still highly popular. This fine species agrees with it very closely in its general habit of growth, but differs in the colour of its flowers and in the character of its foliage. The latter is notably larger than in the allied species, and is deeply five-parted, the divisions being deeply lobed and the lobes themselves more or less incised. The foliage has therefore an elegantly dissected appearance, and forms around the crown of the tuberous root a handsome regularly arranged tuft, very distinct in its effect from that of the *C. involucrata*. The flowers are produced from the axils of the trailing stems on long footstalks, and are from 1½ inches to 1¾ inches across, the five broad petals being of a deep lilac-purple in the middle, shading to white at the sides, thus producing a sort of stripe, which has a very pleasing effect. They are produced for many weeks in succession, till destroyed by frost. The plant is a perfectly hardy perennial, and, like the *C. involucrata*, blooms first year from seed if sown early. It is a native of Texas.

CAMPANULA DICHOTOMA.—Although the number of cultivated Campanulas is comparatively large, they still form but a small minority of the totality known to the botanist. This species has probably been in cultivation, but seems to have disappeared for many years past. It belongs to the Medium section of the genus, which has intermediate reflexed segments to the calyx. It grows nearly a foot high, is of erect branching habit, well furnished with ovate, acute, somewhat crenately toothed foliage, and is covered with a multitude of rather large purplish blue flowers somewhat tubular in form, but with spreading limb, produced singly in the forks of the numerous branches. The flowers are erect during daylight, but droop as night comes on. Though apparently a perennial, it blooms readily the first year, and needs only to be sown thinly where it should bloom. The species is a native of the Mediterranean shores. The *C. dichotoma alba* is a charming pure white variety of this species, and is described by its introducers as being the prettiest of all the white-flowered Campanulas.

CORYDALIS CASEANA.—The genus *Corydalis* furnishes several highly interesting plants to gardens, of which the *C. nobilis*, a yellow-flowered species which should be found in every spring border, is perhaps the most striking. This new introduction from California is very distinct from any species hitherto cultivated,

attaining the height of 3 feet under favourable conditions of partial shade and moisture. Its erect glaucous stems are of branching habit, bearing foliage which is twice or thrice pinnate, the leaflets being ovate or oblong and nearly sessile. The flowers are borne in dense, erect, terminal, many-flowered racemes, 3 inches to 5 inches in length, delicate white, the blossoms being about an inch long, of which more than one half forms a straight obtuse spur. The tip of the cohering petals is tinged with pale blue. As this pretty species is found growing in moist and shady ravines, a similar position must be afforded it if possible. The seed vegetates more readily than that of some other perennial species of this genus.

COWANIA MEXICANA.—There is good reason for believing that this interesting dwarf shrub will prove perfectly hardy in this country, and as it scarcely exists in English gardens, though long known to botanists, a brief description of it may be welcome to many amateurs. It will probably flower when less than 2 feet high, but sometimes attains 6 feet. It is a much branched plant with a light-coloured shreddy bark, and bears small wedge-shaped pinnately-lobed leaves, the lobes three to seven in number, dark green above, tomentose beneath, and the margin somewhat revolute. The numerous showy yellow flowers are terminal on the branches, about an inch across, and bear some resemblance to those of a *Potentilla*, but have the persistent turbinate calyx of a *Rose*. The included carpels are densely villous, and terminate when mature in an elongated feathery style 2 inches or more in length. It was first detected in Northern Mexico, whence the specific name, but it occurs also in California and other Western States, where it is known as the Cliff Rose. Seeds of it will probably require the treatment usually given to half-hardy subjects, and young plants may need nursing in a frame till a year old.

GLOXINIA GESNEROIDES.—The close relationship existing between the two genera, *Gloxinia* and *Gesnera*, afforded strong *a priori* reasons that their hybridisation would prove of easy accomplishment, though it does not appear to have been actually effected till recently. A German cultivator has, however, obtained a hybrid which he offers under this name. It is described as combining the handsome bronzy purple foliage seen in several species of *Gesnera*, notably in *G. zebrina discolor*, with crimson flowers closely resembling in form those of the erect-flowering *Gloxinias*. It appears to form the solid bulb peculiar to the latter genus, and is said to perpetuate itself truly by seeds. Seedling plants will probably flower partly during the first year, but the best results can hardly be looked for till the second season. It requires stove treatment, as may be inferred from its parentage.

HERBERTIA PULCHELLA.—Seeds of this pretty Chilean Irid have long and often, but vainly, been in request; I am therefore happy to be at length in possession of them. The genus *Herbertia* includes six species, all dwarf bulbs with linear plaited foliage and blue Iris-like flowers. *H. pulchella* is one of the most ornamental, if not the best of the species, growing about 6 inches high, and producing a few leaves resembling those of the *Tigridias*, but much narrower. The flowers are borne on a short scape, and are individually rather fugitive, but are produced in succession. Though probably only half hardy, it is easily preserved in a frame or cool greenhouse in winter. In raising this plant and other similar bulbs, it should be borne in mind that they are half evergreen in their habit and should not be dried off, though less water will be needed in winter than in summer. Seedlings will require the treatment of *Tigridias* and other half-hardy bulbs.

HUMULUS JAPONICUS (Japan Hop).—The common Hop (*H. Lupulus*) is, as is well known, of perennial duration, and till the discovery of the present species was supposed to be the only representative of the genus. Although its stems are of rapid growth, the present species is said to exceed it considerably in that respect. It is described as being of incredibly rapid increase, attaining enormous dimensions in a short time, making a dense covering for trellis, verandah, or wall before the heats of summer have set in. Its foliage resembles that of the common Hop, but is more deeply cut, and being of a more lively shade of green it pre-

sents a fresher and lighter appearance. Its seeds may be sown in the open ground, where they are said to vegetate in a short time in almost any soil. It appears to be very hardy, being destroyed only by severe frost. It is reported to be singularly free from liability to the insect blight, which so often proves destructive to the perennial species.

PRIMULA OLGE.—This *Primula* was discovered by Dr. Albert Regel at an elevation of from 7000 feet to 12,000 feet above the sea level, and is described as a very pretty species, nearly allied to *P. sibirica*, with umbellate flowers half an inch in diameter, and of a beautiful rosy purple colour. It may probably require the treatment of the alpine species, but little is at present known on that point. The *Primula acaulis iberica* from the Caucasus deserves special attention, being remarkable for its large, pale rosy lilac flowers, produced during the winter months in great profusion even beneath the snow, and continues in bloom till the month of April.

RANUNCULUS MACRORHYNCHUS AND **R. MILLE-FOLIATUS.**—These two species of Crowfoot are well worth attention. The latter is not unknown in gardens, though but seldom met with now-a-days; its finely cut, almost capillary foliage and rather large bright yellow flowers give it valid claim to a place on the rockery, or in the mixed border, where the soil is moderately light. *R. macrorhynchus* is apparently a little-known species from Asia Minor. It has a bulbous root, palmate foliage of a silvery white, and large brilliant yellow flowers abundantly produced. It is said to grow about 1½ feet in height, and will probably prove a desirable border species.

SAGITTARIA MONTEVIDENSIS.—Everybody knows and admires the handsome *Sagittaria sagittifolia*, or common Arrowhead of our streams and ponds. This exotic species is of similar, but much stronger habit, producing flower-scapes from 3 feet to 4 feet high, with foliage of corresponding dimensions. Its large and conspicuous white flowers are rendered even more striking by a broad purplish blotch edged with yellow at the base of each petal. The scapes are thrown up in long succession when the plant is afforded sufficient space in a tank, but it may also be cultivated in a large pot in a warm greenhouse, though it is most at home in the stove. Those who are the fortunate possessors of such a glass structure will find this a most interesting aquatic. Seeds sown early in spring will produce flowering plants by mid-summer of the same year.

SALVIA HIMALAICA.—This promises to be a useful addition to our already lengthy list of garden *Salvias*, both foliage and flowers being of an ornamental character. It forms in its first year's growth a large rosette of ovate-acuminate entire leaves, the midrib being of an agreeable rose colour. From this tuft is produced the second year a branched pyramidal panicle of blue flowers of medium size, each of which is subtended by a rose-tinted bract which contrasts pleasingly with the azure of the corolla. Probably a hardy perennial, succeeding in any ordinary garden soil.

SILPHIUM ALBIFLORUM.—Some ten years ago I received from Texas seeds of a supposed white variety of *S. laciniatum*, but it proved to be a new and distinct plant, to which Professor Gray has recently given the name of *S. albiflorum*. Having flowered for several years past, it can now be described as being closely related to the well-known Compass plant to which it was referred by the collector, but nevertheless perfectly distinct from it. It is much dwarfer than that species, not exceeding 3 feet in height, with large, very scabrous, sinuately pinnatifid leaves on long rigid petioles. The stem is sparingly branched upwards, each branch being terminated by one or two flower-heads about 3 inches in diameter, composed of from ten to twelve spreading ray-florets usually of a creamy white colour, but often stained beneath with deep purplish red, and occasionally also on their upper surface. More rarely the florets are entirely purple. It blooms rather late in the autumn, and is therefore never likely to mature seed in this country. It may be readily raised from Texan seed, but does not usually bloom for at least three years. It succeeds in any deep friable soil that is well drained.

SPHERALCEA RIVULARIS.—This Malvaceous genus differs from *Malvastrum* only in the cells of the ovary having two ovules, one of which, however, is often abortive in fruit. *S. rivularis* was introduced from Utah, and promises to be a useful addition to border plants. It grows about 3 feet high, producing numerous slender shoots, clothed with neat palmate or Vine-like foliage, and bearing in the upper axils numerous flowers of a delicate rosy flesh colour. As these are yielded in succession through many weeks in summer, and the plant is absolutely hardy and readily raised from seed, it deserves notice. *S. acerifolia* is a similar species of the foregoing, and grows to about the same height.

IVESIA GORDONI.—Although allied botanically to *Potentilla*, plants of this genus have an aspect entirely different from the Cinquefoils, and to a casual observer the relationship would not be obvious. They are mostly dwarf alpine, remarkable for the imbrication of the small leaflets of their pinnate foliage. The present species is much rarer in cultivation than the white-flowered *I. unguiculata* and is more strictly alpine. It has small yellow blossoms produced in a compact cyme on a nearly naked stem from 4 inches to 9 inches high, the foliage being mostly radical with numerous imbricated leaflets obovate in form and three to five-cleft. Without being showy, it is a very neat and distinct little plant, very suitable for the rockery, and, like the rest of the species, easily grown from seed.

PHLOX DRUMMONDI COCCINEA SEMI-FLORE-PLENO.—Whatever difference of opinion may prevail on the question of the relative value of single and double



Semi-double *Phlox Drummondii coccinea*. *

flowers, the effect of long continued cultivation on all the most popular of garden plants appears to be identical; the tendency to duplication of parts may be more pronounced in some genera than in others, but eventually all appear destined to yield to an inexorable law, and exhibit the exuberance of Nature by a development of extra petals. The *Phlox Drummondii* fl.-pl., a very unlikely subject, all things considered, is the most recent conquest of this natural force. This novelty will not at present compare with the grand results perfected in other genera by long years of patient devotion, the duplication consisting only of an addition of from four to six petals in the throat of the flower. The effect thus produced is, however, very distinct and novel, and if constant the plant is undoubtedly well worthy of cultivation. The flowers, as the name indicates, are scarlet, the habit of the plant is said to be more compact than the single variety of the same colour, and the trusses resemble those of the dwarf compact section.

DELPHINIUM DECORUM.—In this pretty perennial we have another of the tuberous-rooted species of Larkspur which form a characteristic section of the genus. Like *D. trollifolium*, it is an early bloomer, and grows to about the same height as that species, i.e., 1½ feet to 2 feet. There the resemblance terminates, however, the foliage being smaller and very glandular, with an entire absence of glabrousness.

* For this illustration we are indebted to Messrs. Haage and Schmidt, Erfurt.—Ed.

The flowers are in closer racemes, and are of a purple-violet, a distinct shade of colour rarely met with in the genus. It is perfectly hardy, and easily raised from fresh seed. The latter is remarkably distinct in form and colour, being almost white, and resembling a minute pouch or sac, having one end introverted. Under this head, attention may appropriately be drawn to the new white variety of *D. cashmerianum*, introduced by a Paris firm, which is described as being a highly recommendable perennial.

PHACELIA PARRYI.—It may be worth while to explain that with the original species of *Phacelia*, of which the well-known *P. tanacetifolia* may be taken as the type, botanists have agreed to unite those plants hitherto distributed among the genera *Cosmanthus*, *Eutoca*, *Microgenetes*, and *Whitlavia*. Thus *Cosmanthus grandiflorus* becomes by this change *Phacelia grandiflora*; *Eutoca viscida* will be known as *P. viscida*; and *Whitlavia grandiflora* as *P. Whitlavia*. This will account for the appearance under this head, notwithstanding its evident close relationship to the familiar *Whitlavia*, of the handsome *Phacelia campanularia*, introduced by me last season, as well as of the pretty species now under consideration, which would also have been ranged under *Whitlavia*, though differing considerably in the form of its corolla from the older plant. The *Phacelia Parryi*, in spite of its smaller flowers, appears likely to prove a valuable introduction, as it blooms abundantly and the colour of the corolla is very rich. It grows from 6 inches to 9 inches high, bearing ovate foliage more or less deeply lobed and doubly toothed, and numerous erect branched stems which, as well as the entire plant, are clothed with glandular hairs. The flowers are produced in loose terminal curled racemes on spreading pedicels, each blossom being about half an inch in diameter, and resembling in form that of the *P. (Eutoca) viscida*, and are of a deep violet colour, with five white oblong spots at the base of the five lobes. It requires only the treatment of the hardiest species of the genus, and may be sown in the open ground where it is to bloom from March onwards, and will flower in about ten weeks from the period of sowing. As it will not transplant well, it should be sown very thinly. It is a native of Southern California, occurring in the same districts as *P. campanularia*.

PLATYCODON GRANDIFLORUM NANUM.—The plant formerly known as *Campanula grandiflora*, and classed by some botanists under *Wahlenbergia*, but more generally cultivated under the above designation, has always been a favourite in gardens, and is included in every list of the most desirable hardy perennials. Its stout, glaucous stems and foliage and balloon-like flowers (before expansion) place it apart from any other *Bellwort*. The present variety appears to differ from the type chiefly in its dwarfer habit; its height is said not to exceed 10 inches to 12 inches, that of the species being usually about 2 feet. A similar form was recently introduced from Japan by Messrs. Veitch, but seed of that plant does not appear to have been yet publicly distributed.

CALCEOLARIA RUGOSA HYBRIDA.—The shrubby *Calceolarias*, formerly so much employed for bedding purposes, and still used to a limited extent, valuable as they undoubtedly are, have the defect of offering but a very limited range of colours. The "happy thought" has occurred to some unknown florist of blending the more varied colours of the herbaceous section of the genus with the shrubby habit of the *rugosa* strain. Doubtless this marriage has been effected previously, but with less striking results than in the present instance. Seeds of this are said to have been saved from a cross between the variety of *C. rugosa* known as *Gloire de Versailles* and one of the best strains of the herbaceous class. It combines the narrow wrinkled foliage, the vigour and good habit of the former with the larger flowers and rich and varied colours of the latter. The plants will therefore be found equally suitable for the greenhouse, or for bedding.

W. THOMPSON.

Ipswich.

Hedychium Gardnerianum in fruit.—We all know the lemon-coloured fragrant flowers of this nearly hardy Gingerwort, but it is only rarely that these are succeeded by handsome fruits. There was some correspondence in *THE GARDEN*, about a year

ago relative to the treatment required to make this plant fruit, but those in whose gardens fruit had been produced stated that nothing extraordinary had been done to obtain this result. However this may be, the fact remains that few growers of the *Hedychium* succeed in fruiting it, and we suspect that the explanation of this is to be found in what has happened at Kew this year. In the winter garden, and also in the conservatory, at Kew there are large clumps of this *Hedychium* which flower profusely every year but never fruit, although the stigmas have been carefully pollenised. But in the tropical Nymphaea house an unnamed *Hedychium* raised from seeds, brought from the Himalayas by Mr. Elwes, flowered last summer for the first time, and proved to be the common *H. Gardnerianum*. The plant was left in the house to finish its flowers, and as these opened the stigmas were dusted with pollen. The result of this may now be seen in the Palm house, where this plant is bearing several spikes of fruit. The length of these spikes is 10 inches, and each is clothed with green folding bracts 1½ inches long. At the base of some of these is the three-valved fruit, each valve being roughly triangular, 1 inch long, fleshy, and a brilliant scarlet colour. In the centre of these valves is an erect axis with the three clusters of seeds arranged against it, and these are held together by a fibrous arillus, this and the seeds being coloured a bright crimson. It may be gathered from this imperfect description that the fruit of this *Hedychium* is more ornamental and much more interesting than its flowers even.—B.

FERNS.

ADIANTUM FARLEYENSE.

THE way in which this noble Fern has fallen out of cultivation is unaccountable. True, in the hands of some it seems difficult to manage, but the difficulty is more imaginary than real. Heat and moisture are what it likes, and it will not succeed where these are deficient, though it may be wintered in a temperature as low as 60°. In houses in which this temperature cannot be maintained in winter the plants do not die off altogether, but they suffer so severely that several months of careful nursing are required in order to restore them to their former strength. As regards soil, this *Adiantum* is not at all difficult to please. I have seen specimens equally good grown in totally different materials. Two parts good fibrous peat and one of fibrous loam and coarse silver sand form a compost in which it will succeed; but plants in no way inferior have been grown entirely in pure light fibrous loam, commonly known as "yellow loam." On the Continent where such loam as that which is used in this country is not procurable, plants of this Fern in every respect equal to ours may be seen in pure sandy peat.

The main point, besides heat and moisture, in order to ensure success in the culture of this Fern is undoubtedly thoroughly well-drained porous material, which, as soon as it becomes close, is unfit for the nourishment of such brittle and slender roots as those of this plant, and on that account it is sometimes found advisable, if the only soil procurable has a natural tendency to heaviness, to add to it a small quantity of chopped Sphagnum. This greatly helps to keep it open, and prevents its clogging around the tender roots. Watering does not necessitate any particular skill, it being the same as that for all other Maiden-hair Ferns. Its roots must not get either dry or very wet. Like nearly all other *Adiantums*, it particularly dislikes syringing or watering overhead. The fact that its cultivation is not beset with insuperable difficulties is sufficiently demonstrated by the quantities of large specimens which formerly were to be met with in all parts of the country. What, then, can be the

cause of its scarcity now? Why, in my opinion, it is wholly and simply its inability to stand in dwelling rooms, where the disastrous effects of a permanently dry atmosphere soon manifest themselves in regard to this particular plant. We know that plants of it of small size are grown in great quantities by some of our market gardeners for the purpose of supplying the florists' shops with fronds which, we are assured, are eagerly sought after, and last good a tolerably long time. It is a fact, however, that plants of this beautiful Fern—for years the ornament of our stoves—will not keep long in good condition in rooms.

S.

FERNS FOR A COLD HOUSE.

THE quantity of exotic Ferns which may be grown with success in a perfectly cold house or pit is really surprising. All that is wanted for their growth is a structure facing any aspect with the exception of due south. Where hot-water pipes exist they are often used too freely, and therefore the plants start early into growth, and are thereby injured, inasmuch as they must have moisture; if, on the other hand, the moisture necessary under such circumstances is withheld to enforce rest, they become liable to the attacks of various insect pests. If a house or pit can be built in a naturally, or even in an artificially sheltered spot, all the better, as it enables one to have its sides made of glass almost to the level of the ground, an arrangement which will prove of great value during the winter time, when the plants need all the light which they can get. But if such a spot cannot be found, and the house must be built in an exposed situation, the roof and part of the sides only should be made of glass, thus forming either a lean-to, or a sort of half-span-roofed house. If so constructed no particular heat will be needed. On the contrary, during the winter nights a covering of mats will be all that is necessary, but in exceptionally severe weather the introduction of a colza oil lamp is also found to be useful. The following hardy exotic Ferns will grow well under such conditions; the strongest are marked thus α:—

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|---------------------------------|--|
| <i>Acrophorus hispidus.</i> | <i>Lomaria crenulata.</i> |
| <i>Adiantum assimile.</i> | <i>Lygodium palmatum.</i> |
| <i>venustum.</i> | <i>Nipholobus Lingia.</i> |
| <i>Asplenium consimile.</i> | <i>L. corymbifera.</i> |
| <i>ebenum.</i> | <i>Onychium japonicum.</i> |
| <i>incidum.</i> | <i>Platyloma atro-purpureum.</i> |
| <i>αBalanium Culeita.</i> | <i>falcatum.</i> |
| <i>αCyathea dealbata.</i> | <i>rotundifolium.</i> |
| <i>αCyrtomium anomophyllum.</i> | <i>Polypodium Billardieri.</i> |
| <i>αfalcatum.</i> | <i>pustulatum.</i> |
| <i>αFortunei.</i> | <i>Polystichum acrostichoides.</i> |
| <i>αDavallia canariensis.</i> | <i>capense.</i> |
| <i>tennifolia stricta.</i> | <i>munifolium.</i> |
| <i>αDicksonia antarctica.</i> | <i>setosum.</i> |
| <i>Dictyogramma japonicum.</i> | <i>Pteris serrulata and varieties.</i> |
| <i>Lastrea aristata.</i> | <i>cretica.</i> |
| <i>αvariegata.</i> | <i>c. albo-lineata.</i> |
| <i>αatrata.</i> | <i>αOuvardi.</i> |
| <i>αerythrosora.</i> | <i>αSelaginella helvetica.</i> |
| <i>fragrans.</i> | <i>Todea arborea.</i> |
| <i>Opaca.</i> | <i>αVroomii.</i> |
| <i>prolifera.</i> | <i>αWoodwardia radicans.</i> |
| <i>αSieboldi.</i> | <i>αcristata.</i> |
| <i>αStandishi.</i> | <i>αorientalis.</i> |
| <i>varia.</i> | |
| <i>Lomaria alpina.</i> | |

I have seen a collection containing various kinds of Ferns grown in perfection in what may be termed a London backyard glassed over. There were no means of heating the place, and yet the plants, from November to April, looked as fresh and green as they naturally do in summer. Under such circumstances were found, besides numerous varieties of *Polystichums* and *Scopolendriums*, various interesting forms of *Polypodium vulgare*, such as *cambricum*, *cristatum*, *elegantissimum*, *omniferum* and *ramosum*; and by the side of these comparatively strong growing kinds the most noticeable were the more delicate forms of *Asplenium Trichomanes*, *cristatum*, *Maulei*, *incisum*, &c., also the pretty dwarf *A. fontatum*, *lanceolatum*, *Ruta-muraria*, *viride*, and *marinum*, the extremely curious *Ceterach officinarum*, varieties of *Blechnum* *Spicant*, such as *cristatum*, *imbricatum*, *crispum*, *lineare*, *projectum*, and many others. These, it is true, are all British, but the same treatment is equally applicable to all the North American, many of the New Zealand, and nearly all the Japanese kinds, which only require glass protection.

S.

NOTES.

NEW PLANTS.—The world has been pretty well ransacked by the adventurous plant collector, but there are yet remaining a few odd corners sacred to blossoms as yet unknown. The following account of the flowers of New Guinea is as indefinite as it is interesting, and is from the pen of a recent traveller in that island: "The multitude and the beauty of the flowers I cannot describe. At every step we crushed them down, so close together were they; and this continued until we had reached an elevation of 4000 feet; and even at the extreme summit of the mountain several species were represented by an odd member or two, although it was 11,000 feet above the level of the sea. Lilies of three different kinds—red, white, and yellow—were very abundant; but I did not notice them at a greater height than 1500 feet or 2000 feet. Daisies similar to those that grow in our English meadows, but as large as Sunflowers, were very numerous. They were crimson-tipped, but not very modest, seeing they lifted their heads to a height of 18 inches. But by far the most beautiful flower I saw here was one borne by a bulbous plant. It was the shape of a *Narcissus*, 9 inches in diameter, and of a lily-white colour, spotted with deep crimson. It gave forth a delightful odour, which was so powerful, that one's hands would retain the perfume of it an hour after the plant had been handled."

SNOWDROPS.—*Galanthus Elwesi* and *G. Imperati* are both in bloom together, and in point of beauty it is difficult to judge between them. *G. Melvillei* is a great favourite of mine and one of the finest of all, but it is later than the above, another seedling of Mr. Melville's, *G. serotinus*, being a week or two later than *G. nivalis*. Mr. Allen does not mention the double variety of *G. nivalis*, which, even if less beautiful than the single kind, is a robust grower and adds variety to the genus. Are there varieties of this last? I have sometimes thought there are. *G. latifolius* is more often known as *G. Redoutei* and is a distinct little gem in its way. *G. virescens* has white outer segments, the inner ones being wholly green except the white margin. I should like to see flowers of the true *G. nivalis reflexus* as grown by Mr. Harpur Crewe. Perhaps Mr. Loder has this at Floore. In the "Dictionary of Gardening," under "*Galanthus*," pp. 40–41, the figures of *G. virescens* and *G. Elwesi major* are transposed. The figure of *G. nivalis var. Imperati* is in reality that of *G. plicatus major*, and the figure named (on p. 40) *G. nivalis reflexus* (Crimean Snowdrop) is *G. plicatus* in its reflexed state, an occurrence it assumes during hot spring days just before the flowers fade away. It facilitates the intelligent study of Snowdrops if we remember that all the forms are referable to the two typical species, *G. nivalis* (narrow-leaved) and *G. plicatus* (or plaited broad-leaved groups). *G. Shaylocki* has not, in the strict sense of the word, two spathe, but its one spathe is split in two to the base, while, as shown in THE GARDEN plate, the other forms have the spathe split at the apex only. The arrangement of the spathe in the early uprising bud stage is very beautiful; the bud is erect (like a spear-head) on its peduncle and is tipped and buckramed by the closely enfolding spathe, so that it pierces snow or clod uninjured, and the floweret escapes from its embrace only when above the ground and beyond injury.

FLOWERS IN SEASON.—Fancy having Daffodils (*N. spurius* and *N. obvallaris*) and Chrysanthemums (*C. Thunberg* and *roseum superbum*) on one's table at the same time, a thing one never dreamed of as being possible a few years ago. The careful indoor culture of hardy flowers is as yet but in its infancy, and doubtless has many

other pleasant surprises in store for us. I hope the nurserymen of sunny Italy will grow all our good Daffodils by the thousand and send them over here for gentle forcing at a reasonable rate. Grown in Italy these bulbs would flower at least a month or six weeks before bulbs of the same kind grown in Holland or Belgium; so also the bulbs of *Iris reticulata* and its forms, which would be lovely in pots, along with that sweetest of early flowers, the white Roman Hyacinth and forced Lily of the Valley. Our earliest Daffodil outside this year is King Humbert I., now showing colour. It is considerably in advance of *N. pallidus præcox* and the early Bayonne forms, kindly sent to us by the Rev. C. Wolley Dod. *N. nanus* is in bud, but will not be expanded for some time.

THE BEST OF CHRISTMAS ROSES.—The Bath variety of *Helleborus niger* is a very fine one, but *Madame Fourcade* is far more floriferous here with us, and the most generally satisfactory of all the varieties is *H. niger altifolius*. I am inclined to think that these varieties of *Helleborus* are like Pears; that is to say, any one variety may be the best in one garden and the worst in another locality! Just as I write a very fine form has been sent to me which I never saw before. It has very broad obovate leaflets, slightly concave, of great substance, and of a glossy green, reminding one of some Holly leaves in colour, form, and texture. The breadth of the leaflets is quite a feature, and the flowers are as large and closely resemble those of *H. altifolius*, rosy tinted behind, but having green stigmas instead of pink ones. The sepals are very broad and of a perfect, rounded shape; the flower-stem is dotted with red; the leaf-stalks also, but more sparingly. I am told this bold and beautiful form was imported from the Continent, and further of it than that I cannot at present say anything. Those who are fond of these flowers of winter should keep a sharp lookout for good forms in gardens and elsewhere. No doubt when the natural habitats of these flowers are thoroughly explored we shall get a sliding scale of forms showing that Nature abhors the "missing links," which enable the botanist to formulate distinctions.

SINGLE CAMELLIAS.—How beautiful these flowers really are, and yet how rarely seen, even in botanical gardens where one naturally expects to find them. In the water colour gallery of the South Kensington Museum is a picture by V. Bartholomew, in which single and semi-double Camellias, both white and rosy red, are beautifully represented. It is pleasant to think that even at a time when the heavy double forms were in the heyday of their glory that one quiet eye could see the beauty of the single kinds, and that Bartholomew bequeathed us such a glimpse of them as long ago as 1840 will interest the growers of these single kinds to-day.

One regrets that the old *Camellia reticulata* is now so rarely seen, but still more uncommon are the dainty little varieties of *C. Sasanqua*, with their delicate coral-tipped buds and fairy Roses like blossoms set so prettily in amongst the small and shining leaves. One of the curiosities of the Whampoa garden at Singapore was a Tea tree which had been inarched on a branch of some kind of *Camellia*—I think *C. Sasanqua*, and which, of course, was pointed out as a great curiosity to visitors. VERONICA.

Cape bulbs.—We have seen in several gardens lately collections of *Ixias*, *Babianas*, and such like small bulbous plants growing in borders out of doors, either under the walls of greenhouses or in positions where they were sheltered from cold and excessive rain. Strangely enough, in spite of the cold weather of the

last month these plants were growing; some of them, indeed, had leaves a foot long, and their appearance gave little hope of their ever coming to any good. "Old hands" at bulb growing know that it is hopeless to plant these Cape bulbs out of doors and allow them to stay there as one does with Crocuses and Snowdrops, for they are bound to start into growth at a time when it is next to impossible for them to mature and flower. Mr. Baker's paper suggests much, but we fear there is little chance of our ever growing Cape bulbs out of doors in the same way as we grow the North American, Japanese, and European bulbs. There are a few exceptions among the Cape species, as, for instance, the *Schizostylis* and *Montbretia*, but they are emphatically exceptions, and most probably will remain so.—B.

FRUIT GARDEN.

FORCING STRAWBERRIES.

IN very early forcing, setting the blossoms used to be in bad weather a difficult business, but by using the camel's-hair pencil a good set may be obtained with certainty, and it should be used daily from the time the first blossom expands till a crop has been set. The best time to use the brush is between eleven and twelve in the forenoon; the pollen then operates with more certainty than earlier or later in the day. Pass the brush softly over each blossom, a process which distributes the pollen grains without injuring any of the organs. Ten or twelve fruits, if well developed, are as many as a plant should be permitted to carry; and when that number has been set, all late blossoms and buds should be pinched off. The fruits should be supported by means of small sticks, or in some other way, in order to keep them clean, and they will colour and ripen better when lifted up into the sunshine above the foliage than if they were below it. The house for forcing Strawberries cannot well be too light, as the fuller and brighter the light the stronger the blossoms will be. I need hardly say that the largest part of the forcer's work is done before the plants are taken into the forcing house. If the blossoms are not in the crowns ready and waiting to burst forth on the application of heat, they cannot be placed there afterwards by any amount of skill. In a genial atmosphere Strawberries will bear a good deal of heat, but the night temperature at this season should never exceed 60°. From the time when the plants are placed in heat till the fruit is gathered they should never be allowed to become dust-dry, or the leaves to flag; this is often the cause of deformed and imperfect berries. Nor must too much water be given, especially in the early stages, as this causes an undue development of foliage often at the expense of the blossoms. During the time when the fruits are swelling they will use up advantageously a good deal of nourishment, in the shape of strong liquids and rich top-dressings. I have used Amies' manure at the rate of a pound to half a bushel of turfy loam as a top-dressing with advantage. Apply it as soon as the plants open their blossoms, scraping off some of the old soil and pressing the new compost well down. During the ripening period ventilation will play an important part in the flavouring and colouring. But though it may be an advantage to move ripe or ripening fruits to a cooler house if we wish to keep them longer, I have never found it necessary to do so to flavour them, as I always found Strawberries to put on the highest colour and be of the richest flavour when kept in genial warmth.

E. HOBDAV.

Apple Reinette Grise de Furnes.—This is one of the Apples which the Belgians grow so largely for export, and of which a great many are annually

consigned to Covent Garden Market. It is much esteemed throughout Belgium, and is considered to be one of the very best kinds that can be grown for profit. In Flanders especially it is very common, and goes there by the name of *Peer-wine*, which signifies the Pear-Apple. The fruit is of moderate size and of a sober greyish green colour, much resembling our own Russets, to which it would seem to belong. It is of excellent quality, keeping until March, and, like all the Apples grown largely in Belgium, is vigorous and hardy, retaining its fertility to a good old age.—J. C., *Byfleet*.

CANKER IN FRUIT TREES.

It is somewhat strange that there should still exist so much divergence of opinion amongst gardeners as to the cause of canker in fruit trees. With all our assumed knowledge of plant physiology, it rather reflects upon that assumption that we cannot satisfactorily diagnose a disease which seems characteristic of fruit trees almost entirely. If canker be a product of some form of secretion in the wood, is that secretion of a nature that exists in trees that produce fruit alone? and if so, is it allied to the secretions which produce and constitute fruit? Perhaps more than any other fruit, however, is the Apple subject to canker, although it is one of the hardiest of all our fruits; hence we feel it to be almost essential to look for the germs of the disease in some association with the elaboration of fruit secretions. The fungoid theory is hardly a sound one. It is very difficult to imagine that any form of fungus can produce sudden and considerable wounds and excrescences in not merely young, but stout wood of several years' formation. Insects and fungi are parasites which follow naturally upon disease, and are specially evident on and about wounds both in animal and vegetable life. These are, I think, fancy causes, which may be put aside as such. Mr. Douglas attributes canker to the roots of trees getting into sour, cold subsoils, but the roots of myriads of kinds of trees no more hardy than the Apple get into similar soils and no canker results, showing that the cause of canker must be looked for in some other direction. Here I have an old Ribston Pippin tree, and few kinds canker more readily than does this kind. Why is that so? The tree itself is naturally as hardy as is almost any other kind. Its chief difference from others lies in the high quality of its fruit. When I came here fifteen years ago that tree was in robust health and cropped freely. Then came a succession of cold seasons, and canker developed so materially that wood died off wholesale. I therefore beheaded the tree down to stems 6 inches in diameter, and permitted it to break again. Now it has a large head that is full of healthy, robust growth, as perfect of its kind as would be found on a young tree. Yet this excellent result comes from roots that have never been touched, but are in just the same deep clayey subsoil they were in some seven years ago when the canker was so evident. The result illustrates what so many others have experienced, that the cutting off the head of an old and apparently stunted or unhealthy tree, and either grafting it or allowing it to grow again, as I did, is to give it a new lease of life and create practically a new tree.

Now if canker were the product of cold, wet, or sour subsoils, how happens it that the roots so placed can yet produce such robust, healthy growth, and not for a year or two, but for many? Now several years ago, when an intensely low temperature with successive hoarfrosts prevailed for several days, Apple trees over a wide area were found to have suffered to an unusual degree, canker being suddenly developed all over the trees, even in stems several inches in diameter.

Myriads of trees, especially Wellingtons, Kings and Suffields were felled wholesale; no stronger evidence could be found that cold is the chief cause of canker; and still further, that certain winds generate the secretions which when formed produce the wounds commonly called canker. A few years ago that well known North American Apple Northern Spy exhibited canker here so much, that a sound piece of young wood could not be found on it. A couple of warmer and drier seasons have enabled the tree to recover, and it has now plenty of sound growth. Near it are lots of other kinds of Apples, all robust and healthy, that have not shown the least evidence of canker. Clearly here the soil is not at fault, but the weather must bear the blame of the disease, which, oddly enough, is found so evident upon a kind that, coming from so cold a climate, should be hardy. That certain kinds of Apples are far more subject to canker than others—indeed, many put it that some kinds of Apples canker much, whilst other kinds, growing in the same soil and under the same conditions, escape—shows that the first-named sorts must be more susceptible of the affection for reasons unknown, but probably of a constitutional nature; hence, in breeding Apples henceforth such cankerous sorts should be avoided as parents; then it is self-evident that the situation of the roots cannot be accepted as conclusive as to the cause of canker when we see commonly trees subject to the disease cut hard down and then growing quite out of it, whilst the roots have not been touched.

It seems also pretty conclusive that as canker affects fruit trees chiefly, there must be some connection between that and the fruit-bearing properties. Then we have had abundant evidence that cold, especially when experienced in the summer and autumn, is provocative of canker, but chiefly in the newer wood, whilst a very low temperature in the winter will sometimes be productive of the most disastrous effects in the propagation of canker. Really, canker is without doubt a disruption of cellular tissue produced by bursting of the sap vessels or cells, the coagulation of the sap practically causing a severe wound in the wood affected. Naturally, beyond such a disruption of the sap vessels the wood must die, because the circulation of the sap is checked or destroyed.

Our fruit trees a few years since failed materially in many places to produce ripened wood, because the seasons did not give the needful sunshine. We have had more of that valuable attribute for the past few years, and with it more ripe wood and less canker. If we could always have warm autumns, no doubt canker would trouble us but little; that, however, is a remedy beyond our utmost capacity always to secure.

A. D.

SHORT NOTES.—FRUIT.

Tying Vine rods.—Matting, raffia, and other materials are used for this purpose, but nothing is so good as tinned twine of moderate thickness. Insects dislike it, and this is the main reason why it should be used, at least for the main rods. For the side shoots nothing equals raffia; it is strong, pliable, and very durable. —CAMERIAN.

Marie Louise d'Uccle.—This is a dessert Pear of the highest merit. It is superior to, and ripens ten days earlier than, the Marie Louise. Its flesh is fine grained, buttery, and melting, very juicy, and richly flavoured. The tree is quite hardy and a good bearer, and likes a rather heavy clay soil. R. N., *Falkingham*.

Knight's Monarch Pear.—I have a tree of this valuable Pear in the form of a bush which bears well every year. It is worked on a Pear stock. This season it produced two bushels of fruit, half a bushel of which fell before they were fit to gather. It always sheds its fruit in this way, and I leave them on the ground for some time, as they shrivel if picked up. These fallen fruits I find useful for stewing. Although a late Pear, I find it necessary to gather it earlier than some other kinds. With me it usually keeps up a good succession till March, and in some seasons even later than that. W. D., *M. arden*.

NORTHERN COUNTY FRUITS.

In the northern counties fruit culture has been much neglected, and therefore fruits are worse in quality and less in quantity than they were 30 years ago. The Apple Congress of 1883 gave an impetus to fruit culture, and the demand for trees is still much greater than it used to be, but one serious drawback to planting them still more extensively is the want of knowledge respecting varieties and stocks on which they are grafted, and also the form of tree most suitable for particular localities and circumstances. An instance lately came under my notice which will demonstrate the necessity for further information on such matters even amongst nurserymen, who are generally considered to be thoroughly conversant with the subject. A fruit-grower who wished to distribute a particular variety of Apple amongst his friends ordered a number of maiden trees. When they arrived he was astonished at the peculiar wiggly sort of roots which they had, and as they had been grafted considerably more than a year, he wrote to the nurseryman who supplied them, asking him for the name of the trees and also of the stock on which they were grafted. In his reply he stated that they were maiden trees worked on Crab stocks. Subsequently I saw some of those trees, and I have no hesitation in stating that they were not grafted on Crab stocks, but on the Paradise, and instead of being maidens they were some four or five years old. It was, I suppose, because their growth was confined to a single stem not more than 4 feet high that he thought maidens was the correct name to give them. An effort is being made to form a society at Manchester for the purpose of encouraging the culture and raising of improved varieties of hardy fruits. One of its objects is the dissemination of a knowledge amongst all classes of growers of the species and varieties that succeed best in their particular district with the most approved methods of cultivating them.

The London Pomological Society, formed in 1854, has, I understand, been merged into the fruit committee of the Royal Horticultural Society. One of its rules was to the effect that local committees consisting of five members should be appointed for each county in Great Britain. Were those committees appointed, and what did they accomplish? Are there any societies for the purpose of encouraging improved hardy fruit culture other than the Royal Botanic and Royal Horticultural Societies? I should be extremely obliged for any information relative to these questions, or for suggestions as to the best way of establishing and conducting such a society as I have briefly indicated.

W. NEILD.

Wythenshawe, Cheshire.

Hardy fruits.—Mr. Coleman, in his remarks on hardy fruits (p. 103), quotes from the *Daily Telegraph* reference to a fruit exhibition at Reading, which proved to be a comparative failure, because the schedule was badly framed. This statement Mr. Coleman thinks to have been a reflection upon the local gardeners and fruit growers. It is, however, evident that Mr. Coleman is labouring under some misapprehension as to facts, because the exhibition referred to could only have been that of the Royal Agricultural Society, held at Reading some few years ago, when, for the first time and upon the recommendation of Mr. Whitehead, a schedule of prizes for fruits of various kinds was framed, and so far framed badly that some things invited were not in season. The chief cause of failure, however, was the fact that the exhibitors were all to be *bona-fide* farmers cultivating so much land under ordinary farm crops; hence it was evident that the competition must be restricted, and so it proved. I think the council of the Agricultural Society have not renewed the experiment. Certainly the matter had no reference to

Apples or Pears, upon the merits of which and their packing Mr. Coleman dilates, because the show was held in July. As to the merits of packing Apples, for instance, I fear a good deal that does seriously reflect upon our home growers is to be said, and if it be true, then the sooner we set about improving our market packing the better. Of this I am sure that Apples come over here in barrels from America, and open in a very much sounder condition than home-grown Apples are found in when sent to Covent Garden Market. We treat our market Apples pretty much as if they were Potatoes, and the result must be obvious.—A. D.

GARDEN FLORA.

PLATE 530.

DWARF PERPETUAL POLYANTHA ROSE.*

THIS Rose affords a striking example of the universal law of variability. The type, the sarmentose Polyantha, is a native of Japan, whence it was introduced, about twenty years ago, by Fortune. But little attention was paid to it at first; indeed, so much was this the case, that the director of our park, M. Bonnet, did not think it worth a place among other Roses there, and gave me the plant of it which he had received from the importer. About four years later I had sown some seeds gathered from the type, and I obtained several double varieties, all sarmentose, but not any perpetual. From one of these, which is still in my garden, I gave some seed to M. J. B. Guillot, from which he obtained the first dwarf perpetual bloomer in 1872; this he sent out in 1875, and named it Paquerette. It is a free bloomer, double, and pure white. About the same time the late M. Ph. Rambaux had sown a great many seeds obtained from a plant which I gave him of the double-flowered white Polyantha, a different kind from the type, being yellowish white, and also bearing large trusses of flowers, but not perpetual. From this he obtained several dwarf seedlings, but not so dwarf as Paquerette. One of them was particularly remarkable, inasmuch as it had flowers larger than those of Paquerette, and pure white. It was named Anne Marie de Montravel. The double white Polyantha is not so much cultivated as it deserves to be.

Although I was the first to possess it, I cannot exactly state its origin; I cannot say whether it is a seedling of mine, or a sport from the type of which the plant has every appearance of being. Three years later, M. J. B. Guillot obtained another variety, which he sent out, in 1881, under the name of Mignonette. This is also very dwarf and a very free bloomer. In colour it is a light rose, and fine in shape. In the same year also appeared Polyantha Cécile Brunner, a seedling of the late M. Ducher from the type, crossed by the Tea Rose Souvenir d'un Ami. The flowers of this are good in shape, and of a delicate rose colour slightly tinted with yellow. In 1883, M. Joseph Schwartz sent out a dwarf perpetual Polyantha, under the name of Jeanne Drivon. Its parentage is not, however, exactly known, because it was discovered amongst a great many seedlings of various origin. Its flowers are white, slightly edged with pink, and good in shape. In the same year M. F. Dubreuil, son-in-law of the late M. Ph. Rambaux, sent out Perle d'Or, a splendid acquisition; also a seedling from the double white Polyantha, but of a good yellow colour. The plant is also very dwarf and an abundant bloomer. Last year M. Aléatière sent out Miniature, the result of seeds sown in 1882. These were gathered from various bushes, offsprings of the type. Its flowers are small, but very numerous and pretty; they are of a very

* Drawn in Messrs. Pauls' nursery, Cheshunt, in July.



ROSES MIGNONETTE AND PAQUERETTE

light rose edged with a darker tint, and are nearly always to be found in bloom. This year M. F. Dubreuil sent out another seedling of the double white Polyantha, under the name of floribunda. This has flowers of a rosy tint, fine in shape and freely produced.

The greatest merit belonging to the Polyantha Rose is that it is very hardy. It has withstood in my garden, for about twenty years, our most severe winters; in 1871 we had 24° below zero centigrade. Moreover, it throws up no suckers, like the Manetti and Brier, and therefore it is recommended as the best stock on which to graft other varieties.

JEAN SISLEY.

Mompaisir, Lyons.

ORCHIDS.

SYRINGING ORCHIDS.

ORCHIDS from their nature are more dependent on moisture overhead than other cultivated plants. And the question arises, is it best to give it conjointly by the use of the syringe and by the presence of a moderate amount of vapour in the air of the house, or wholly by moisture in the atmosphere. The advocates of the latter mode of giving the requisite supply urge that if the syringe is used, the water gets into the partially open leaves and destroys the young growths; this more particularly applies to Cattleyas and their near relatives the Lælias, the bulb-sheaths and young leaves of which hold water more than those of most Orchids. On the other hand, those who believe in syringing overhead maintain that if the treatment of the plants in other matters is what it should be the water thus given will have no injurious effect, even in the case of such kinds as by their formation are most susceptible of injury in this way. A good many years back I gave the non-syringing treatment; and

for two years no water was given overhead by the syringe except to a few Dendrobiums, such as *D. Falconeri*, *D. Devonianum*, and *D. sanguineum*. In every other respect the management was the same with the exception that proportionately more atmospheric moisture was kept up alike with the occupants of the East Indian house and with the Cattleyas and others that need less heat, but the results were not such as to cause the syringe to be kept longer idle. No excess of atmospheric moisture was allowed, only as much being given as was necessary to make up for the absence of any by means of the syringe, yet the leaves had less of the hard substance in them that is a certain sign of robust health and ability to last, in addition to which without a good deal of labour, that was not necessary when the syringe was used, there was more than I liked to see of the mischievous work of the troublesome little yellow thrips, that left its mark on the foliage of such things as Vandas, Aerides and Phalaenopsids amongst the warmer section, and of Cattleyas and Odontoglossums in the cooler department.

THE NON-SYRINGING COURSE of treatment

having thus had a fair trial, I again took to using it for all the collection; it was used daily from the beginning of March to about the middle of October, going over the plants in good time in the afternoon. The work was done in no half-hearted way, as recommended by some, who would only allow an infinitesimal quantity to reach the plants in the form of mist-like spray; an ordinary fine rose was used, and with this they were given a good even sprinkling. It is scarcely necessary to say that if I had found that the plants suffered in the manner in which some who have written on the subject complain of, I should not have continued the practice; but I can safely say that in the sixteen or seventeen years during which the syringe was in regular use through the growing season I never lost a young growth that was traceable to the use of the syringe. A good many of the Cattleyas and Lælias were grown from ordinary small trade pieces when I received them up to specimens that filled shallow pots from 20 inches to 22 inches in diameter. The reason the young growths did not suffer in the way represented by those who complain of bad results from syringing overhead was simply that

of water overhead to Orchids generally, Cattleyas and Lælias in particular, it is only necessary to point to Messrs. Backhouse's collection at the York Nurseries; the robust health and extraordinary vigour to be found in quantities of this section of Orchids grown by them are not surpassed by any in cultivation, a fact well known to those who have been in the habit of seeing them, and I understand the way in which they are treated in the matter of water is that they get it overhead from a large pot, just as it would be given to a bed of Radishes or young seedling Cabbages. Such treatment as this would be likely to cause a shudder in those who object to syringing overhead, or advise its being applied in homeopathic doses. Yet if the practice did not answer, it would not be followed in the nurseries in question. There is little doubt that when Orchids are grown in dark unsuitable houses, or where the treatment they are subjected to is such as causes the plants to be soft and wanting in substance, syringing overhead may cause injury to the young growths. But conditions arising from such causes are no reason why syringing should be condemned generally.

If syringing overhead had no further influence on the condition of Orchids than keeping down insects and maintaining the foliage in a cleanly state, it would contribute in no small degree to their healthy existence in addition to the saving of labour which it effects.

T. B.

The pruned Lælia.—

I have just read Mr. Douglas's note on this subject, and I am prompted to ask whether the description published in all the horticultural papers, as well as that of the grower of the plant himself, or Mr. Douglas's is the right one. Further, I disagree with Mr. Douglas, even according to his own showing, that it was "not a pruned Orchid at all." Those who originated the term "pruning" and explained its meaning have described it as the removal of old and flowerless bulbs in the case of Dendrobiums, &c., and in the case of Lælias and the like as the removal of "leafless bulbs," and ac-

cording to Mr. Douglas this description applies accurately to the Lælia in question. The contention of the opponents of pruning was that the bulbs were storehouses of nourishment, no matter if they were leafless or how old they were, and that so long as they were alive they should be left on the plant. In the case of Mr. Blandford's Lælia pruning appears to have the effect of causing the bulbs left to retain their leaves longer than usual. Has Mr. Douglas a Lælia of his own culture with bulbs bearing "healthy leaves seven years old"?—S. W.

An Orchid society.—When I mentioned to a friend my idea regarding an Orchid society, a few weeks ago, his reply was this: "An Orchid society! why, what else is the Royal Horticultural Society but an Orchid society?" and according to your correspondent "A. D." (p. 95) he was quite right. In a word, both myself and others agree that the Royal Horticultural Society has done ample justice to Orchids, and it is to prevent any of those restricted views of which "A. D." complains (and to which he says orchidists are peculiarly liable) from effecting harm to the Society's work in general that an Orchid society, pure and simple, is proposed. I do not agree with "A. D." when he says, "Orchidists are apt to be orchidmen, and not much else." The facts are



Flowers of *Rosa polyantha*.

other matters connected with their cultivation imparted the requisite solidity to them that enabled them to bear water being applied in the way most natural for it to reach the plants. The chief essentials that gave this were sufficient air and an abundance of light by keeping the plants sufficiently near the glass in light houses. At a time when the majority of Orchid growers kept their houses shaded with close material that admitted of little more light reaching the plants than would pass through an ordinary blanket I used gauze canvas, which broke the sun's rays, but interfered little with the light; in addition to which there was an absence of the stifling, over-moist atmosphere that has brought about the destruction of more Orchids than those who have had to do with them would care to think about. For about an hour after the houses were closed in the afternoons was the only time that there was more moisture in the atmosphere than would suffice to keep the roots that were exposed fairly moving.

WATERING OVERHEAD.—As an evidence of the best possible results that follow the application

quite as often the other way. Take Baron Schröder's garden as an example. I don't remember seeing another garden of its extent wherein everything was so well done; and so at Sir Trevor Lawrence's, where the fine *Ouvirandra fenestralis* struck me as the best specimen I ever saw. If "A. D." would go to Chelsea, or Holloway, or Clapton, he would find that Messrs. Veitch, or Williams, or Low, all orchidists of the first class, have also a wide sympathy for all other beautiful plants. No; if I want to find restricted views or limited sympathies, I find it among my friends of the "Potato Club" or amongst the amiable fraternity who delight in putting "paper collars" on their favourite flowers. The desire to establish a special society for Orchids in no sense reflects on the activity and general usefulness of the Royal Horticultural Society. In fact, it is believed the proposed society would prove of infinite service rather than of injury to the mother society, just as do other special societies one need not name. The trade growers might object to an Orchid society (as I know some of them do) because they prefer to deal with isolated individuals. At the annual meeting of the Nursery and Seed Trade Association the other day there was some attempt made to effect a trades union, after which the nursery trade can scarcely complain if amateurs also wish to combine for mutual protection. In proposing an Orchid society I have no personal interest whatever. I should certainly subscribe to it, but there are many reasons why I could take no active or personal part in its control. I am glad that "A. D." has imported a little healthy opposition into this question, such opinions being infinitely more conducive to progress than any amount of luke-warm sympathy.—F. W. B.

KITCHEN GARDEN.

SIZE V. QUALITY IN VEGETABLES.

"T. B." is doing good service by returning to this subject. The pursuit of size is a growing evil. More and worse still, size and beauty have carried nearly all before them at exhibitions of garden produce, and the standard of excellence adopted at these is sure sooner or later to be adopted more or less generally in private gardens. The result is, that not a few products are grown to please the eye more than to gratify the palate or nourish the body; in a word, the wrong sense is appealed to and catered for with the most disappointing results. Nor is a remedy for this fast growing evil very easy to find. Even "T. B." affirms that horticultural exhibitions have an influence in promoting a taste for gardening that nothing else can. Exactly; and to render them attractive to the uttermost, big vegetables and Potatoes, perfect in form and bright with colour, contribute their fair quota. Nevertheless, three points should be awarded for quality, to one to each or all others. But how is quality to be tested? There seems only two possible ways—either by cooking and eating samples on the spot, or securing judges of such wide experience as could pronounce a true verdict on the quality of the products adjudicated upon. Either mode is surrounded with difficulties. It has passed into a proverb, that too many cooks spoil the broth. But almost any cultivator is equally certain that almost every cook ruins the vegetables, and anecdotes are rife of first-rate gardeners having to cook, as well as grow, Potatoes for their employers' tables as the only means of providing them with any worth eating. Still, to cook and taste vegetables would afford a safer test of quality than the mere judging of them from their size and general appearance.

Again, there are not a few jurors who have grown vegetables all their life and tested their qualities for themselves sufficiently often to have arrived at a correct estimate of their merits. They have mentally, if not actually, scheduled them at their exact worth. And though changes

of soil and variations of culture largely disturb quality, yet, on the whole, educated experience is seldom much at fault in the matter.

Unfortunately, at too many exhibitions, vegetable, and not seldom even fruit, judging is handed over to the youngest and most inexperienced, while all the talents are devoted to plants and cut flowers in which there is often little or no competition. Or, even when it is otherwise, scarcely ever is there anything like the ripe special knowledge and experience needed to adjudicate between two or more competing collections of plants as to award the relative degrees of merit between a dozen or more competing collections of fruit or vegetables. Only men possessed of true judicial faculties, and of the richest and most varied experience, should be employed in these most difficult departments of our great exhibitions. And yet it is an open secret that the most valuable prizes for such products are not seldom carried off by the mere rush of attractiveness—size, symmetry, colour, balance, evenness, variety, &c., all exerting equal, perhaps more, force in the winning of the prizes than quality, of which the jurors not seldom seem to know little and the societies to care less. A very general impression seems to prevail that vegetables add little to the popularity or paying property of shows; they are thrown in as a mere sop to old-fashioned utilitarians. That is about all; and hence largely their judgment by false standards and their relegation to places of very secondary importance.

While agreeing thoroughly with "T. B." in his main contention in regard to the superlative importance of quality in all edible products, I can hardly go with him in his remarks on the little importance of the cooking properties of Potatoes. On the contrary, the latter are of vital moment, and, unfortunately, there are Regents that it is well nigh impossible to boil, and which are strong when steamed, and such, however mealy, will ever remain unpopular. Good Magnum Bonums are also preferred by not a few to Regents, and while they have sufficient adhesive properties to keep them together when boiling, they are sweet as a nut, without any excess of flouriness afterwards. Then the black spots in Regents in the spring are decidedly objectionable, though eaten in due season there is nothing to equal Regents, on the whole, to lovers of floury Potatoes. Those, however, who prefer waxy ones will look in other directions for their favourites. Fortunately, Potatoes differ so widely in quality, that varieties may be found in abundance to gratify all legitimate tastes without being led away by mere size, or allured by form or colour.

D. T. F.

KITCHEN GARDEN NOTES.

SPRING CABBAGES.—These will be the first vegetables ready for use in many gardens, and we all know how valuable they are from the beginning of April onwards. Amongst the earliest of the early, Ellam's Emperor and Reading All Heart are conspicuous, and those who possess good autumn plants of these will stand a capital chance of having a valuable lot of very early heads. As a rule, there are sure to be some blanks early in spring in autumn plantations, and these should be at once filled up. Earthing up should also be attended to, as this keeps the plants steady and firm when they begin to be a little heavy in the top. Plants which may be regarded as early, or almost too early, seeing that there is a chance of their bolting in March instead of hearting in April, should be left alone, but any which might be benefited by a little stimulant should have a handful of guano shaken round each plant. Nitrate of soda is a better stimulant, but it is too early to apply it. Guano forces them on gently and increases their size wonderfully. Old Cabbage roots left to produce sprouts after the first heads were cut may look very shabby

now, but if the ground in which they are growing is not really required, it would be advisable to leave them, as they will still produce many sprouts, which are very good indeed when properly cooked. We never clear off our old Cabbages until April, and then they are immediately followed by late Potatoes.

SOWING IN THE WET.—Beginners in vegetable culture who are anxious to surpass everybody else with early produce are generally tempted to sow in January or February, whether the soil is in good condition or not, but those who have tried this a few times soon learn that there is nothing to be gained by too early sowing, especially if the soil is wet and cold which it certainly is just now. We have sown Carrots in the open the first week in February and more about the middle of March, and by the 1st of June the March-sown ones were the finest roots. In the case of Onions, we have found those sown the last week in January more stunted in growth and backward by the beginning of July than others sown six weeks later. Very early sown plants almost invariably receive a severe check before March is out, and it is this which tells against them the whole season. Late-sown plants which grow on freely from the first always produce the finest crops, and, as a rule, nothing is gained, but a great deal lost, by early sowing.

SEED POTATOES.—These should always be treated differently from tubers for use. The latter must be kept in the dark, and it does no harm if a large quantity is stored on the top of each other, but seed Potatoes when kept in the dark are induced to produce long spindly growths of a pale colour, which never make good sprouts for planting along with the tuber. It is a great advantage to have all tubers sprouted before planting, but the sprouts cannot be too dwarf and dark green, and it is only when the tubers are spread out in a single layer and in full light that shoots of this stamp are forthcoming. All early Potatoes are now on the move, and should receive immediate attention. They should not be put into any place artificially heated, as this would at once cause the growths to become tender and long, but any place such as shelves or a floor from which Apples have recently been lifted and used suits them admirably. They must be kept in the light, and on a good day air may be admitted freely to them. As the early varieties are planted out, their place should be filled up with later sorts, and in this way every Potato that is planted may have two or more growths on it from 1 inch to 2 inches in length. Tubers intended for frames or anywhere under glass may be placed in boxes and put into an intermediate temperature, as they will not experience any check in being planted, but those intended for the open air must have no artificial start. Tubers which have been kept in a large heap and in a mild dark place since last autumn will now have produced many shoots, and some of these may be broken off in moving them, but it is just as well to do this, as growths produced under these conditions never become really good ones for planting, and the best way is to break the longest of them off and allow the very small ones to gain strength in the light and air. Generally speaking, Potatoes which are planted with proper sprouts will mature their crop a fortnight sooner than those planted with dormant eyes, but in districts where spring frosts occur the latter may escape best and prove most remunerative.

FORCING RHUBARB IN SMALL GARDENS.—I have often wondered how it is that Rhubarb is not forced in small gardens. In large gardens where glasshouses and forcing accommodation exist, its production throughout the winter is a matter of no trouble, but in small gardens where roots are often plentiful and the produce really wanted, forcing is seldom attempted. When it comes in naturally there is far more than is wanted, and a few roots might be forced in most gardens every spring without interfering with the main crop. Beginning now would add very much to the length of the supply, and both for sale and home use the produce would prove valuable, the expense of forcing being little or nothing. The cheapest way, and an excellent plan, is to get a few old casks and turn them upside down over the crowns; then procure a few cartloads of stable manure; mix it with leaves of old vegetable refuse if there is any to be

had, and make a hotbed up round the casks. The latter should have neither tops nor bottoms, but a board should be laid loosely over the top to allow the steam to escape and anyone to look inside to see how the produce is coming forward. First-rate Rhubarb may be produced in this way, and if the protection is kept on and light admitted, by-and-by the crowns will be gradually hardened off and may be retained and forced again in the spring of 1888.

PARSLEY.—1885 was generally a favourable year for this, but although it might be plentiful until the severe weather checked it, there is a possibility that it may be scarce in March and on until new plants are ready; but so long as the old roots are sound, abundance of leaves may soon be gathered from them. The whole of the old decayed leaves should be cut away, a little guano and soot should be thrown down around the plants and between the rows, and then this should be forked slightly in. As soon as the weather becomes in the least way favourable young growths will appear, and much useful produce may be gathered from the plants before they run to seed in May or June.

EARLY BRUSSELS SPROUTS.—In some districts the seasons are so unfavourable, that to produce Brussels Sprouts of good quality the seed should be sown under glass early in spring; the plants should be grown on slowly until April and then planted out. Our plan for early sprouts is to sow in autumn, winter the plants with the young Cauliflowers, and plant in March or April; but as this hint is useless for this season, I can only recommend that a cool frame or a few handlights be given up to the sprouts for the next two months. Rich soil to the depth of 5 inches or 6 inches should be placed at the bottom; then sow the seed thinly and cover over lightly. As the plants become large enough to handle a few of them may be drawn out to give the others more room, and those taken out may be dibbled into some sheltered corner to succeed the earliest plants, which will be those in the frame.

OLD FORCED ROOTS.—Asparagus roots lifted from the ground and placed in some artificial position for forcing are never of any further service, and although some may try to make them useful again, success is very doubtful; it would be more profitable to keep up the stock of roots by raising young ones from seed annually. Rhubarb roots also deteriorate in forcing, especially if lifted, and we do not recommend their being retained; but Seakale bears lifting admirably and after forcing the roots are as valuable as ever. When all the produce has been cut from them they should be taken from their forcing quarters and placed in a cool position exposed to light, but secure from frost, and here the crowns will assume a deep hardy purple or green colour and emit young growths from the side of the cut part. These form good plants for fresh plantations, and where the stock is deficient they must be cut up into lengths of 3 inches or 4 inches, when every piece will grow. In putting in some strong crowns to force early last December some of the smallest of the rootlets were broken off; these were packed closely together on their ends in a box of leaf soil, and now I see almost every one of them has formed a growing crown, although only standing in a cold frame.

RAISING PEAS UNDER GLASS.—Peas sown in pots, boxes, spouts, or on turves and raised under glass in spring will soon surpass any open-air ones in height, but there is always danger that what is gained under glass in February and March may be lost in April, as it is when the under-glass-raised Peas are planted out the dangerous period of their culture arrives. It is, no doubt, gratifying to see Peas from 6 inches to 1 foot in height by the end of February, but, as a rule, their appearance is not so pleasing after they have been out a fortnight or so; indeed, it often happens that open-air-sown Peas put before those from indoors; by sowing early, however, and allowing them to remain in a cold frame with the simple protection of glass and a mat on a cold night, Peas raised under glass may be grown to surpass all open-air crops in earliness, and I would strongly advise all who wish to succeed in raising early Peas to confine them to the frame and never think of starting them in a forcing house.

EARLY CARROTS IN FRAMES.—Few vegetables are more delicious in April and May than young Carrots about the thickness of one's thumb. It is impossible to have them of this size so early in the open air, but there is no difficulty in securing them if the hotbed system of culture is resorted to. Here we have some deep frames filled well up with fermenting material which is made very firm; then soil to the depth of 8 inches or 10 inches is put on the top and the seed is sown on the surface. The soil, good friable material, is mixed liberally with sea or river sand, and a little well decayed manure and soot are added. Clean roots are thus obtained, and worms never trouble them. The seed is sown thinly broadcast, and covered over with a layer of sand about half an inch in thickness. The lights are put on from the first, and air is admitted on fine days as soon as the young plants can be seen. The early French Horn is the best of all for the first crop.

Margam, Glamorganshire.

J. MUIR.

HYBRID POTATOES.

I AM pleased to see that the scientific committee of the Royal Horticultural Society has brought this interesting subject under discussion. I herewith send you three samples of the result of what may be termed tuber grafting. In each case the parent Potatoes, *i.e.*, half of each sort, were bound together as mentioned in *THE GARDEN* (p. 61). Plugging I have found to be less likely to produce any good result, the tubers belonging to the plug being after their own kind, and those of the would-be foster parent also after their own kind. In this district it is generally known that new Potatoes can be raised in this way; but as regards permanency or how far this way of hybridising may improve the Potato, I am not now able definitely to show. I am keeping what I have for seed, but a few which we eat proved to be excellent, the produce partaking evenly of the characteristics of each parent and free from disease. No disease whatever was traceable in the hybrid between the Skerry or Cruille, though the latter is very liable to it; the former is a well known and excellent keeper. No disease was apparent in any of the three sorts under experiment, but how long they will continue to be disease-proof I should not like to say. I am inclined to think, however, that they will not have such a good chance of resisting it as a seedling. Moreover, how long will they keep good? Some three years old with me seem to maintain their hybridism.

Both botanists and gardeners question the possibility of such crosses; yet upon consideration it is easy to see a certain amount of analogy between this and budding or grafting. When the cut sides of the Potatoes are closely and firmly bound together, the juices of the two varieties seemingly pass freely from one to the other, and the stem and tubers necessarily become intermediate between the two. It is a fact, too, that the same parents always produce the same crosses.

If future experiments prove satisfactory, we shall thus have a ready means of infusing fresh stamina into any Potato that may be given to degeneracy, to which I believe all are liable.

Castle Upton.

S. KEVAN.

*** The hybrids to which Mr. Kevan refers are the result of crossing the Skerry and Irish White, the Skerry and Cruille, and the Skerry and Champion. The produce in all three cases is very much alike—deep-eyed, round, medium-sized tubers, white, flaked with blush-red, with a patch of the same colour on each crown.—ED.

Broccoli.—I am surprised that Mr. Muir has discarded Snow's Winter White Broccoli. Last season I had two fine quarters of Veitch's Self-protecting Autumn Broccoli, which I look upon as a unique

variety for autumn. Snow's Broccoli, of which I am a large grower, comes in in December and January. My stock I always find true and most useful; in fact, I don't know its equal for the months just named. This Broccoli pleased me so well last year that I have a selected stock from it. I may here note that Snow's Broccoli is generally sown too early. If sown under glass in March it grows from 3 feet to 3½ feet high, heads most irregularly and small, but if sown the first week in May outside, it is quite a different thing altogether, the plants being from 18 inches to 20 inches, short and stubby.—R. GILBERT.

WORK DONE IN WEEK ENDING FEB. 2.

JANUARY 27 AND 28.

THE thaw has continued these two days and the snow has quite disappeared, and we have therefore been able to find full employment, mending weak parts of coach roads, cutting Laurels, clipping hedges—Privet and Cupressus—and tying compactly together with tar cord Irish Yews, Juniperus macrocarpa, and Thuja aurea. The heavy snowfall had bent down the branches, but, fortunately, not broken them, as was the case with one or two Cedars, Douglas Firs, and Abies Nordmanniana; such boughs have been cut off and the wounds painted over. Pruning orchard trees, got out all roots of Dahlias that we require to propagate from, planted them in boxes of light compost and placed them in warmth. The old roots that are to be planted as such are left as they were, namely, packed closely together in cocoa fibre, on the loft in a north shed, from which frost is excluded. Cannas, Marvel of Peru, and tuberous Begonias that are required for flower garden purposes occupy space in the same shed, and are heeled in just the same way, and are covered over with mats when the weather is very sharp; at present they are in perfect condition, and, therefore, will remain as they are till the beginning of April, when they will be potted and started into growth. Rubbed a few more shoots off early Vines, and tied them up to trellis; being a little milder, we shall slightly increase the temperature, not lower than 60° or more than 65° by night, with a proportionate rise by day, particularly during sunshine, of which, by the way, we get but little, hence forcing of every description is terribly slow work; but we are content to have it so rather than court partial failures of crops by forcing against time. The safest rule is to wait for longer and brighter days, when a spurt may be put on without risk of injury. Put in cuttings of Kleinia repens and variegated Mesembryanthemums; they strike very well in shallow boxes of sandy soil if stood on bricks over hot-water pipes in any of the forcing houses or pits.

JANUARY 29 AND 30.

Much milder, but showers at intervals on both dates, and consequently the only attempt at outside work has been a little more Laurel cutting and levelling of gravel on coach roads. Our time has been made out by working at the usual description of inside jobs—Pea sticks pointed, other sticks cut in lengths for herbaceous plant-tying. We are favoured in having plenty of Hazel to cut at, than which no sticks are better or neater. A profitable job was also afforded in the placing of seed Potatoes in single layers on the floor and shelves of Potato cellar, and in such as had lain too thickly together and had sprouted, the growths were rubbed off, there being plenty of time for the production of other sprouts before planting time. A quantity of Myatt's Ashleaf was taken out and laid on leaf soil in warmth, and soon as roots have been formed in the leaf soil and the weather is favourable, they will be planted in deep drills on a south border, where if needs be they can readily be protected from frost and cutting winds. There being plenty of spare time, fruit rooms have had a thorough look over and sweep up, Grape room included; only those bottles containing bunches that were recently cut needed to be replenished with water. It would seem that once the wood (and fruit too, I suppose) gets well saturated, there is but little further absorption, as some of the bottles don't require additional water for weeks together. As to deterioration of flavour when bottled, it is only reasonable to expect that such would happen,

but it is so little as to be scarcely appreciable till May, when the weather gets warmer and shrivelling begins, and even then they are sometimes preferred to new Grapes—a circumstance confirmed by letters in my possession, a passage from one reading thus: "I do not wish to detract from the excellence of the new Hamburgh Grapes you have sent us, but we all (meaning the family) like the old Grapes (Lady Downes) best." I give this reference for the benefit of doubting compeers, that they may with confidence house their Grapes. Put in heat other forcing plants, such as Spiræas, Lily of Valley, Hyacinths, Callas, and Roses, and those in full flower we have arranged in latest Peach house to retard the flowers, in order to keep up regular supplies of cut flowers, which are required twice, and sometimes thrice, a week, all through the London season. Potted more roots of Solomon's Seal, Primroses, and Forget-me-nots. Watered second Peach house (inside) border; the flowers are just opening, and from now syringing will be discontinued till the fruit has set. Many of the strongest Queen Pines are showing fruit, and these have been well soaked. From others that ought to be showing, but are not, water is being withheld; the bottom heat is only 70°, and we should like 5° or 10° more for fruiters, and with this intent the first dry, mild day additional fermenting material (leaves and litter) will be added to the present bed. The main batch of plants we shall keep on the quiet side of growth till we get twelve clear hours of daylight. Took lights quite off Lady Downes vine; by this means the inside borders are, as it were, turned outside. Should there be indication of severe frost, the lights will be replaced till it has ended. Gave all houses a thorough swill out.

FEBRUARY 1.

Very dry, and for the greater part of the day brilliant sunshine, which, will, no doubt, have been of great service to early Vines, Peaches, and Strawberries, and personally we tried to make the most of it by closing the houses up at one o'clock, thus boxing in the heat and saving some firing. At noon the pollen of Strawberries and Peaches in flower being dry, the Peach trellis was shaken to disperse it, and the blossoms of Strawberries lightly stroked over with the hand, as also were Tomatoes that are now in flower, and which at this dull season sometimes fail to set satisfactorily without artificial aid. Top-dressed inside border of early Muscat Vines with fresh loam, to which was added a small percentage of wood ashes, old mortar scraps, and half-inch bones. The old mulching and loose top soil were taken off to a depth of about 3 inches, when masses of roots were found; the compost was well pressed down over the roots—about 6 inches depth being put on—and over this a light mulching of long stable litter to keep the soil moist, a good watering being afterwards given to well settle the soil about the roots. Planted out another lot of Melons; good stiff loam, with a bit of charcoal and a few half-inch bones mixed with it, and very little root run, a narrow border 18 inches wide, and including drainage the same depth, is our provision for Melon growing, and which has never once failed us. From now onwards through the summer we grow Cucumbers in frames, as the house is required for Melons; a hot-bed is being got ready for this purpose, and meanwhile the plants are being brought forward on the Pine shelves, and have been potted into 5-inch pots to-day. The frost having upheaved the gravel on walks, and being in the very best state for rolling—neither too wet nor too dry—all have been rolled. Pruned orchard trees, and finished nailing Plums and Morello Cherries on north walls.

FEBRUARY 2.

Another drying, bright day, but the ground is still too wet to work nicely, and we have therefore continued our shrub-pruning operations and mixed up leaves and litter for renewal of Pine beds. Cut turf on common for forming verges to walk on newly-enclosed ground. The main plot will be sown with Grass seeds after planting is finished, there being a few coniferous trees yet to plant soon as the ground is in a fit state. Divided herbaceous Lobelias, and planted them in shallow boxes and placed them in a cold pit. Potted more Seakale, and

put other batches in to force. The first sowing of Pyrethrum Gold Feather has come very badly, and therefore another sowing, and sown thicker, has been made. Also sowed more Chamæpeuce and the first lot of Ricinus Gibsoni. The last-named we sow singly in small pots, as they suffer greatly by division when sown in pans or boxes. This variety makes a capital bush plant, to form which the point of the leading shoot should be pinched out when the plant is from 18 in. to 24 in. in height, and as side shoots attain a length of a foot, their points should also be pinched out. Potted a few more roots of Mint, Taragon, and Chervil, the last that will be required, as by the time these are over the open-air supplies will be ready.

HANTS.

FRUITS UNDER GLASS.

EARLY VINES.

PROCEED with the stopping, tying, and regulating of the young growths, and remove all superfluous bunches from free-setting kinds like the Hamburgh as soon as those best placed for the crop can be decided upon. Shy varieties, including Buckland Sweet-water and all the Muscat section, which swell and ripen well under Hamburgh treatment, but do not always set so freely, should have a few surplus bunches left on every cane to allow for mishaps should the present severe weather still prevail when they are in flower. Direct syringing will, of course, be discontinued as soon as the bunches begin to draw out, particularly if they show a tendency to run to tendril, no uncommon occurrence where early Vines lose their leaves before the buds are properly matured. Atmospheric moisture will, however, still be necessary, and as this can always be secured from water syringed on the walls and floors, aided by fermenting leaves, to which a little fresh horse droppings charged with ammonia may now be added, pay particular attention to the first when the weather is fine, and turn the latter regularly in all weathers to set the gases and vapour at liberty. Let the stopping of laterals be regulated by the space which the sub-laterals have to fill, always bearing in mind that an abundance of broad, healthy foliage fully exposed to sun and light is favourable to the swelling and perfect ripening of the fruit, while a crowded state of the roof, particularly near the apex, by checking the free circulation of air and keeping in vitiated moisture, is, on the other hand, decidedly injurious. It is always necessary to stop every shoot save the leaders at the second or third joint beyond the best show to throw strength into the bunch; but afterwards the semi-extension of the sub-laterals must be governed by the vacant space at command. Many growers pinch and repinch all the laterals at the first joint, and Vines having an extra long run of rafter do fairly well under this restrictive treatment; but where, as is frequently the case in early houses, the rafters do not exceed 12 feet or 14 feet in length, longevity of Vine and quality of fruit are best secured by taking up several rods from each stem and covering every inch of trellis with good foliage. Houses containing Hamburghs only do not require any special care during the time the Vines are in flower, as this invaluable Grape always sets well; but others containing varieties to which I have just directed attention should be raised to 65° at night, and 75° to 80° by day, with a circulation of fresh warm air to facilitate the ripening and dispersion of the pollen. The Vines may still further be assisted by turning the points of the bunches of the shy setters up to the sun, and fertilising daily with pollen from the Hamburghs. If these heats with a slight increase from solar influence are maintained through this critical stage until the most delicate kinds begin to swell away freely, the crop may be considered safe, and the night temperature may again with advantage be gradually lowered to 60°. From this time forward keep the floors and borders well moistened with diluted liquid and syringe bare stems and other available parts of the Vines, but avoid wetting the main foliage and bunches. Give a little air when the temperature touches 70°, gradually raise it with an increase of air until on bright days it reaches 80°, and close early.

Succession houses, containing Gros Colman, Gros Maroc, and Black Morocco, which not only require a long season, but are greatly improved by hanging a

long time after they are ripe, should now be started and worked steadily along until the flowering stage is reached, when, owing to the advance of the season, a temperature a little higher than that just recommended for early houses may be advantageously indulged in. If fermenting material is plentiful, economise fire-heat by its application to the internal borders as soon as they are efficiently watered, and ply the syringe more freely and frequently to strong young rods that have been arched down to favour the breaking of the back buds should they prove obstinate. External borders need not be covered with fermenting material, but a good layer of dry Oak leaves, covered with shutters to keep out snow and cold rain, will be found highly beneficial. All external covering should be allowed to remain on the borders until the mean summer temperature is reached, when it may be gradually reduced to let in solar heat, but sufficient must then be left to form a good mulch for the surface roots which have found their way into it.

Late houses.—If not wanted, as is unfortunately too often the case, for the protection of greenhouse or bedding plants, keep these structures well ventilated until the buds begin to swell; then shut them up and subject the Vines to Muscat treatment. If the inside borders were well watered within a fortnight after the Vines were pruned and they have since been top-dressed, repeat the watering with pure water if young and vigorous, with diluted liquid if old and feeble, at a temperature of 80°, and see that every particle of soil is properly moistened before the house is started. Should the external borders require being taken out and re-made or renovated, defer this work until the buds are on the move; then, with steel forks, out with the old and in with the new as quickly as possible. Meantime have fresh drainage if needed, fresh turf for retaining walls, and new compost prepared and conveniently placed where it can be protected from the elements ready for use when it is wanted. Young beginners, anxious to get this late border work over before other matters become pressing, sometimes commence operations as soon as the Grapes are cut; but this undue haste is a mistake, as the mutilated roots must either lie a long time in a cold, dormant state, or, to avoid this evil, the application of fermenting material induces the formation of fresh spongioles at the expense of the stored-up sap contained in the Vines. Vines so treated generally break weak, when, if carefully examined, many of the best roots are found paralysed, if they have not perished. If, on the other hand, lifting and relaying in fresh fermenting compost is performed when the sap is on the move, every root immediately responds to the genial warmth; roots and buds start together, the one helps the other, and the Vines quickly recover.

POT VINES.

Young Vines that have been cut back and kept in a cold house may now be placed in heat if they are intended for growing into fruiting canes. Shake out and repot when they have made from 2 inches to 3 inches of growth, and plunge in bottom heat near the glass. If two shoots start from the base, let both of them grow until after the Vines have taken to the new soil; then rub off the weakest and manage the other under directions given in THE GARDEN (p. 80).

If eyes that were put into small pots in January are still standing in a temperate frame, these also must now be plunged in a close compact pit where they can have bottom heat and receive proper treatment, which will be found in detail in the same article on the propagation of the Vine.

GRAPE ROOM.

The past month has been a trying time for differently ripened Grapes, not so much on account of the general lowness of the temperature as on other conditions, as Grapes do not require much heat, provided they can be kept in a dry, well-ventilated room not subject to fluctuations, and, as a matter of course, not absolutely needing fire heat every day. Lady Downes, now the principal kind in stock, Gros Colman, and Mrs. Pince have kept unusually well with me during the past month in a temperature which has ranged from 40° to 45° on the average. Sometimes it has been a little below 40°, but it has rarely touched 45°, and I never saw the Grapes looking so fresh and plump, and certainly I never ex-

perioenced so little loss from decaying berries. This room, as I have many times stated, is built hollow, and is efficiently heated by hot-water pipes from a slow combustion boiler placed in the men's mess house below. This apparatus is, however, seldom used, unless the weather is extremely severe, as we find the men's wood fire every day at noon keeps the ceiling floor dry and free from damp without materially affecting the temperature or taking too much moisture out of the atmosphere. Knowing that some Grape growers are still afraid of cutting and bottling, and others spend more money than is really necessary on building and fitting up store rooms which are not always a success, I once more venture these remarks, in the hope that they may be useful in showing that a dry, even temperature, if possible without the aid of fire, is that which should be secured in a well-managed Grape room.

EARLY PEACHES.

Trees that were in flower during any part of the month of January have not had a good time for setting their fruit, as we have had very little sun and the outdoor temperature has frequently ranged below the freezing point, two conditions which have necessitated constant recourse to fire heat, while the introduction of fresh air has been extremely limited. The blossoms in our own Peach house have, notwithstanding, been unusually fine, and, judging from the way in which they hold their petals and pistils, there exists but little doubt that an abundance of fruit will in due course have to be thinned off the trees. The way in which this house has been managed has not varied from the general rules contained in THE GARDEN Calendar, viz., a night temperature of 45° to start with, 50° during the time the trees are in flower, a rise of 10° by day always with a chink of air, and gentle fire heat whenever the ventilators are open. Being surrounded by lofty hills and trees, which shut out much light and keep the atmosphere moist, our trees when in flower are kept on the dry side, but the floors and walls are regularly syringed on fine days, and we have the benefit of fermenting material. Every house is fumigated twice before the trees come into flower, again immediately after the fruit is set, and the flowers are regularly fertilised with mixed pollen. As hundreds of Peach houses have not yet reached the flowering stage, the above remarks may be useful.

Houses in which all the trees have passed the flowering process must now be syringed with tepid water at least once a day to free them from the decaying blooms and favour the development of the young fruit. Should we have a change to the bright days which we may now look for, the trees in bright exposed houses may often be syringed a second time; but one good syringing every morning will be found quite sufficient for the present unless the moisture from the second is thoroughly absorbed before night-fall.

Disbudding will now require attention, but this is not a heavy operation, as it is best performed little and often on the piecemeal principle to shield the trees from sudden checks at this early season. As a rule, the extremities of the strong shoots and branches are ready for disbudding first; and as these generally produce gross foreright shoots which soon rob the weaker parts, those in a horizontal position near the base especially, no time should be lost in getting them removed. By adopting this plan a portion of each tree may be disbudded every day, and, con-

jointly with the operation, all triples may be thinned to one, and the worst placed single fruits removed to throw strength into those on the upper sides of the shoots. But why give preference to Peaches whose points face the sun? Simply because they are in the best position for swelling and colouring, two points strongly suggestive of first-class culture and high flavour.

As days increase in length and the weather improves, a little more heat can with advantage be secured by shutting up early on fine afternoons, but quality being the highest test of skill, the night heats should not for the present greatly exceed 50°. A few degrees more at times will do no harm, but no set figures must be adhered to through all weathers, as herein rests one of the great secrets of successful forcing.

Watering.—It is not a good plan to slush the internal borders before the fruit is well on the move, neither is it necessary where they were well watered through the early stages, but so soon as the trees show signs of free, healthy growth tepid water may again be liberally administered. Old trees that

that can be taken by drawing the finger down the lower sides of the shoots before they open. Fertilise with mixed or foreign pollen when the latter is quite ripe, and facilitate the process by turning on extra fire heat when the ventilators are opened every morning. Last, but not least, let no apparent immunity from green fly lead to the neglect of fumigation, as few mistakes or mishaps are more annoying than the sudden appearance of these certain destroyers at a time when the hands are tied, and owing to the delicate nature of the flowers it is impossible to apply a remedy.

Eastnor Castle, Ledbury.

W. COLEMAN.

TREES AND SHRUBS.

JAPANESE MAPLES.

ALTHOUGH nearly thirty years have elapsed since the Messrs. Veitch introduced their first batch of *Acer polymorphum*, it is to be regretted that they

have not been so extensively planted as they deserve to be, as they undoubtedly form one of the most beautiful and interesting additions to our hardy deciduous trees ever introduced into this country. For a long time there prevailed an impression that these lovely Japanese Maples were too tender for our climate, and, judging from the paucity of specimens as yet met with in good gardens, it may be assumed that this erroneous opinion has not been overcome. Messrs. Veitch have proved over and over again that all the varieties, especially those of *A. p. palmatum*, are perfectly hardy in the climate of London, and having myself planted a tree of *A. p. atro-sanguineum* in the open ground in 1863, where it has on two occasions withstood 36° of frost, I can with the greatest confidence recommend them. The Japanese Maples are low-growing, round-headed trees, with more or less spreading branches densely clothed with foliage that is developed in a greater variety of form and colour, from rich orange to brilliant crimson, than is met with in any other species of deciduous trees known. Their growth being comparatively slow in this country—our Eastnor tree is now 14 feet high and 17 feet through—they are well adapted for planting in small



Leaves of *Acer polymorphum dissectum*.

produce heavy crops annually and make but little or decidedly weak wood may at once receive supplies of diluted liquid, but young ones should be debarred stimulants until after the fruit is stoned, as rich food forces gross growth, which often robs the existing crop and not unfrequently leads to failure.

Succession in houses started early in the new year will readily respond to the influence of genial warmth and moisture, which may be more freely supplied, as the advancing season is now with instead of against Nature. Syringe the trees well backwards and forwards every fine morning and damp the floors, but avoid a sloppy condition of the house, particularly after the sun has withdrawn its influence, as many of the flower-buds are often injured by an excess of moisture hanging about them after nightfall. Always force with a circulation of air, no matter how small, as bold, perfect flowers cannot be expected where this life-giving element is excluded. If the trees are heavily set with swelling blossom-buds, remove all

gardens where the stronger growing deciduous trees with coloured foliage would soon become too large. They are also admirably suited for the embellishment of ornamental shrubberies and borders, where, in company with the Golden Yews or backed up by Evergreens, they form a most striking and pleasing contrast. They are by no means fastidious as to soil, provided it is rich, well drained, and sufficiently deep to insure a continuous supply of moisture during long periods of drought similar to that we experienced last summer. Although perfectly frost-proof and capable of withstanding our coldest winters, strong winds are apt to tell upon them when fully exposed to the north and east; therefore in order to preserve their symmetry as well as the tender foliage in the spring, shelter from these quarters should, if possible, be secured at the time of planting.

PROPAGATION.—The simple fact that so few private individuals have stock to propagate from renders a description of the usual modes practised by the trade unnecessary. One or two remarks on this head may, however, be interesting. For a long time the most expert propagators did not make much headway, as cuttings positively refused to grow, and the late Mr. W. Osborn told me there was only one variety, also Japanese, suitable for grafting upon. As this was as scarce, if not as expensive, as the coloured varieties themselves, layering was the only sure, if slow, mode of propagation. The Messrs. Veitch soon overcame the difficulty by planting strong imported trees in raised pits in their span-roofed houses at Coombe Wood, and in this way secured stools from which they now raise large quantities annually. Greatly interested in the Eastnor tree and its fellow traveller from Japan which the late Mr. James Veitch planted out at Coombe Wood, it occurred to me that I might gratify a wish often expressed by my late employer by aying the lower shoots of our own tree after it had become thoroughly established in the open ground. A number of 4-inch pots were, in the month of August, sunk to their rims, when well-grown shoots, with a knife slit at the union with the preceding year's wood, were firmly pegged into them. The surface was then well mulched to reduce the necessity for frequent watering, but water was given to the pots occasionally during dry weather. Each layer was secured to a stick to shield it from accident, and at the end of two years I was rewarded with thirty-six strong young trees on their own roots of the best variety, for I had by that time discovered that our tree was *A. p. atro-sanguineum*, a brighter and better variety than *A. p. atro-purpureum*. Several of these trees were given away to particular friends; the others were planted out on a rather stiff calcareous soil, and now with the parent, form perhaps as fine a colony as is to be found in this country.

The Japanese Maples now getting more numerous may be divided into two classes, the dwarf, in some cases pendulous growing varieties with finely divided leaves, of which *A. p. dissectum* may be taken as the type, and *A. p. atro-purpureum*, of which *palmatum* is the normal form. *A. p. dissectum* and *A. p. palmatifidum*, owing to their moderate rate of growth, their truly Oriental habit which stamps them at once as Japanese, the elegant Fern-like appearance and brilliant colouring of their foliage, are admirably adapted for pot culture for conservatory decoration in the spring; they are also suitable for forming unique specimens on the tiniest of lawns, for planting out in the centres of flower beds, where *A. p. dissectum* spreads out from its clean grey stem like a mandarin's umbrella, or, kept in pots, they group well with succulents, the dwarf growing golden Conifers, or their near relative the silvery Negundo. In fact, so quaint, so lovely, and so striking are these Maples which, unlike the giants from the west, unfold their delicate crimson foliage in the spring, retain their brilliant colouring through the summer, and outrival the Liquidambar itself in the autumn, that they cannot be too extensively used wherever shelter from cutting north and east winds can be secured for them.

The other section, of which *A. polymorphum* is the normal form, has bright green foliage, which dies off a brilliant crimson in the autumn, when the great number of five-lobed leaves produce a most charming effect. This variety, according to Messrs. Veitch, was introduced many years ago from the central mountains of Nippon under the name of *A. palmatum*, and was the forerunner of the many beautiful

varieties or sports which the Japanese have so admirably succeeded in perpetuating. This tree has been rather extensively planted here, and several of the specimens are now 10 feet to 12 feet high. It does not show the slightest disposition to grow into a pyramid, but having been planted in front of Evergreens for producing brilliant colour in autumn, its irregular style of growth increases its value in the eye of the lover of natural beauty. The leaves of this variety are smaller than those of *A. p. atro-purpureum* and *atro-sanguineum*, the first crimson or purple sorts sent home by Mr. John Veitch, but it is as hardy as an English Oak; and although soft green in summer, it is distinct from all other coloured trees in the autumn. A strong, dry, calcareous soil suits it well.

With *A. p. atro-purpureum* which I thought I had secured from the Chelsea stock, a variety which afterwards became known as *A. p. atro-sanguineum* was apparently unwittingly sent home. The foliage of this variety is broader and bolder than that of the type, and much brighter than that of *A. p. atro-purpureum*, but the style of growth is the same—a tendency to break into two stems or leaders of equal strength, an effect which may perhaps be put down to the propagation of the young trees from layers. Our oldest tree now produces an abundance of seeds, sometimes called keys, every year. This past season they appeared to be sound and good, and in the event of their growing, I hope shortly to prove whether the coloured leaves will be reproduced or whether the seedlings will revert to the normal form, with soft green leaves. Many travellers have told me ours is the largest tree in Europe, but I have not heard anyone say seeds or seedlings have been raised in or out of Japan. Perhaps Messrs. Veitch or others now so well acquainted with the habits and doings of the Japanese can throw some light upon the subject; if so, lovers of these trees, myself included, would receive every scrap of information with interest.

From the preceding notes, readers of THE GARDEN will gather that *A. p. atro-sanguineum* and *A. p. atro-purpureum* are well adapted for planting out in the pleasure ground, while *A. p. dissectum* and *A. p. palmatifidum* are most suitable for conservatory and flower-garden decoration; but they must not imagine that these names exhaust the list of varieties which these extraordinary orientals seem to manufacture to order. Amongst varieties of recent introduction by the Chelsea firm we have *A. p. ampelopsifolium*, with foliage showing varied tints from its development in the spring to its fall in the autumn, like those of the Virginian Creeper. The leaves are about 3 inches long, with from five to seven lobes which are elegantly cut at the edges, and terminating in a long point, produce an effect both distinct and new to British gardens.

Then we have *Acer crataegifolium*, a slender tree of somewhat variable habit, attaining a height of from 12 feet to 15 feet in its native mountains. Having been so recently introduced, it is as yet impossible to say what character it will assume in this country; but, judging from its habitat, there exists no doubt as to its hardness. And it is easy to imagine a tree resembling a miniature Lombardy Poplar with reddish bark, twigs and leaf-stalks, and unequally lobed leaves, which are deeply notched like those of the well-known Hawthorn. For planting on the smallest of lawns for grouping, or breaking up the sameness of dwarf Evergreens a Thorn-leaved Maple with the usual brilliant autumnal tints is an acquisition which should not be lost sight of.

ACER P. LATIFOLIUM ATRO-PURPUREUM is a very fine variety, with broad leaves three times the size of those of *A. p. atro-sanguineum*, and is one

of the most richly coloured Maples yet imported. The young shoots as well as the leaves are of a deep blood-red colour, not only in the autumn, but throughout the summer, a characteristic which cannot be overrated, as small trees even with the sun shining through them lead to the inference that every leaf is richly nurtured on the brightest claret.

The foregoing varieties are well adapted for planting in the largest as well as the smallest gardens, where, as they become better known, they will add richness of form and colouring which no other family of hardy deciduous trees can give. But, apparently alive to our increasing requirements, thanks to the indomitable Chelsea collectors, our park scenery has not been overlooked, as we have in *Acer rufinerve* a beautiful tree of rapid growth with the habit of the well-known Sycamore. The young shoots are covered with a bluish grey glaucousness so frequently met with in the Japanese Maples, and the leaves, fully 3 inches in length with five lobes which are deeply toothed, render the tree more graceful than the common Sycamore. It was introduced from the central mountains of Nippon, where it is found growing up to an elevation of 4000 feet, a fact which justifies us in saying it will prove as hardy as any tree usually met with in British park scenery.

W. COLEMAN.

Eastnor Castle, Ledbury.

ABIES ORIENTALIS.

MR. WEBSTER's account of this Oriental Spruce interested me exceedingly, for I supposed it was much more planted in England than he intimates. But, refreshing my memory somewhat, I do not now recollect seeing it among the hundreds of fine *Cryptomerias*, *Douglas Firs*, *Hemlocks*, &c., in Admiral Egerton's beautiful park at Weybridge, which I visited with our good friend Mr. Wilson. It is a very uncommon tree in this country, and I do not know of any specimens comparable with my own, which are 30 feet high and thickly feathered to the ground, surpassing in gracefulness and elegance the superb *A. Nordmanniana*, which stands immediately beside it, quite 40 feet high. It not only grows as freely in the same soil and side by side with the Norway, Nordmann's, our native species (*A. alba*), the *Larix Kämpferi* and other coniferous trees, but is even hardier than *A. Nordmanniana*, which had the edges of the leaves browned one or two years ago in a blizzard, as we call these sudden changes with high N.-W. winds and zero temperature, one of which has just passed us (12th to 18th of January), the thermometer throughout the New England States falling from 12° below zero at Boston to 38° below in the country; out West the mercury froze. In Florida it was 21° to 24° for several days, and all the Oranges on the trees were frozen stiff, and the trees undoubtedly severely injured. We have not had such a general low temperature from Maine to Florida since December, 1835, just fifty years. It is nearly such weather that the Oriental Spruce has had every three or four years for twenty years; but no harm was ever done, not a twig injured. Its growth is, as Mr. Webster says, slow, but after the trees attain the height of 15 feet they grow away more rapidly.

I can emphasise all Mr. Webster says of its beauty and value as an ornamental tree, and standing, as I have just stated, in a group of the very finest species, all within a space of 50 feet square, there could be no better chance to compare their relative beauty, size, comparative growth, and general characteristics of each. To me the Oriental Spruce, in its loose, semi-drooping, thickly-set branches, fresh summer green tint, and free and easy habit, has a charm which is

ever wanting in the stateliness of form and silver-hued foliage of Nordmann's Fir.

Mr. Webster asks, "why this valuable Spruce is so seldom met with," for he says it is offered at the low price of 9d. each, and he suggests it is because its valuable qualities for ornamental planting especially are but little known. My impression, however, is, that its scarcity arises from the fact that seeds are not as readily procured as the Norway, and that its slow growth while young makes it an unprofitable tree to nurserymen who wish to turn a quick penny, for 10,000 Norways of a year or two's growth at 30s. pays far better than 10,000 Orientals the same size at quadruple the price. I need only add that Oriental Spruces selling at 8s. to 12s. each are about the same size as Norway Spruce for 2s. I will try and send you a photograph some day of my specimens of *A. orientalis*, *A. Nordmanniana*, *A. alba*, and *A. excelsa nana*, each from twenty to thirty years old, all in one group. [Please do.—Ed.] C. M. HOVEY.

Boston, Mass.

LAYING OUT A SHRUBBERY.

A HEALTHIER taste in garden matters is growing up among us. There will be no more cutting down of trees and grubbing up of shrubberies to make sites for geometrical figures, for Pelargoniums and Calceolarias; choice hardy shrubs calculated to give character and infuse variety are likely to be sought after by the planter. Flowers, of course, there must always be, but special positions for Roses, Lilies, spring flowers, bulbs, the fernery, rockery, &c., may be selected informally, as it were, amid pleasant sheltered glades and nooks formed by trees and shrubs. In laying out a shrubbery, a person of taste and skill who has grasped the needs of the place will, with a long wagon rope trailing behind him and a couple of men and a plentiful supply of stumps, soon map out the main features of the design. Variety of surface is always charming, and in the trenching and digging and in the making of walks many opportunities will occur of giving elevation to one position and depression to another, and so increasing the picturesqueness of the general plan. In planting new places, very often the most is not made of good things from want of attention after the planter and designer have left. The planter, of course, in the first instance should know what each plant is capable of doing, otherwise the arrangement will partake somewhat of a haphazard character, and those things which are intended to be permanent should be distinguished from those intended to be cut away. A Holly, for instance, or a Magnolia should be on a different footing from a common Laurel or a Privet. The Holly and the Magnolia may form very handsome specimens, increasing year by year in the pleasure they give and the interest they inspire. The Araucaria at Dropmore must have been once a tiny plant. The famous Holly hedge at Keele must at one time have been only a row of young plants, such as any of us could plant. The handsome specimens of Rhododendrons at Port-nal Park, and all the trees and shrubs which by reason of their handsome proportions have become famous, were once as insignificant as those we obtain from the nursery to-day or to-morrow. Therefore, to the tree and shrub planter all things are possible.

THE LAUREL AND THE PRIVET are, it may be said, well enough in their places as undergrowth or as occasional nurses or shelters to better things, but they are not good enough for prominent positions. The judicious planter will arrange his main features first. The Hollies, Thorns, Labur-

nums, Evergreen Oaks, Silver Maples, Cedars of Lebanon, Cypressess, purple Beeches, and other pictorial trees will have their sites marked out first, and the planter will see in his mind the picture he is trying to create as it will appear at the end of forty, fifty, or more years, and he will bear this in mind in allotting each its work to do; and the farthest-seeing planter can do no more than this. Several years ago I was visiting a place not a great many miles from where I am now writing, and among the group of three or four who were standing under the shade of a very handsome Cedar of Lebanon was the man whose hand had planted it sixty years before. But only a very few can hope to live long enough to direct and encourage the growth of the things they plant, or to impress their mark upon the permanent features of a place. Some people seem to act as if they had an idea that when the planting is done all that is necessary afterwards is to keep down weeds; whereas constant attention is required for many years; in fact, I may say always, to keep all things right and prevent one plant from robbing another, to keep them from forming dual leaders, and to aid each in maintaining its true character and symmetry. The pruning knife cannot be done without, though it should only be permitted to be in skilful hands. The choice slow-growing things will not require much pruning—perhaps a stray shoot shortening, it may be, or an attempt to develop a second leader needs checking and frustrating. But such little attentions as these may be given without leaving any conspicuous knife marks. Even common things, such as Laurels, should not be hacked about so as to present a ragged appearance. In their youth all things which have force or vigour in them need a little help from the knife; even the Oak will be benefited by a little attention in the first ten or twelve years of its life. Some of the handsomest woods of young Oaks I am acquainted with have had this attention; and though I shall not be alive to see them, I know in fifty years hence they will show the advantage of the careful training they received in their youth, but I have a horror of cutting off large branches. In the tree's youth the wound made by the knife quickly heals and does no permanent injury. Malformations may then, for the most part, be cured, and the crooked be made straight.

IN PLANTING NEW SHRUBBERIES the land should be well prepared by trenching, for never at any future time will such an opportunity occur, and neglect now cannot be remedied. This is the time to arrange for and work out any special features requiring an elevated or a bolder outline. For the first few years the spaces between the shrubs should be cultivated with fork and hoe for the purpose of keeping down weeds and other intruding growths; but as soon as the roots begin to fairly occupy the soil and the branches spread over the intervening spaces, no cultivation beyond what neatness and order require need be given, and all round the margins let the turf grow up round the stems. The margins of the shrubbery require special treatment to bring out the beauty of every individual plant, and this is what we should aim at. E. HOBDAY.

SHORT NOTES.—TREES AND SHRUBS.

Koelreuteria paniculata.—I agree with "Alpha" (p. 104) that the *Koelreuteria* is a desirable tree to plant, either singly or in a mass of say six or so together. Independence of flowers its finely-cut foliage is very effective, especially when tinted in autumn. It grows well in chalky soil.—E. M.

The Corsican Pine at Kew (p. 104).—It may be interesting to know that this Pin. was introduced by the celebrated botanist, Richard Anthony Salisbury, who, in 1825, informed me that he brought it, then a small plant, from the south of Europe. When he told me this it was about 20 feet high, and to attain its present height it must have grown about a foot yearly.—J. SMITH, *Ex-Curator*.

Eucalyptus globulus.—I have a plant of this that has stood the winter so far planted out in the open air. It is a fine specimen about 15 feet high, and I may mention that it has entirely run out of its ordinary form. The leaves now are long and tapering, some of them measuring from 12 inches to 15 inches long. The scent is powerfully aromatic. Mr. House, of Peterborough, has had leaves of the plant whereby he has been enabled to cure several bad cases of dysentery, he having learnt the use of them for that purpose in Australia.—W. A. COOK, *Holmwood, Peterborough*.

THE BALM OF GILEAD.

(*POPULUS CANDICANS*.)

WHERE this Poplar grows naturally in the Eastern United States it makes a handsome tree from 60 feet to 70 feet in height in the most favourable spots, such as the margins of rivers, and even where the soil is poor and dry it grows over 50 feet in height. It is, like all the Poplars, a rapid grower, and being indifferent as to soil it frequently thrives when other trees fail. It has long been a favourite tree in this country, having been introduced over a hundred years ago. It was named by Aiton, who includes it in his "*Hortus Kewensis*." He gave the name *candicans*



Male and female catkins of *Populus candicans*.

presumably because of the hoary look the tree has when the whitish under-surfaces of the leaves are upturned by the wind. This Poplar is nearly related to the common Balsam Poplar or Tacamahac (*P. balsamifera*), of which, indeed, it may be only a variety botanically. From a plan-



Leaves of *Populus candicans*.

ter's point of view it is, however, abundantly distinct, and may be at a glance distinguished by its very broad leaves, which are heart-shaped at the base, deep green above and whitish beneath. The habit of growth is somewhat pyramidal and cannot be called handsome until the tree has reached a large size, when the irregular branches and spreading head render it picturesque. A number of young and old trees planted together make a handsome group, for then the broad masses of light on the large foliage has a

striking effect. The bark of the trunk has that same peculiar greyish hue which renders the common Abele (*P. alba*) so picturesque. It is an invaluable tree for planting in places where any buildings or unsightly objects require to be screened, and it is even better for this purpose than the smaller-leaved Poplars. It is also a capital tree to plant as a nurse for choicer kinds, the only drawback being that when they are cut down the suckers which spring from the old stool are apt to be troublesome, for they are not easily eradicated. It grows most rapidly in moist, rich soils, and no better trees could be planted by the margins of lakes or on islets. It is a most desirable tree to plant near houses on account of the balsamic fragrance of the resinous buds which perfume the air in spring, as does also the Balsam Poplar; the tassels of red stamens, too, have a pretty effect in April just before the leaf-buds burst. Another beautiful phase of this Poplar is the peculiar delicate yellowish hue of the new foliage, and which, in harmony with the tender greens of other trees, has a charming effect. Like the Balsam Poplar, it is apt to be injured by the wind if planted in very exposed positions, on account of its heavy and somewhat brittle branches. This tree is commonly called in nurseries the Ontario Poplar (*P. ontariensis*), and there is a form of it with variegated leaves, which, however, is not remarkable for beauty or distinctness.

TREE NOTES FROM BRYNMEIRIG.

SITUATED on a rocky eminence above the quaint little village of Bethesda, with the Ogwen River meandering lazily at its feet, and distantly surrounded, on three sides at least, by peak after peak of the great Snowdonian range of hills, which jut out as it were from the well-wooded surroundings, is Brynmeirig, the residence of Dr. Williams, one of the loveliest spots on the whole Penrhyn estate. To the good taste and judgment of the late Dr. Hamilton Roberts, however, this place, it is but fair to state, owes much of its present beauty, for it is quite evident that neither expense nor pains were spared by him in bringing it up to the present high state of perfection, he being an enthusiastic admirer, as well as an ardent cultivator, of plants generally, but more particularly the new and rarer Conifers, as numbers of these latter planted out over the lawn, fields, and adjacent grounds, as well as alongside the drive, but too clearly testify. Several of these, notably the Monterey Cypress (*Cupressus macrocarpa* or *C. Lambertiana*), the Spanish Silver Fir (*Abies Pinsapo*), Captain Webb's Fir (*A. Webbiana*), the Weeping Spruce (*A. Morinda*), and that distinct and beautiful plant, the Weeping Indian Juniper (*Juniperus recurva*), judging from their present sizes must have been planted at an early date after their introduction, and when they were both choice and expensive. The first of these, *Cupressus macrocarpa*, has now attained to a goodly height, with wide-spreading branches and a large well-balanced trunk, and is a striking object on the greenward immediately in front of the house. As a tree for exposed and maritime situations it has few equals. *Abies Webbiana* is, perhaps, one of the finest trees of its kind in this country with a clean, well-branched bole, the luxuriant, silvery-green foliage of which at once points out that the rocky *débris*, fine loamy peat, and high elevation, where it is not induced to commence

growth too early in spring, the greatest evil to which it is susceptible in this country, are all well fitted for the successful cultivation of this, one of the handsomest of the Silver Firs.

Close by, and vieing with the latter in height and grandeur, as well as healthy appearance generally, is a fine example of *A. Pinsapo*, the light, silvery appearance of which contrasts strangely with the deep, sombre green of a unique specimen of the Douglas Fir (*Pseudotsuga Douglasi*) growing in close environs. Of *Juniperus recurva* there are some half-dozen unusually fine plants, on which the greyish green, beautifully drooping foliage is shown off to advantage. Several to whom these have been pointed out consider them without rivals in this country, they having attained heights ranging from 8 feet to 15 feet, the latter size being rarely attained even on the hillsides of Northern India. The secret



The Balm of Gilead tree (*Populus canadensis*).

of their growth is, however, not far to look for, the humid peaty loam, resting on slate rock, and shady situation being the chief requirements of this beautiful, but seldom-seen shrub. They produce berries in abundance, but being diœious and no male plant in close contiguity, the seeds are useless for the purpose of reproduction. Other species of Juniper that size will not permit our passing unnoticed are the Red Cedar (*Juniperus virginiana*), with its sharply conical habit of growth; the tall Juniper (*J. excelsa*), and that lovely and distinct winter-flowering species (*J. chinensis*)—a shrub or small tree, for it rarely exceeds 30 feet in height—that is well worthy of extensive culture as an ornamental park or lawn subject.

Several well-furnished plants of the flat-leaved or creeping Yew (*Taxus adpressa*) put one in mind of how well this shrub is adapted for plant-

ing under the shade and drip of our larger growing woodland trees and where accommodation is somewhat limited. It is a very desirable and distinct form, with numerous branchlets thickly clothed with stout, flat, dark green leaves. *T. baccata*, as well as its golden and silver variegated varieties, are well represented; while of that rare Japanese form, *T. cuspidata*, with its distichous or two-rowed arrangement of leaves, renders it at once both distinct and interesting, and more so, as it is an extremely rare plant in any but the best collections. The yellow-berried form of our common Yew (*T. baccata fructo-luteo*) is another excellent plant for contrast, and of which there are several large plants, these differing in no way, however, from the normal species save in the colour of its fruit, which is of a bright golden yellow.

Speaking of yellow-fruited shrubs reminds me of a 12 feet high specimen of the yellow-berried Holly (*Ilex Aquifolium fructo-luteo*) which graces a well-chosen spot on the lawn near the house. This is in truth a lovely shrub that, at the time I write, is literally smothered with its bunches of the brightest golden berries; indeed, as regards fruit-bearing qualities it is even superior to the normal form, and that is saying a good deal.

Cypresses are fairly well represented, the most conspicuous and distinct being the Funeral Cypress (*Cupressus funebris*), of Chinese origin, and which so nearly resembles *C. torulosa*, that any well-marked difference is certainly hard to detect. Amongst the Cedars the Atlantic species (*Cedrus atlantica*), as well as *C. Deodara* from India, and the well-known, far-spreading Lebanon tree (*C. Libani*) are all doing well, the latter in particular extending its flat, table-shaped branches to an extent far surpassing the tree's height, and offering a like contrast to the horizontal or slightly weeping form of a fine *Ulmus campestris pendula* growing in close proximity. A Weeping Ash alongside the drive is another tree curiosity like the latter that is, perhaps fortunately, but rarely met with. Two species of Spruce alone attract attention, one being the weeping form, *Abies Morinda*, of which there are several fine trees, notably one along the wood edge at the Ogwen River; the other, a tall-growing and very distinct variety (from appearance I should say so, for I know not its name, and have not before seen it in cultivation) of the common Spruce with darker, glossy leaves and smaller, bluntly oval cones, intermediate between those of *A. Menziesi* and *A. orientalis*, but larger than either.

The Pine tribe show here signs of distress, the lanky weather-beaten appearance of *Pinus Cembra* and Lord Weymouth's tree (*P. Strobus*) indicating that something is wrong, the high-lying situation and cold mountain blasts being perchance the principal causes of their unhealthy appearance. *Pinus muricata*, or the Prickly-coned Pine, grew well on the rocky ledges above the house, but was, unfortunately, blown over during the severe "Tay Bridge gale." The popular name Prickly-coned is certainly well bestowed, as I found it no easy task to remove some of these as a memento of the departed tree, which was the only one of its kind on the estate. Hard by where this Pine stood and on gently rising ground is one of the finest banks of *Rhododendrons*—not ponticum, but all the finest and choicest varieties—that it has ever been my good fortune to behold, and which during the season

is a blaze of varied colours, to match which one would in vain find an equal, while scattered about in irregular profusion, but occupying the more sheltered and warm corners, are some of the less hardy Indian kinds with large shining leaves, downy beneath—Azaleas, Pernettyas, and Heaths. The rocky ground and fine loamy peat suit these latter to perfection, and during summer the breadths of variously coloured—pink, carmine, and the purest of white—blooms entices one to “stop and look.” *Pernettya mucronata*—there are none of the variously coloured fruited forms, for they were not then in vogue—rambles at will, and as seen here in the most luxuriant condition and when in full fruit can, methinks, compare favourably with most of the Hillsborough kinds which are thought so highly of.

The *Rhododendron* bed above referred to serves a double purpose, for the sight of that rare and distinct Lily, *Lilium giganteum*, flourishing in the wildest luxuriance is a treat seldom seen, and well worthy of a ten miles' walk to view. A single specimen of this Lily in full blow is considered worthy of note in *THE GARDEN*, but to see it here, as I have done by the half dozen, and rising from amongst the *Rhododendrons* to a height of fully 9 feet, would make some of the Lily-growing fraternity look agast with astonishment. The peaty loam and shelter afforded by the *Rhododendrons* seems to suit this Lily well, but it must also be remembered that they have been established for many years, the progeny of the oldest having been distributed amongst the doctor's friends in no mean quantity.

Near the entrance gate is a curious floral effect produced by several varieties or species of *Prunus* being engrafted on a 4-foot standard of the common Cherry, and which during the flowering season is as curious as it is beautiful. *Leycesteria formosa*, with its conspicuous berries and foliaceous bracts of a deep, dull purple, is at once striking and effective, while the short racemes of orange-red flowers produced by *Berberis ilicifolia* are ornamental in a high degree, and, combined with the deeply serrated evergreen foliage, make this shrub a favourite with all who have seen it. *Escallonia rubra*, with its deep shining foliage and pretty pinky flowers, seems here quite as much at home, scrambling over some broken rock, as it is usually seen when carefully trained and annually pruned as a wall plant, while climbing in and around both it and the dark, glossy-leaved *Hollies* are numerous plants of the Dogwood, the pinky purplish shoots of which are shown off to advantage, and offer an unusual, though pretty, combination.

Along the outskirts of the adjoining woodlands I have more than once come across the Medlar (*Mespilus germanica*) in full fruit, but, although a British plant, I by no means wish to assert that it is so here; indeed, it would be rash for me to do so, knowing the late doctor's love for the collecting and cultivating of our native plants. Hosts of other trees, but which space will not permit our mentioning, such as the *Araucaria imbricata*, *Cryptomeria japonica*, *Thujaopsis borealis*, *Wellingtonia gigantea*, *Sequoia sempervirens*, and Lawson's Cypress; while of shrubs *Weigela rosea*, *Lilacs* of sorts, the Snowberry and Vincas, with Maples and the purple-leaved Beech, all combine to swell the rank and render this collection, when space is taken into consideration, one of the most complete and certainly by far the healthiest that it has been our good fortune for some time past to inspect. A. D. WEBSTER.

Hedera amurensis.—The history of this Ivy is unknown to me, but to anyone needing a fine bold large-leaved variety of rapid growth it is worthy of

note, as combining all these several characteristics. The leaves are tri-lobed in shape, unusually stout in texture, and of a deep green hue. It does not appear to be very common, but is occasionally met with in nurserymen's catalogues.—H. P.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual general meeting of this Society was held on the 25th ult. The president, Mr. E. Sanderson, in the chair. The secretary having read the report and balance-sheet for the past year, the same were received and adopted. The next, and one of the principal objects of the meeting, was the election of officers for the ensuing year, which was then proceeded with, as was also the election of new members. It was then resolved that the general committee should consist of thirty-six members, exclusive of the representatives from affiliated societies. A suggestion that one-third of the members comprising this committee should retire annually was referred to the October general meeting. The Lewisham and District Floral Society was admitted as one of the affiliated societies. It was also resolved that the election of judges, together with the floral and exhibition committees, be decided at the first meeting of the new general committee. Upon the motion of Mr. Stevens, all members paying a subscription of £1 ls. per annum and upwards are to be entitled Fellows of the Society, a proposition which was carried by a small majority. Various letters were read by the secretary, with suggestions from absent members, all of which were directed to be laid before the general committee to be considered.

The Nursery and Seed Trade Association held its ninth annual meeting on the 25th ult., Mr. N. N. Sherwood, president, in the chair. From the report, which was read and adopted, it appeared that in 1884 it was proposed to wind up the Association, as the principal members had withdrawn their support in consequence of want of energy on the part of the executive, but as several members were of opinion that an association of this kind was a necessity, it was decided to resuscitate it. Since then all seems to have gone on satisfactorily. Its utility consists in members being able to give mutual information to each other through the secretary concerning the stability of persons with whom they have business transactions, and thereby get reliable information which could not be obtained through the channels of ordinary trade protection societies. The report also showed that the secretary and solicitor had recovered and paid over to the members debts to the amount of £1276 6s. 10d. which they had treated as bad. The balance sheet, which was read, showed that a balance of £48 7s. 5d. had been carried forward to the present year.

RAINFALL AT BOWNESS, WINDERMERE.

POSSIBLY it may interest some of the readers of *THE GARDEN* to see the report of rainfall for 1885 in a different quarter of England from those mentioned in last week's issue (p. 97). It will be seen that we are pretty “wet” up here. The report is as follows:—

| Month. | Total depth. | Greatest fall in 24 hours. | Number of days on which '01 or more fell. |
|----------|--------------|----------------------------|---|
| | Inches. | Depth. | Date. |
| January | 5.32 | 1.08 | 9 |
| February | 8.36 | 1.72 | 23 |
| March | 6.30 | 1.32 | 4 |
| April | 4.39 | 1.28 | 24 |
| May | 3.11 | .71 | 20 |
| June | 2.39 | .82 | 18 |
| July | 4.31 | 1.49 | 7 |
| August | 2.84 | .66 | 10 |
| Sept. | 8.54 | 1.07 | 12 |
| October | 7.04 | 1.61 | 29 |
| Nov. | 5.95 | 1.31 | 27 |
| Dec. | 3.15 | .47 | 4 |
| Total | 60.67 | | 194 |

—A. RAWSON.

OBITUARY.

MR. JOHN SCOTT, of Merriott, the well-known pomologist, died on the 22nd ult., aged 79, after a short attack of inflammation of the lungs. His start in life as a gardener was made under the direction of his cousin, the late Charles McIntosh, from whom he received some sound instruction in regard to fruits and fruit culture. Plants he studied in Paris in the *Jardin des Plantes*; but his favourite study was pomology, and in his knowledge of fruits, especially Apples, he had few equals, a fact amply confirmed by his “Orchardist,” a most useful work, the result of long and patient labour. His collection of fruit trees at Merriott was second to none in the country, and proving, naming, and cataloguing them was his greatest pleasure. He was a frequent contributor to *THE GARDEN*, and his articles, founded on long practical experience, were always most interesting and instructive. To his *employés* he was kind and considerate, and his loss will be felt by a wide circle of friends.

WE have also to record the death of Mr. JOHN ROBSON, late of Linton Park, Maidstone, where he was gardener for many years. On his retirement from Linton in 1876, Lady Holmesdale allowed him a pension until her death. He wrote a good deal in the gardening papers, among them *THE GARDEN*, the pages of which contain some of his latest contributions. That he was esteemed in the neighbourhood of Maidstone is evident from the fact of his having received while there two handsome testimonials—one from his friends at Linton, the other from the Maidstone Gardeners' Society.

QUESTIONS.

5450.—**Fed Roses.**—What bright red Roses are recommended for indoor culture to flower through the winter in a house which is kept warm, but not hot?—H. B.

5451.—**London Pinks.**—Can anyone tell me the correct name of the pretty mauve-coloured Pinks which were selling in quantities in the streets in London last season?—R. C.

5452.—**Measuring timber.**—Will some practical forester explain the best method of measuring growing and felled timber?—R. P.

5453.—**Nerine aurea.**—I have seen *Nerine aurea* mentioned two or three times this season in *THE GARDEN*. Can anyone tell me what this is and where it is to be obtained?—E. PETERS.

5454.—**Desse Tardive Peach.**—I have read that this is a first-rate Peach. It is said to be later even than Walburton Admirable, ripening as late as the last week in October, and, moreover, lasts a good while in the fruit room in good condition. Now this seems to be just the kind of Peach that is wanted. Can any reader give his experience of it? Is it a good looking fruit, and what is its flavour?—G. PALMER.

5455.—**Willows for hoop making.**—Many plots of land in Surrey are planted with Willow, Hazel, &c., as undergrowth, the Willow being used for the purpose of making hoops. It appears that there is one variety of Willow much better adapted than others for this use, as being less brittle and having smaller pith. Could anyone having the management of such plantations kindly give the botanical name of this variety, the local name by which it is known at the nurseries, and also mention any characteristics by which when young it can be distinguished from others?—E. R.

LATE NOTES.

Berberis belloniensis, a variety of the common Barbary, seems also to be a useful shrub, from its red shoots when young and crimson foliage in autumn.—C. M. O.

Late Chrysanthemums.—It may be interesting to know we have still a few fair blooms of Talford Salter, Mad. C. Audiguier, and Roseum pictum. They are on plants that were kept in a north house till Christmas.—W.

Marechal Niel Rose.—I have one inside the roof of a conservatory; it has had blooms on it, more or less, since last March, and now there are two full blown ones and many buds. The roots are outside, and have no protection; the tree was planted eight years ago, and has been dressed only with Thompson's Vine manure.—H. J. G.

Old yellow Provence.—I am most anxious to procure a couple of plants of this Rose (*Rosa sulphurea*). I have written to several well-known Rose nurseries, but without success. If any of your readers could help me by informing me where I could buy them, I should feel greatly obliged.—F. W. Y.

Names of plants.—*Swertia*, 1, *Cydonia japonica*; 2, *Rubus australis*; *Keria japonica*.—R. C.—Next week. *H. Vaughan*.—1, *Juniperus drupacea*; 2, *Albicephalonica*; 3, *A. Menziesii*.—J. D. N.—*Helleborus atro-rubens*; quite a distinct species from *H. niger*. Fern is *Polypodium peltatum*.

WOODS & FORESTS.

THE FUTURE OF THE POPLAR.

A FEW weeks ago the claims of this tree were dwelt upon at some length in these columns, but as the question deserves more than cursory attention it may not be out of place to again look into it a little. The producer of home timber, notwithstanding the long-delayed, but apparently ever-imminent, famine, is at his wit's end to discover the way in which some return may be reasonably hoped for on his outlay in planting. It is fortunate for users of timber that there are other reasons in favour of growing it beyond the mere thought of profit, or there would be vastly more bare acres than now exist. With what are regarded as the staple timber trees common to these islands—I now speak of deciduous, or rather hardwood trees—it is practically impossible that any return can come to the planter in his lifetime; and if he is “aye stickin’ in a tree” and has the satisfaction of providing for coming generations, the investment, though without doubt safe, will hardly ever be a profitable one. The crying want is at once a tree which can be cheaply raised and quick in growth, and which, when grown, will fetch something in the market. These conditions, I take it, were the matter properly weighed, would be found to exist in the Poplar. There is scarcely a tree more easily propagated or quicker in its growth, and even in the existing state of things it will in many places fetch a price within a measureable distance of the Elm, and certainly more than the Scotch Fir. It is not, however, so much to its existing position that I would now look as to the place it may have in the future.

POPLAR WOOD FOR BUILDINGS.—Generations ago, when buildings were constructed in a manner which may reasonably have been expected to do duty for posterity as well as for the immediate requirements of the designers, the shoddy wood of which there is now such a flood would not have found an inlet. It is no doubt true that with the increase of population the wants have increased, and it is none the less true that the order of the present day is making shift for the time being and letting the future take care of itself. If this is not so, how is it to be accounted for that so much material—and notably wood—is used in what should be permanent work—material which at the best cannot long outlast the generation by whom it is used? To this existing state of things, to compete with it successfully we must conform ourselves, and if timber growers of this country hope to stand in the same rank as those who make it their business to draw from the supplies existing in native forests abroad, they must as nearly as may be imitate the conditions which allow of timber cutting us out on our own ground. Natural forests here, where every acre is appropriated, is of course out of the question, and planting is the only means by which a timber supply can be produced and maintained. To attempt to copy from the natural forests to the extent of raising the same species of tree where climate and soil differs would only be to court failure. The only chance, therefore, is for the home-grower to produce an equally suitable wood at a less, or at any rate the same cost as is incurred in getting the imported wood from the native forests to this market. Where, in spite of depressed value, land is incomparably higher in price than in the countries from which the bulk of our supply comes, the owner naturally hesitates before he moves. When he does move, as somebody must, it is essential to move on the right lines. These, as I have indicated, must be cheap planting and quick growth, and, what is

further, the turning to account of land which is not adapted to agriculture. The latter part of the question, however, is one which requires careful consideration, as, notwithstanding what is said to the contrary, timber will not always thrive on soils which are absolutely worthless for every other purpose. The matter, it cannot be denied, is complex, and even experience is often at fault, yet the wide statements which from time to time gain currency must be received with caution.

THE POPLAR, it is well known, will succeed on a great variety of soils and in diverse situations, yet not in every place. A very general notion seems to exist that for this tree it does not matter how wet the site, providing it is not too high and dry, but this, to say the least, is a fallacy. Poplars, it is certain, delight in moist situations, but not such as are marshy or where the water is stagnant. A similar impression is often formed with regard to the Willow, but it is one which is equally incorrect. By the sides of rivers and running streams, and on land exposed to occasional floods, it is generally seen at its best, although even on high and thin soils it is not uncommon to find it growing to a considerable size. The land by the side of watercourses in perhaps nine cases out of ten, however, turns out to be too valuable for timber growing at all beyond a mere fringe; and although if even this was carried out, the quantity now growing would be appreciably increased, such positions as this being fully occupied cannot be regarded as having much effect on the general supply.

In woods it often happens that this tree has been planted as a nurse, and then from the failure of the intended crop or for some other reason, the Poplar which was designed to serve a temporary purpose has been left to grow to maturity and reach a large size; and although it is mostly thought of as a field tree, observation leads one to believe that the moisture which is generally an accompaniment of wooded lands, makes them the very places for the growth of the Poplar. It is very common to find woods within which a number of springs occur on the hillside where the quantity of timber growing is very small compared to their area, and the underwood is very bushy and of small value. Woodland, however, it is, and it is virtually out of the question to clear it and make it fit for any other use. For such places the Poplar has an especial value, and should be much more largely planted than is the case. To my own knowledge within the fences of a small number of woods there is room for the production of thousands of Poplars, and the total of what has come under my observation or remains in my memory is, of course, as nothing to the number of instances existing over the country. So much, then, for the way in which the timber may be produced, cheaper both in respect to outlay and time in growing than almost any other wood.

To educate the users of wood into the knowledge that good Poplar is equal, if not superior, to the commoner kinds of deal imported, is not so easy a matter, as both apathy and prejudice have to be fought against, and perhaps the former is greater than the latter. For some unaccountable reason the fact that trees in this country do not grow into scantlings, planks, and boards of the required size, seems too much for the ordinary mind. If Poplar was cut up and sold at the ports as an imported wood, the chances are greatly in favour of its being well received; but because it is merely Poplar and grows at home, it must of necessity be at a discount. Leaving, however, these hypothetical points, we will look a little into the purposes for which it could be used—purposes for which the foreign

wood now “rules the roost.” Of these I do not hesitate to say that house-building of many kinds is one of the most important—not merely dwelling-houses, but the thousand and one accessories to them. As was pointed out in the article which gave rise to these remarks, if the wood is objected to because it will not resist damp, there are many purposes in house-building where the property of resisting damp is not required, and, what is more to the point, I believe that its perishable nature is over-rated. Be this as it may, there can be no question in this respect as to its fitness for floors, especially for the upper stories. For packing-case making, the absence of any objectionable property which could injure the contents renders it especially valuable. For packing pianos and other musical instruments, for instance, what could be more suitable than this clean, tough, and light wood? This class of case would not of course consume a large bulk of wood, but I particularise this as showing the direction of future possible extension. For boarding underneath iron roofing, or for the matter of that under tiles, the Poplar is a very suitable wood. In many cases it is now used for the purpose. In public iron buildings it is the very thing for the wood linings, which are always necessary, and its non-inflammable nature is an especial recommendation.

ON ESTATES its principal uses will naturally be for buildings of one kind or another, but even for fences it may occasionally be used to advantage where it is more or less of a temporary nature. It may look like straining a point to advocate its employment for such a thing, but I have again and again seen it used for this work, never, of course, for posts, but in close boarding or upright paling where it does not come in contact with the soil, and is covered with some protecting substance. It would be possible to lengthen indefinitely the list of instances where this wood has favourably stood tests which one would have naturally considered too severe; but enough has been said for the present to show that the Poplar, so far from being looked upon almost as a “weed,” has an undoubted right to be regarded as one of our most useful timber trees. What its future is to be must lie with growers and users; but if it does not come to be better thought of, the fault is not in the wood itself.

D. J. YEO.

Lyncham, Wilts.

Lightning and trees.—It is a very commonly expressed idea that there is less danger to individuals who happen to be overtaken in a thunder storm if it is accompanied by a downpour of rain than would be the case if the rain was absent. From the observation of the effects of the electric fluid upon trees, there seems to be ground for such a belief, as it would appear that where a considerable amount of moisture is present the lightning is absorbed and conducted away without causing any rupture in the medium through which it passes. The state of knowledge, however, with regard to the way in which the fluid acts upon trees is in rather an elementary condition, although there are few things more worthy of the notice of foresters who are at all scientifically inclined. So far as observations have gone, as already intimated, it seems pretty clear that not only does the amount of moisture in a tree produce an effect, but also the character of the tree itself and the season when it is struck. As an example of the way in which moisture conducts electricity, the case of an electrified tropical forest has been cited, where heavy rains had fallen and soaked the trees, which then became charged with electricity. Subsequently, a thunder storm passed over the electrified trees, which were thus induced to part with their store of the fluid into the cloud above in such a manner that the phenomenon was visible to the eye. As each flash from the cloud passed, the points of the trees gradually became aglow, until another flash relieved them of

their super-abundant charge. To bring us to what more commonly occurs in this country, the investigations which were made some years ago by Professor Colladon, and reported in the *Times*, may be of interest. This gentleman made a minute examination of a tall Poplar which had been struck by lightning in a street in Geneva, and the conclusions at which he arrived with regard to it support the theory which has been referred to. These shortly were, that the fluid first strikes the highest branches, especially those most exposed to the rain, runs through almost all the smaller branches until it reaches the trunk which, being a much worse conductor, presumably from its greater dryness, is generally ruptured. From this it is argued that the topmost branches of trees during a storm would be the safest position, and it is pointed out that birds in the branches are seldom killed. A Lombardy Poplar, with a spring or pool of water near its base, would, therefore, form a good lightning conductor if placed in proximity to a building, but care must be taken that the pool is not on the opposite side of the building, as there is a case on record where a flash of lightning left a tree thus situated, passed through the building, and entered the water on the other side. Such cases tend to prove that the condition, character, and position of trees has much to do with the action of lightning upon them, but, as has been said, the state of knowledge in this direction is not very advanced. At the present season it is unusual to have opportunities of noting effects, as thunderstorms are not common; but as they occur, it would be very interesting if the action of the lightning flash upon trees was more carefully observed and the results made public.

PLANTING WASTE LAND IN IRELAND

It is generally admitted that timber is one of the principal wants of Ireland, and as there are vast stretches of unoccupied land in that country capable of growing all classes of useful timber generally cultivated in this country to great perfection, and plenty of able and willing hands to carry out the work at a moderate outlay, we have every reason to believe that such an enterprise would be fraught with the most happy results—in the way of sowing the seeds of peace and contentment among the working classes of that country, the fruits of which would gradually ripen and come to maturity for the benefit of future generations and the community at large.

The climate of Ireland is rather damp, and we have heard it suggested that by planting the barren wastes of that country this evil would be increased, and that it was by no means clearly proved that tree planting would be beneficial for the good of the country in that respect. That forests attract and retain moisture no one, we think, will deny, but at the same time we must not forget that growing timber is also a very powerful evaporator, and in the formation of every pound of woody fibre there must be several hundred pounds of water evaporated by the trees; so that if the latter attract moisture, they likewise store up moisture by the shade which they afford as well as the vegetable mould formed by the fallen leaves, and as such moisture is gradually given out by the trees, vegetation and crops in the vicinity are benefited, shelter secured, the climate improved, and the evil effects of the unmitigated action of the elements modified and brought to a large extent under control.

Although water is necessary for tree growth, yet the weather in uncultivated districts of the country is generally in extremes. When rain sets in it often comes in the shape of an overwhelming flood, tearing up the surface and strewing the *débris* in all directions, while cultivated ground at a lower elevation is inundated by the rapid flood; crops destroyed and left in a state of indiscriminate ruin. But excesses of Nature often beget excesses, and it is no uncommon thing before and sometimes after a spate to have a period of ex-

cessive dry weather which burns up and stops the growth of natural permanent Grasses, by which means sheep pasture on hilly districts of the country is rendered almost worthless, to the sad loss and disappointment of the flock-master. In order, then, to counteract this state of things and mitigate such excesses, we contend that judicious tree planting is the best, surest, and most practical remedy, and that the study of the whole subject is worthy of the attention of statesmen, landowners, engineers—in short, all who have the true interests of the country at heart.

But the utility of tree planting is by no means confined to hilly wind-swept districts of the country, as I have drained and planted with success wet boggy ground at a low elevation, and when the trees were thoroughly established they rendered the ground firm and dry, and thus improved the climate, and clothed a former morass with a crop of useful timber.

J. B. WEBSTER.

FENCES AND FENCING WOODS.

FENCING in one form or another consumes a very considerable quantity of native grown wood, and although most kinds may be used for the purpose, some descriptions are naturally more suitable than others. The use for which a fence is intended will have much to do with the determination of what shall be employed in its construction, and the kind of material available on the spot is not a less important consideration. Of course, of all fences, the live hedge is the most widely distributed, but this does not come within the range of the present remarks.

Of the other great division of fences largely or wholly composed of wood, known as dead fencing, it is proposed to speak. Of this class the most rudimentary is probably

THE WATTLE FENCE.—This is formed by stakes being driven into the ground along the line the mound is intended to occupy, and between these, smaller rods are intertwined after the fashion of rough basket-work. When carefully made, fences of this kind will sometimes last for years, but unless it is in places under trees where a live fence would not succeed it is questionable whether the wattle fence is a very economical one to construct. It very often occurs round small paddocks where it is desirable that the boundary should be kept close in order to prevent the egress of the smaller of the animals turned there to graze, and it is also occasionally found surrounding orchards, probably for the purpose of preventing the ingress of intruders. With some it is the rule to renew this description of fence periodically, but, unless in exceptional instances, it seems to entail an amount of unnecessary labour, as other fences could be made of a more permanent character. Where, however, under wood of sufficient size to provide the stakes, and also fit for the wattling, is abundant, there is the one great advantage that no skilled labour need be employed. A hedging-bill and an iron bar for forming the holes for inserting the stakes are about all the tools required. Besides the wattle, there is another kind of mound which may be erected without the aid of the saw or skilled labour in any form. This, though, is of a very different character, and may be termed

THE SINGLE-RAIL UNSAWN FENCE.—As this differs in character from the last, the purpose it is intended to serve is of course very different, and the way in which it is erected may be varied so that the material available may be used to the best advantage. A plan sometimes adopted when the fence is only wanted to exclude large animals is to select posts from the larger branches

of any kind of trees which may happen to be felled on or near the spot, and to choose the rails from the longer and straighter limbs of the same character. The posts, some 4 inches to 6 inches in diameter and about 6 feet long, are set 2 feet in the ground at distances suitable to take the rails which will be irregular in length. These, when the posts are properly chosen, and cut out with a fork at the top—and this can easily enough be done, providing it is understood as the lopping of the tree goes on—will not be required to be fastened or morticed into the post, as the weight of the rough unsawn rail resting in the fork at the top of the post will be sufficient to retain it in its position and to sustain a considerable knock or push.

THE SINGLE-RAIL SAWN FENCE.—This is sometimes a very useful style of fence on the top of a high mound where a young live fence is about to be established. It is generally of a less height than the last named kind and consumes much less material. From its name it is obvious that the saw will be required to prepare it, and this will be the case with most of the others which will claim our notice. When a saw-mill is on the estate little difficulty will be found in the work, and where much fencing has to be done the saw-bench is an indispensable adjunct. For the single-rail sawn fence the posts will not require to be longer than 5 feet, as 3 feet or even less above ground will generally be ample. The size and strength of these and the rails will have to be regulated by the demands likely to be made upon it. For the lighter descriptions of this fence it will not always be found necessary to mortice the posts as long stout nails may be used to fasten the rails. When morticing is required the holes for the mortice may be bored by the auger or by the bit, which is sometimes attached to the spindle of the saw-bench. For working out the core of the mortice where no great nicety is essential a small axe will often be found quite as effective as a mallet and chisel.

THE TWO TO FIVE-RAIL SAWN FENCE.—Sawn rail fences, as the positions where they have to be erected and the uses they have to serve vary, are made with from two to five rails, and as the way in which they are prepared is very similar, they may be very well included in the same class. There is, in fact, no marked difference between this class and the one-rail fence, except that the posts are longer and heavier, and the rails generally stouter. The posts are mostly prepared by a central cut being made down round logs from 6 inches to 9 inches in diameter, and the mortice worked through from the flat surface, or *vice versa*.

THE TRELLIS FENCE.—A very good mound is sometimes formed from short and otherwise waste material by driving in stakes in opposite directions at a sufficient angle to form a trellis with diamond-shaped openings. The height of this, as of other fences, can be varied to suit requirements; but it is unusual to find this kind of fence made of any great height, as from the rough and irregular nature of the material there would be a difficulty in making a good finish. The general mode of preparation is to run a centre cut down the poles or other wood which has to be used and point them with an axe. The smooth surfaces are then, in driving, placed together and fastened by stout nails. Of rail fences there are all kinds of modifications, and amongst these is

THE WOOD AND WIRE FENCE.—When wires alone are used in place of rails, the posts are simply sawn with a smooth surface and not morticed, the wire being fixed by means of staples. Sometimes, however, it is desirable that the lower

portion should be composed of wooden rails, and occasionally close boarded. When this is done the number of rails to be used, and their distances, must be determined when preparing the posts, and mortices sufficient and at proper intervals be formed. The boarding may then be fixed by means of nailing, as may be deemed best.

THE CLEFT FENCE.—This should perhaps have been enumerated earlier, as it is a kind of fence where the saw is not required, but if the quality and straightness of the timber required for cleaving are taken into account, it occupies the right place, as it would be useless to think of trying to construct a cleft fence of rough or knotty wood. Although no machinery is necessary to prepare it, some judgment is required in the cleaving; as to the workman, the business of cleaving is relatively a more difficult one than sawing. So far as the fence itself is concerned, there is no difference, except that the line of cleavage does not present such an even surface as would be produced by the saw, and that it may gain a little in strength from being worked in the direction of the grain.

THE CLOSE-BOARDED FENCE.—This is found in an almost infinite variety of forms, from the substantial and extensive park or villa fence to the slight and cheap fence in more unpretentious positions. Although differing in detail, the framework of this class of mound is materially the same as that of the sawn-rail fence, the principal difference being that the rails are not fixed so closely together, and the boards are nailed either vertically or diagonally to them.

THE PALED FENCE.—Practically the construction of this is the same as the close-boarded fence to which reference has just been made, the pales being simply narrow boards with spaces left between them instead of their being placed closely side by side. With respect to material, the pale fence does not, of course, consume anything like the proportion that the close-boarded description does.

We have now looked a little at some of the principal classes of fences commonly found in this country, but nothing has yet been said of fencing woods. It may be said that almost every kind of wood growing in this country is more or less fit for these uses, but though this is true, it must be admitted that the various kinds have very different values in this respect. As for most other constructive purposes,

THE OAK must head the list of fencing woods, and is a material which is used in all the grades, from the most expensive to the cheapest. Used to some extent for rails, the chief value of the Oak is for posts. Indeed, it is to this purpose that the greater portion of an Oak tree above the bole is generally turned, the larger limbs going for gate and other squared-up posts, and the smaller sizes for unsquared fence posts. Where these are large enough, as has been remarked with regard to preparing posts, they are simply sawn down the centre, and where they are not of sufficient size for this they are merely chopped to one or two smooth surfaces by means of the axe or adze and used whole. The principal drawback to using very small dimensions in this way is the large amount of sapwood in proportion to the heartwood in the extreme tops of the trees. It is not always, however, that posts are made from the tops of Oak trees, as it is not unusual to use small trees and saplings for the purpose. In selecting these, care should be taken that when cleft posts or rails have to be prepared that the clean grained trees should be set aside, and the sawn part cut from the more knotty ones.

THE ELM does not take a high rank as a fencing wood, yet in some instances it is found

to be very useful for the purpose, especially when a supply is on the place and no other wood is readily to be got at. The single-rail unsawn fence which has been spoken of is sometimes made from Elm limbs, and, notwithstanding this wood not being considered good for posts, when rough logs are set in the ground with the bark on they will often last for several years, and when the longest and straightest limbs are used for the rails and simply placed in the forks of the posts the cost is a mere nothing; and if it is required to remove the fence before the wood is decayed it will be just as useful for any other purpose as it would had it not been used for a fence at all. Elm can also be used for fencing in the shape of sawn rails of the ordinary size, say 3 inches to 4 inches deep and 2 inches thick, cut into about 10-foot lengths and used with Oak posts, and with a stud in the centre of the bars a very good fence is made. In some cases, too, Elm is a suitable wood for a pale or close boarded fence.

THE ASH should never be used for posts, and good timber of this sort will generally be too valuable to use up in work of this kind, where it would only last for a limited time. In some instances, however, for rails Ash poles used in the round answer very well. If material had to be bought they would be scarcely the thing to invest in for fencing, but when they grow on the estate and at hand they may be used to advantage to a reasonable extent. Beyond this there is not much hardwood used for fencing purposes, and, as has been mentioned, the use of the two last is restricted. Of the common hardwoods Oak is undoubtedly *par excellence* the wood for fencing. As the Oak stands among the hardwoods, so

THE LARCH stands among the Fir tribe, and as to the amount used it no doubt exceeds that of the Oak, as from its general habit of growth as well as from its lasting qualities it seems particularly fitted to work up for fencing without waste. It would be interesting to know the proportion of this wood used for fencing compared with all other uses it is put to—from its youngest growth, when it serves to merely stop a gap in a live hedge, to its mature size, when it cuts up at the saw-mill into posts and squared rails; by-the-by, however, although the larger the better for squaring into rails, the most profitable size for converting into posts is poles or trees of 6 inches to 8 inches in diameter, as these by a single cut down the centre turn out a couple of good posts without waste. This would be for the ordinary four or five-rail fence; when a heavier mound is wanted the sizes must, of course, be proportionately larger. The best finish for the top of post is a band of hoop iron nailed round within an inch or two of the end.

THE SCOTCH FIR, for purposes under review, follows the Larch, but is better adapted for rails than for posts. Whether this is so in its native forests we are not prepared to say, but here in the south it hardly holds a superior position to the Spruce in this respect. When, however, it is used on the ground a very good trellis fence is formed by this or the Larch being split down the centre and driven into the ground, as described in the remarks on the trellis fence. The bark being left on gives a very good effect. Small hanging gates are very often constructed from this wood, and answer the purpose well. The hanging style is made of a length of round pole, and the head also from a length of a smaller size—the rails and diagonal brace of half-round lengths and the pales of the same kind and form. In each case the bark is retained on the wood, the poles being placed either upright or diagonally. The posts, too, if desired, may be of round pieces of Fir, with the

bark upon them. When this is done, if merely to give an opening in a hedge, it has a very good appearance; and when part of a fence formed diagonally in the same direction (which, of course, would require rails), or in trellis fashion, a gate like this adds to the *tout ensemble*.

THE SPRUCE FIR, for fencing, is often spoken rather slightly of, but provided it is only used for rails or poles, or, in fact, in any position in which it does not come in contact with the ground, it is a very useful wood. It is cheap to buy, or if it is on the place, what amounts to the same thing, it will not fetch much to sell. It is easily sawn up and will stand railing fairly well, and is light to handle. For temporary fences, where, for instance, Quick has been planted, good Spruce rails will generally last until the hedge has become well established, and this is long enough. The posts may be of Scotch Fir, or preferably of Larch or Oak, but Spruce rails, in nine cases out of ten, will answer every purpose. For pales, too, or even for close boarding, the Spruce may often be used with considerable success. Where no great amount of labour is entailed, and an erection is only wanted to last for a few years, the value of the Spruce is not, as a rule, fairly estimated.

In touching upon fences and fencing woods little has been said upon gates, but, in a general way, the same kinds of wood would be suitable for these as for the fences themselves, but preferably Oak and Larch. Elm in some cases is used for rails, but is hardly to be recommended.

The larger branches of Oak, when of the right bend, are sometimes used for what is here known as "Yorkshire" stiles. These are fixed some 2 feet in the ground, and are constructed of two posts, which at the ground level are placed about 1 foot apart, and there joined by two short pieces placed transversely. These posts bend outwards, and at the height of some 4 feet, which is about the limit to which they reach, they open out to some 2 feet, allowing sufficient room for any but the very corpulent to pass through comfortably, and without the exertion of climbing a stile made of rails in the ordinary way. There are of course many other kinds of fencing, and some other woods may be used, but not to any great extent, in what may fairly be termed timber fences.

D. J. YEO.

The Holly in coverts.—At this season when woodlands are for the most part bare we appreciate the Holly more than at any time of the year. It is also a favourite resort of different kinds of game. The sportsman may often beat clumps of Bays, Laurels, and Rhododendrons without raising a single bird, but it is seldom he beats a clump of Hollies without being rewarded for his trouble. The Holly is not only one of the handsomest Evergreen plants we have, but also one of the hardest whether as regards soil, elevation and exposure. I have planted it with success on all classes of soil—from deep peat bog at a low elevation, as well as in the recesses of rocky bluffs where there was little soil of any description, and at an elevation of upwards of 1000 feet above sea level, and I think it a pity that it is not used on a more extensive scale, seeing that its merits are of so high an order. It is easily propagated, and the forester can have no great difficulty in raising plants for such purposes at small expense, and by a little care and painstaking the plants can be removed with success at all stages of their growth, and whether planted in masses, single specimens, or below the drip of large trees, it is perfectly at home.—J. B. WEBSTER.

SHORT NOTE.—WOODS AND FORESTS.

Durability of Larch.—The house I live in was built 100 years ago. I have just had a skylight put in the roof. The joiner brought me parts of two spans he had cut away; he said they were so hard, he had difficulty in cutting them. They were of Larch and quite sound. The wood was grown in Blidworth Parish, Notts.—H. J. G.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

GARDEN IN THE HOUSE.

ENDURANCE OF CUT FLOWERS.

CUT FLOWERS are a perennial care and interest with all of us, and it observant readers will send notes during the next few weeks of kinds which last long in water, or open in water, or improve when so opened, the result will be useful, and will save much anxiety and waste of time and flowers, caused so often by the indiscriminating use of such as fade as soon as cut. My observation extends only over the last twelve months, and was aroused first by receiving in January last year a dozen Christmas Roses, in tight bud stage, packed in a cigarette box barely capable of containing a single full-blown flower. Secondly, from March onward I had occasion myself to send a weekly despatch of flowers to London, and studied that they should be such and so received that they would not excite the sad sensation of ruined beauty, but might live to cause interest and pleasure for some days in a London drawing-room.

In testing flowers here in country air, some lasted so long that I conclude it is possible by cutting some twenty chosen kinds of hardy flowers on twenty days to have excellent decorative flowers in perfection throughout at least the nine months of autumn, winter, and spring. In really hot summer weather and in gas-heated rooms few flowers can last long. The dozen Christmas Roses (*Helleborus niger*) reached me, as just stated, in tight bud, and so short in stem that when I ranged them round a tumbler of warm water after their journey, they hung their necks over the rim and held on by their chins, without anyone being able to set foot on the bottom of the glass. There for some days they looked like little white swans asleep, but opened one by one until at the end of a week all were out. The stalks lengthened until some of them stood an inch or more above the glass, and at the end of three weeks all were perfect flowers.

Jasminum nudiflorum cut in bud three weeks ago is still perfect. Snowdrops next will grow larger blooms and longer stalks in water, and last three weeks well. Daffodils (best of all flowers to pack and carry perfectly in smallest compass) may be cut long before they come out. It is to be regretted they are not imported in this way, as, opening in water they are larger in size, higher in colour, and more delicate, too, than if opened outside; they will last a month, carrying us to the full tide of spring when no one need want flowers in town or country. Tulips, notably double ones, and Anemones (coronaria and fulgens) pack and last well. St. Bruno's Lily (*Anthericum*) and Irises of many kinds do excellently, every blossom opening if cut when the first shows colour. Of wild flowers, which many like, but regard as useless because they fade so soon, it will be found that if cut in bud many last well, and arrange in a manner in which they will not do when gathered in bloom, and allowed to get limp and faded before they can be put in water. The pretty white field Saxifrage (*S. granulata*), which whitens whole fields here, lasts a month in water with successively opening blooms, provided the large seed-pods be weekly snipped off with scissors. The King Cup (*Caltha palustris*), the

Ox-eye Daisy (*Chrysanthemum Leucanthemum*), and the Corn Marigold (*C. segetum*) last each a month, and grow something like half as large again in water as they do when left on their roots.

Wild Roses in all their beautiful shades are seldom thought worth cutting, as they fall in a day, but, cut in bud and loosely arranged, it will astonish anyone if a vase of these little pink and white points be arranged on a dewy evening and reproduced at breakfast the next sunny morning. Every blossom will be open and gay as a butterfly, with a natural poise that no hand could give in arranging the full-blown flowers, and opened thus they last three days or more. Foxgloves will continue to open flowers indefinitely to the tops of their tall spires, and look excellently well in large pitchers of terra-cotta in shadowy parts on the floor of a room, with the long-lasting Sunflower, *Tropæolums*, Thistles, Docks, Teasels, and Lilies, which latter again open better in water than out of doors. Dwarf *Tropæolums* sown thickly and left crowded form capital cutting material if the small plants be gathered when some three to five buds are swelling. Trimmed of all but a leaf or two, they last several weeks. There is no end to the use of the trailing sorts where flowers are used on wall brackets, as ends cut off will open every bud and continue to grow some feet in length all through autumn to Christmas time. *Asphodelus ramosus* is extremely beautiful, and opens consecutive blooms up its long spike. The Paris Daisy (*Chrysanthemum frutescens*) is peculiar, as inasmuch as the terminal bud which opens first has usually some side buds which intercept the flow of sap, and cause quick fading of the open bloom; but if the side buds be removed, single blossoms will last long and attain a large size in water. Gladioli are well known to open from base to pinnacle in water, and require only the attention of plucking away each bloom as it fades. *Che-lone barbata*, *Lobelia cardinalis*, and *Pyrethrum uliginosum* cut at an early stage last long, and improve in water and are most useful. *Aster Amellus* lasts two months, improves in colour when kept some time in water, and is an excellent decorative flower. A white *Clematis* (lauginososa type), which will not open out of doors here, I cut in October when the long buds are quite green, and it expands in an interesting way, until a fortnight after gathering the petaloid sepals lie flat open, white like deposited silver, and after a month or six weeks of growing perfection it fades away in a beautiful shade of blue. The Jackmanni type will not open in water.

My most lasting friend of all, however, has been *Helenium autumnale*, a little known, but interesting and beautiful Daisy-shaped flower, peculiar as it opens for the curved finger-like claws of the ray florets as they lie within the large expanded calyx. The ray florets are set wide apart at the base, which, with their slight twisting and irregularity, together with the fact that they are broader at the tips than at their bases, give the lemon-yellow blossoms a unique appearance. Root action of this and other plants ceased this year before the blooms were out, and, observing this, I cut all the heads off the *Helenium*, as I have said, early in October, and, with those open when cut and the little hard green buds which opened successively, I was well off for perfect blooms of this flower until after Christmas Day. Most flowers which will open in water produce larger blooms, are of better colour, and last longer than they would do on the plant. The variation in shades of colour, of which the *Tropæolums* give extraordinary example, is most interesting to watch.

By retaining lasting flowers as a nucleus and adding to them any fleeting ones which are available from day to day, much can be learned as to what flowers harmonise and arrange well with each other.

Most flowers which last long in water will open in water, and a reason for the long duration of inflorescence is doubtless to be found in the interruption to some of its vital functions, caused by severance from the stem, and removal from the influences of sun, air and insects, which prevents the perfecting of pistils, and stamens, and completion of fertilisation. This is easily observable in Daisy-like flowers. For instance, the ray florets of *Pyrethrum uliginosum* gathered in half-open bud form will be observed to dwell sometimes several days without apparent progress, when, on the eve of opening, suddenly they fully expand, and the reason will be found in the opening of the outer row of the disc florets; so that the ray florets have waited upon those of the disc, which contain the organs of reproduction. The disc florets continue for a month to open in concentric rings, and the rays continue their subservience to them by retaining good condition until the last central florets open, when the rays, having served their attractive purpose, immediately lose their colour and die.

If other correspondents will add notes in this direction, I think interesting and useful results will be recorded, and probably the reason for *Helleborus niger* lasting so long can be explained, and also the rapid fading of *H. orientalis*, to which Mr. Woodall, "Lex," and Mr. Archer-Hind allude in recent numbers, but do not explain. Mr. Archer-Hind confuses the Lent Lily with the Lenten Rose, but this is probably a *lapsus calami*.

D. DOCKER.

King's Norton, Worcestershire.

THE MISUSE OF FLOWERS.

THE remarks on this subject that have appeared in THE GARDEN at different times will doubtless have been cordially welcomed by numerous over-worked gardeners, many of whom, in common with "D. T. F.," have long since become dissatisfied with existing fashions as regards the use of cut flowers. There is no novelty in the matter, however, as, according to my experience, as many flowers were expected from the garden twelve years ago as at the present time, and it is among the less wealthy classes that a greater desire for cut flowers and plants for all sorts of purposes has lately sprung into existence.

"C. R. S. D.," when commenting on the misuse of flowers (p. 65), unwittingly, doubtless, does gardeners as a class an injustice, or, to be plain, does not give them much credit for good taste in the arrangement of plants. This is the passage to which I object: "Perhaps it is not to be wondered at that many private gardens strike one as resembling to a great extent a well-kept nursery, when one considers that the gardeners have often had nothing else but a trade establishment from which to develop ideas." As a matter of fact, the majority of gardeners spend but little of their time in nurseries, and if they have any ideas at all in the decorating line these are developed in private gardens. Gardeners cannot make show houses of all their plant-growing structures, the grand display usually being made in a conservatory, this being fed from the other houses. The various kinds of plants are formally grouped in the latter to admit of their being properly treated, very few attempting mixtures that would please the taste of a certain class of visitors, but which from long experience have been found unsuited to successful plant culture.

Every class of plants should be disposed where they thrive best, even if they do look like a set of tea-cups, and when the time comes either the blooms or the plants are available for whatever purpose they are grown. If they are eventually misused or misapplied, it is not often the fault of the gardener. Great numbers of

plants find their way into dwelling houses to come out later on fit only for the rubbish heap, while in too many cases conservatories might truthfully be termed "slaughter houses." I have long been of opinion that indiscriminate mixtures of either cut flowers or plants are objectionable, and much prefer to see them grouped in separate colours. One, or at the most two, colours are ample for one vase, these being accompanied with suitable greenery; and the same remarks hold good with regard to a group of plants, whether large or small, that may be arranged in a hall or room. When I would admit more colours it should be in the case of one class of plants, such as Chrysanthemums, Begonias, Gloxinias, Calanthes, and zonal Pelargoniums. Mixtures are pretty, but masses are more attractive, and they have the advantage of being also more favourable to the well-being of the plants. Travellers who have seen large groups of one sort of plant luxuriating in their natural habitat very rarely appreciate conservatory mixtures; but if you can show them a bank of Arums in full bloom, a house of Eucharis at its best, a bank of Ferns and Calanthes, Ferns and Gloxinias, Ferns and Begonias, a mass of Cinerarias or Primulas or Cyclamens, a house full of well-flowered single or double zonal Pelargoniums, a roof furnished with an Allamanda or Dipladenia, or a well-arranged fernery, they are obliged to confess that Nature can be improved upon with advantage.

At one of the grand summer shows that used to be held at South Kensington valuable prizes were offered for large groups of miscellaneous plants. The first prize was awarded to an arrangement in which Ferns were the only plants used, these being grouped jungle fashion. The second prize group, however, was a revelation to many of us, nothing but white flowering plants and Ferns being employed. Anything more beautiful it would be difficult to imagine, and the arrangement was rightly placed before grand mixtures of innumerable choice flowering and fine-foliaged plants, such, perhaps, as would have gladdened the heart of "D. T. F." as well as "C. R. S. D." Very frequently since then I have grouped white flowering and foliaged plants with Ferns in conservatories, entrance halls, churches and dining-rooms, and they never fail to please. Then, as bearing upon the subject of grouping species, I ask, who would wish to break up the immense groups of Foxgloves to be met with on some of the Welsh hills, or would wish to disturb the beautiful masses of wild Orchises and other British Orchids to be met with hereabouts? Mixed in borders, they are comparatively insignificant, but in masses they are grand and beautiful, and gardeners are not so far wrong in grouping their respective kinds of plants either under glass or in the open.

MASSSES OF FLOWERS may be out of place on a dining-table, and very few decorators, I should imagine, would think of thus wasting them. It is true there are very queer fashions in vogue; one of these, and of which "D. T. F." takes cognisance, is to lay down some figure or set design on the cloth in which masses of showy flowers play an important part. Sometimes an animal is delineated, but such figures are simply ridiculous. There is no doubt about this being a misuse of flowers, and a clean table cloth may well be preferred. It is equally or even more unadvisable to place heavy banks of plants of Eucharis, Lilies, Orchids, trained Poinsettias, or any other plants in such a manner as to obstruct the view, but there the objection ceases, always provided the proprietor affords the means of preparing the various plants and flowers required, and allows a sufficient number of hands to do the work. On ordinary occasions very little decorating is required, but even this should be good, as it not unfrequently happens that a gardener gains more credit for the fruit and flowers put on the table than for all the rest of his labours.

W. I. M.

Acacallis cyanea.—This rare little Orchid, which is also known under the name of *Aganisia cyanea*, is now flowering in Mr. J. Bonny's nursery in Downs Park Road, Hackney. It is a distinct-looking plant with creeping rhizomes, and small ovate bulbs, and long broadish leaves. The flowers, borne in spikes, are about 1½ inches across; the sepals

are narrow and whitish, the petals broad, almost round, and of a clear, light blue, while the lip is bluish-purple and pencilled in parts. It is extremely attractive, as the blue is so pure and the colour is so unusual among Orchids. It is a Brazilian plant, and very rarely seen in bloom. Among other interesting Orchids blooming in this nursery may be mentioned *Peristeria pendula*, a handsome little plant, quite a contrast to the Dove plant, *P. elata*, in point of stature. It bears short drooping spikes from the base of the bulbs. The flowers are thickly set, globose, pale pink spotted with a deeper tint. There are also several flowering plants of the lovely and much-sought-after *Cœlogyne Lemoniana*, the lemon-crested variety of *C. cristata*.

NOTES ON RECENT NUMBERS.

PHALENOPSIS SCHILLERIANA (p. 88).—I have had the pleasure of seeing the plants under Mr. Eden's care at Henham Hall, though not at a time when they were in bloom, but I am pretty sure that they would make some of the swell Orchid growers open their eyes a bit at any time of the year. The chief thing I wish to call attention to concerning them is that they are not plants which have been imported during the last few years, but that they have been in this country for some time, and are certainly none the worse for that. There seems to be a growing tendency to treat Orchids somewhat like Roman Hyacinths now that they can be obtained so easily. They are bought cheaply at a sale, flowered for a year or two, and are then heard of no more; in fact, it is sometimes questioned whether some of them will live more than a brief life in a cultivated state. Such an idea is likely to do harm to the cause of Orchid growing, and is sufficient to frighten amateurs from an attempt at a mastery of their requirements, besides disgusting those whose purses are not so bulky as they used to be. It is by rendering a plant amenable to his culture, and his culture beneficial to the plant, that the skill of a good gardener is shown; the Roman Hyacinth style of business, like ready-prepared needlework, does not give proof of much original cleverness in the hands of its completer, the success or failure being more largely the result of the preparation of the materials. In Orchid growing it must in reality be a much greater pleasure to infuse year by year strength and beauty into each individual specimen than merely to extract from it what has been stored up by climatic or other natural influences. Of course, new kinds of Orchids keep descending upon us, in favour of which some of the older ones are discarded, but if only, say, one quarter of the plants were still alive which have been imported during the last decade, what a flowery country we should be living in, almost sufficient to rival the fields of the Hesperides. Perhaps Orchids, together with *Lilium auratum*, have some "happy growing ground" somewhere which we have not yet realised.

KEEPING LENTEN ROSES FRESH IN WATER (p. 100).—There is a good deal to be learnt as to when to cut flowers to put in water and how to keep them fresh. Daffodils, we know, should be seized just before they burst; Orchids, on the other hand, not until they have been opened some time, after which they will often remain longer in beauty off than they would have done on the plants, especially if growth has commenced. Can anyone give us a hint as to Dog-tooth Violets, which are most provoking in the way they "go flabby," for they would otherwise be useful things at their special time of year for "indoor work." Some flowers want drink before a journey; some, like the common wood Anemone, if allowed to "booze" for twenty-four hours, will do without anything further for a considerable time. There are many recipes for keeping

Maiden-hair fronds fresh, from boiling water to pulling it up by the roots; but there are a number of plants, and "greens" too, which turn sulky and pay you out for having interfered with them. There must surely be some way of treating these, which shall represent to a certain extent what they have been accustomed to have. Who shall say what it may be?

Sussex.

C. R. S. D.

PLANTS FOR ROOM DECORATION.

Now is a good time to increase the stock of plants for table and room decoration; shift those that need larger pots, and generally overhaul the whole collection, discarding such kinds as have during the past year not been so useful as some others. It is better to grow double the quantity of sorts that are useful than take up space with useless kinds. Crotons are always most useful; where stove heat can be had they are easily grown and they stand a long time indoors without sustaining any harm, except perhaps when making growth in spring; cold winds then are apt to injure the young leaves, and, in consequence, impair the beauty of the plants. Crotons are easily increased by means of cuttings taken off with a heel, inserted singly in small pots in loam, leaf-soil, and peat, with a free use of coarse silver sand and plunged in bottom heat under a propagating frame or handlight. Suitable plants can also be even more quickly obtained by ringing. When a plant has been in use for some time the lower leaves generally fall off, or the plant becomes too large for the purpose required. Under such circumstances at about 6 inches below the point of the shoot cut off the bark for about an inch in length; make the incision quite round the stem; over the barked portion bind some Moss which has previously had some silver sand mixed with it, and tie some matting around it to keep it firmly in its place. The plants thus operated upon may remain in the stove along with the others. Syringe them two or three times daily to keep the Moss damp, when roots will soon form and enter the Moss. As soon as they show themselves outside cut the shoots off the plant, place them in small pots without interfering with the Moss, and if the pots can be placed under a handlight in the same house or in a propagating case for a week or so until they commence to root into the new soil, so much the better. By this means larger plants are procured and of better colour than can be had from cuttings, and in a much shorter time they are ready for service well clothed with leaves right down to the top of the pot. For potting afterwards the soil should consist of two parts fibry loam, one part peat, crushed charcoal, and a sprinkle of finely crushed bones together with a free admixture of coarse silver sand. Pot firmly, using pots well drained and not too large; under such conditions the plants will produce short stocky growth and colour well if placed near the glass, which can be done in the following manner. Procure ordinary saucers or feeders and bore three small holes in each, just under the rim; to this attach three pieces of strong wire; inside the saucer place a second smaller one inverted, and on this the plant should stand. A loop should then be made in the wire by which to suspend the whole from the roof in the stove, Cucumber, or other houses in which suitable heat and light can be obtained. In such a position space is utilised; the leaves have free opportunity for development, and the moisture contained in the bottom saucer is advantageous to the plants. Syringe them freely twice daily in fine weather, by which means the foliage will be kept clean. When the pots are well filled with roots give occasional doses of liquid

manure, which preserves the bottom leaves longer in good condition than they otherwise would be. As to kinds, those which droop are best; they should be grown when in a small state with one stem, and when larger allow them to break of their own accord, as they make more graceful-looking plants than when the points are pinched out. The best drooping kinds for table decoration or even for vases are *angustifolius*, *Johannis*, *majesticus*, *Countess*, *Prince of Wales*, *Warreni*, *Weismanni*, *picturatus*, *Switzinianus*. The best erect-growing varieties most suitable for boxes, at the bottoms of minors or trays, on front hall tables, or anywhere necessary for the decoration of rooms are *Hawkeri*, *Morti*, *Hanburyanus*, *Queen Victoria*, *Williamsi*, *Disraeli*, *Veitchi*, and *Earl of Derby*. What is much better than Moss for covering the tops of the pots when in vases is *Lycopodium denticulatum*, and a few plants of *Panicum variegatum* dibbled in amongst the green *Lycopodium* covering to droop over the sides make quite a charming combination. *Sedum glaucum* and small seedling Ferns are also effective growing in this way.

DRACENAS constitute another class of plants well adapted for house decoration, the rich colours of some kinds contrasting well with the various green shades of others. Both large and small growing kinds are numerous, but the narrow-leaved sorts are the best for dinner-table decoration, while the larger-leaved kinds are very effective in other positions. Some are particularly well adapted for this kind of work, inasmuch as, being nearly hardy, they bear exposure to draughts better than more delicate plants. They are easily grown, requiring about the same treatment as *Crotons*, except that they need more shade in summer. Good plants of them can be quickly secured by ringing the tops of those which have lost their bottom leaves in the same way as the *Crotons*. In order to increase the stock cut the stems, which have got bare of leaves, into lengths of about 2 inches; lay them in some sandy soil in a seed-pan, cover them over, and place them in a gentle heat, when they will soon emit roots. At the bottom of each will be found stem-like pieces growing downwards; these, if taken off when about 2 inches long, potted and plunged in bottom heat soon make thrifty little plants. The best narrow-leaved kinds are *gracilis*, *indivisa*, *congesta*, *nigra*, and *Guilfoylei*. The best larger sorts are *terminalis*, *Cooperi*, *australis*, *Mooreana*, *Weismanni*, *Goldieana*, and *Hendersoni*.

OTHER PLANTS useful for indoor decoration are *Reedia glaucescens*; this when grown with a single stem and furnished with foliage to the bottom is an effective plant when in bloom, its peculiar looking flowers being freely produced on the under sides of the leaves. It can be grown a long time in small pots when regularly attended to with water. It should never be allowed to become dry at the roots. The tops strike freely if placed in single pots and plunged in bottom heat in a propagating frame. It grows well under stove treatment in a compost similar to that employed for *Crotons*. *Jacaranda mimosaefolia* is another stove plant well adapted for table decoration, being very light and handsome when grown with a single stem. It is easily propagated and requires the same treatment as *Reedia glaucescens*. *Acalypha tricolor*, either in a small state or in the shape of bushes, from 1 foot to 2 feet in height, obtained by frequently pinching the points off the shoots, makes a good indoor plant. If allowed to grow long without stopping it soon gets leggy. It is easily increased by means of cuttings put in in the usual way and plunged in bottom heat. The foliage, which is

richly marked, associates well with that of most other plants. *Alocasia macrorrhiza variegata* when in a small state is useful for filling vases for the decoration of recesses. Its beauty is best seen when placed so that it can be looked down upon. It is readily increased by taking off the small offsets which are produced at the base of the larger plants, always taking care to select those which are well variegated. Sometimes wholly green plants are produced, and these never regain the white markings which render this plant so effective either in a small or large state. It should be grown in a compost of loam, peat, charcoal and sand, watered freely when growing. *A. Jenningsi*, with its velvety coloured blotch in the centre of the small green leaves, is an excellent plant for small vases during summer. It is increased by dividing the roots. *Curculigo recurvata*.—Small plants of this are useful where hardness is required. This plant can be grown for a considerable period in small pots. It may be increased by division of the roots, and it will succeed well under ordinary stove treatment. *Ficus Parcelli* is a handsome silvery-leaved plant, which, if carefully attended to, is very ornamental for room decoration. It should not, however, be allowed to remain too long indoors, as the leaves being rather delicate soon drop off, thus rendering the plant unsightly. Great care is necessary in striking cuttings of this, as they do not root so readily as those of some others. They should be inserted singly in pots in a gentle bottom heat.

Pandanus Veitchi, when grown with a single stem from 6 inches to 1 foot 6 inches high, is generally much admired for its elegant silvery markings and graceful drooping habit. From the base of old plants offsets are freely produced, and these, slipped off with a heel, inserted in small pots, and placed in a gentle bottom heat, soon make useful material. This plant does not require manure in the soil; on the contrary, it retains its markings best when growing in rather poor sandy soil, which induces stocky growth. *Grevillea robusta* is an easily grown plant suitable for decorative purposes where green-leaved plants are required. Seeds of it should be sown in January in sandy soil in bottom heat, and the young plants should be potted off when large enough, and grown on in the greenhouse during summer.

The above are a few of the many fine-foliaged plants that are adapted for decorative purposes; some of them are not so commonly used as their merits deserve. I have made no mention of the many kinds of Palms and Aralias which are indispensable to a good collection, my object being to point out a few plants equally useful, but not so well known.

E. MOLYNEUX.

Clintonia Andrewsiana.—If "J.C.L." wishes to obtain information about this plant, either as regards its cultivation, its handsome foliage, its flowers and its fruit, handsomer even than its flowers, from a competent authority, I have no doubt that if he will apply direct to the authorities of the Royal Botanic Garden, Edinburgh, he will doubtless be satisfied with the result. —ALEXANDER WALLACE, *New Plant and Bulb Company, Colchester*.

Flowers in the west of Ireland.—*Iris reticulata cyanea* came into flower on the last day of the year, in the open border, with no protection. *Iris reticulata Krelagei* is now in full bloom, having appeared on February 3. *Iris reticulata* will be open in a couple of days. *Galanthus Elwesi* and *plicatus* are in flower; also the beautiful *Crocus Imperati*, all in the open border. A red *Camellia* has stood the winter against a south wall, and has flowered long and well, in spite of severe frosts. Of common things, the Winter Aconite, different kinds of *Crocus*, *Scilla sibirica* and *bifolia*, and common Snowdrops are all in bloom, and have been for several days. —O. A.

The Narcissus committee.—A meeting of this committee was held on Tuesday at South Kensington. Dr. Michael Foster presided, and about a dozen members attended. It was decided to continue the work which the committee had set itself to do at the Narcissus conference. This will include, among other things, the correcting and ratifying the nomenclature, and in holding conferences in order to encourage the Narcissus culture and to bring together collections. It was resolved to hold three conferences during the ensuing spring, the dates being March 23, April 13, and April 27.

The Turner Memorial Fund.—A meeting of the committee in connection with this fund took place on Tuesday last, when the treasurer, Mr. H. M. Pollett, announced that the subscriptions at present amounted to £175. It was considered advisable to keep the subscription list open in order, if possible, to bring the amount up to £200. Messrs. Pollett, Veitch, and Turner were appointed trustees of the fund, and it was decided to invest the amount in Government securities. The proceeds from the fund will be disbursed in prizes for competition among amateur gardeners.

National Chrysanthemum Society.—A meeting of the general committee of this society took place at the Old Four Swans, Bishopsgate Street, on Monday, the 8th inst., Mr. E. Sanderson, president, in the chair. The hon. secretary, Mr. Holmes, reported that MM. Simon Delaux & Co., of Toulouse, had offered to place at the disposal of the committee, for competition in 1887, a silver cup, value £24, and a medal, value £8, the conditions of the competition to be hereafter announced. Also, that Messrs. Sutton & Sons, of Reading, and E. Webb & Sons, of Stourbridge, had offered a renewal of the special prizes given by them for a few years past. It was also announced by Mr. Holmes that the society would hold three exhibitions of Chrysanthemums—one in September for early flowering varieties, the usual large show in November, and one for late flowering varieties in January, but on a larger scale than that of the last season. At the September show the Royal Aquarium Company will offer prizes for Dahlias and Gladioli, and at the January show for winter flowering and decorative plants. Schedules will be issued without delay. It was resolved to issue a revised edition of the catalogue of Chrysanthemums issued by the society, and a sub-committee was appointed to take in hand the revision, Mr. C. Harman Payne being appointed secretary.

United Horticultural Benefit and Provident Society.—The annual meeting of the members of this society took place at the Caledonian Hotel, Adelphi Terrace, on Monday, the 6th inst., Mr. Richard Dean, one of the honorary members, presiding. The balance-sheet, presented by the secretary, Mr. J. F. McElroy, showed that in regard to the benefit fund there was a balance in hand, in January, 1885, amounting to £1927 1s. 11d.; that interest on this sum had amounted to £57; the subscriptions of 169 members, £255 17s. 9d.; arrears of subscriptions, £1 6s. 7d.—making a total of £2241 6s. 4d. Of this sum £16 6s. 6d. had been disbursed as sick pay, the sum of £34 12s. 4d. paid to the widow of a deceased member, and a few other small sums, leaving a balance of £2183 8s. 6d. The benevolent fund comprised a balance in hand at this corresponding period last year amounting to £972 15s. 10d.; interest, £28 10s.; subscriptions of members, £19 3s.; subscriptions of 10 honorary members, £10 10s.; other sums, £7 4s.—in all, £1038 2s. 11d. The only withdrawal from this fund was a sum of £20 paid to the four orphan children of a deceased member, leaving a balance of £1018 2s. 11d. The management fund showed that the receipts from all sources amounted to £23 6s. 2d., the expenses to £18 8s. 5d., leaving a balance of £5 7s. 9d., which is handed over to the secretary as a honorarium, it being all that this indefatigable officer receives. A further sum of £300 was invested in Consols during the past year; the sum invested now amounts to £3300. The balance-sheet was duly received, and ordered to be printed and circulated in the ordinary way. The sound financial basis of the society appeared to afford great satisfaction. The secretary's address is Moray Lodge, Campden Hill, Kensington.

NOTES ON CURRENT TOPICS.

TEMPERATURE OF THE SOIL AT Balcarras.—We much doubt that record of the summer temperature of the soil at Balcarras as recorded at page 91, and consequently that it was the cause of canker in the Apple trees that Mr. Reid cured by lifting. The axiom that no substance can be either colder or warmer than that which heats it has never been disputed for self-evident reasons, but Mr. Douglas's figures show that some phenomenon of this kind must have happened in Fife at one time. It has been proved "that the mean temperature of the earth exceeds that of the air on the average of the whole year." Now, the average summer temperature of the air in Fife is a good deal higher than 44°—the average figure given by him at 3 feet below the surface in summer—and as the average temperature of the earth at a greater depth than 3 feet is seldom under 50° and often much higher, there must have been a layer of earth in the gardens at Balcarras lying, so to speak, between "the frying-pan and the fire" that refused to be heated. How such a phenomenal state of things came to exist we leave your correspondent to explain, but it is to be feared the instruments must have been tampered with, as the rain-gauge was that the housemaid used to empty the decanters into raising the total to such an unprecedented figure, that the proprietor concluded there must have been a waterspout "just over its position" some time when he was absent. The ratios furnished by Mr. Douglas sufficiently show the absurdity of his figures. A difference of 17° in the space of 30 inches of depth of the surface soil was never recorded in this country under ordinary conditions, and one wonders at any writer venturing such assertions, far less founding "the cure of canker" upon them. When Mr. Douglas further states that he has "frequently cured" canker, one discounts his statements still more, because it is not given to many to have frequent chances, for the simple reason that they don't live long enough, so that those who have cured canker "frequently" must be credited with a more than patriarchal age, seeing that between the appearance of canker in a serious form and its disappearance a large portion of an ordinary lifetime is spanned. Mr. Douglas must be a very venerable individual by this time.

FIGS IN POTS are very useful, no doubt, but those who are content to have Figs in season for two or three months in autumn and can grow them well, know best what a really good and properly ripened Fig is like, and get far the best crops as well. Although three crops of Figs can be got from the plant in one year by skilful management and forcing, still the Fig tree only produces one crop naturally under a cool glass structure in this country, or on a warm wall, but that crop is a certain one, provided the wood of the trees can be ripened annually, and the way to get a crop of Figs under such circumstances is to leave the terminal shoots or points of the branches untouched by the pruning knife. It is there where the fruit is, and every top cut off is a crop lost. All who wish to grow Figs in the open air or in orchard houses must act on the plan of preserving the points of the shoots where on the axils of the leaves the future crop, sometimes partly visible the autumn previous, is produced. On Fig trees the fruit is produced one above another, like a string of Onions, and such fruit is always of the largest size and best in flavour. It matters not the least what the shape of the trees are; the main point is to have well ripened annual shoots, and as many of them as possible, provided they can expose their leaves to the light.

A RED IRIS.—What variety of the Japanese Iris is it that is painted on those beautiful Japanese screens now so frequently offered for sale by furnishing houses? I saw one the other day with a faithfully portrayed Iris of a pleasing rosy red colour, and unless the artist had been drawing on his own or someone else's imagination, he must have had his copy from Nature. What beautiful works of art of a novel kind these screens are!

PRUNING TO PROMOTE VIGOUR.—The reason I did not tell "D. D." how "to grow fine Roses to cut" was, that Rose culture was not my subject at the time, and, besides, there is no lack of information on that point. "D. D.'s" confession that he would

"turn in sorrowful disgust" from an unpruned Rose tree with its mass of leaves and flowers may be put down as an example of the effects of long-continued iteration of certain rule-of-thumb practices on some individuals. Why a vigorous Rose bush should become the prey of "foul grubs" more than any other is one of those things which such writers as "D. D." never explain, and never can. It was not I who compared the nipping of bushes by animals with "scientific pruning," as "D. D." puts it, but Mr. Wm. Paul, who sets out with the browsing idea of the ancients as his text. Moreover, unpruned Rose trees do not degenerate till they "become unrecognisable," nor anything like it, but if "D. D." prefers two or three blooms of the florist's pattern to hundreds of flowers very little inferior, and a stunted bush to a tree, no one will find fault, I daresay.

LILY OF THE VALLEY FORCED.—I regard Mr. Henderson's account of his fine Lilies of the Valley as interesting, because they were produced from home grown roots, which, except under more careful culture than is usually bestowed, do not succeed as well as imported roots. Imported Lily of the Valley roots differ from home grown ones in being much better ripened, and in having fine flower buds ready to burst. These are the kind of roots, it appears, which Mr. Elphinstone forces, and I must say that a gardener who cannot succeed with these in producing good flowers and leaves as late as February must mismanage them in some way. The difficulty with most growers, I always understood, was not the production of leaves, but flowers. If the very best samples of imported roots are potted and started in a too high temperature, they will, I am sure, produce leaves, and little else besides. In early forcing this is the evil to be guarded against, but as the season advances, leaves and flowers come in due proportion in a moderate temperature. Good flowers in January, like those of Mr. Henderson's, from home-grown roots are, however, by no means common.

S. W.

PLANTS FROM CUTTINGS.

In early spring, when all plants are feeling the effects of the increasing warmth and light, cuttings put in under glass strike freely and rapidly when the right conditions are present. Pelargoniums of all kinds will strike now with the greatest certainty in a light, warm house without any shading. The tricolors and variegated kinds strike best on a shelf near the glass at the back of a forcing house in the full light. We use 3-inch pots, well drained and filled with light sandy soil with a quarter of an inch of sand on the surface, the whole pressed in firmly and watered before the cuttings are inserted. Half-a-dozen cuttings are placed in each pot, and they are never permitted to become quite dry. With the soil in an equable condition as regards moisture cuttings thus treated root quickly. The scarlet section of Pelargoniums strike anywhere in a temperature of 60°, but they succeed best on a board or stage over the hot-water pipes, a dry heat just suiting them. Plants of bedding Pelargoniums rooted now, potted into single pots, and grown on in heat will be equal in many respects to autumn-struck cuttings. Pelargoniums last year, though very bright and full of flowers, did not make so much growth as they do generally, and in some cases cuttings in sufficient numbers could not be obtained. But by lifting a stock of old plants when the beds were cleared in autumn plenty of cuttings could then be had. Cuttings of the common bedding Pelargoniums will root freely in boxes, and those who are short of room at this season may use boxes, and then the cuttings need not be potted off. But as soon as they are rooted they should be moved to a cool house, and early in April be placed under temporary shelter in the open air.

Verbenas and soft plants generally strike with great vigour and freedom in the old-fashioned hotbed of just such a temperature as would suit

Cucumbers. Six inches of sawdust on the top furnishes a good medium for plunging the pots in, keeping the soil moist and the temperature steady. A hotbed also is very useful for raising choice seeds requiring a steady warmth for their germination. Most of the foliage plants commonly used for summer decoration will strike in moist, warm sawdust over a bed of leaves. Crotons, Dracanas, and Ficus elastica strike very freely in such a medium, but they must be taken out and potted as soon as the roots are formed, and before they are more than 1 inch long; and after the heat declines in April, when most of the soft-wooded plants are out, Tea and other Roses strike freely inserted thickly in the bed. I always find cuttings of firm wood strike best and make the best plants. The cuttings may be inserted very thickly in the sawdust, pressing it firmly about them, shading when bright, but giving little or no water beyond a very light dewing over the cuttings on bright days, potting up the plants as soon as roots are formed, and plunging the pots in the bed till the plants are well established.

E. HOBDAV.

GROUPING SUB-TROPICAL PLANTS.

ALTHOUGH the fashion of embellishing our open-air gardens in summer with fine-leaved plants of a tender nature has become so general, it is seldom indeed that one sees them arranged in a pleasing way. As a rule they are either dotted about singly in a meaningless way or placed at regular distances like trees in an Apple orchard, with apparently no regard to grouping the plants so as to harmonise or contrast with each other with respect to habit of growth or outline. One need only go through the public parks of London in summer to see how glaring this fault is. In not one of them is artistic grouping of tropical and subtropical plants carried out well; the best attempt we have seen was in Hyde Park last year in the part known as The Dell at the head of the Serpentine. The artificial ravine there is admirably suited for arranging fine-foliaged plants in an effective way, and the masses of Musas, Palms, and Cordylines had really a fine appearance last season. But in other parts one might see a solitary Palm stuck under a great deciduous tree looking quite out of place, and consequently losing half the noble aspect it would have had had it been grouped with others. The "dotting" plan only looks well in the case of great specimens placed in little nooks and recesses such as one sees carried out well in Battersea Park. How well masses of Castor-oil plants and Cannas and such like things look in contrast to even nobler plants when arranged on the dotting system. There is enough material employed in each of the parks to produce delightful groups of fine-foliaged plants if their arrangement were studied more carefully. A fair example of what we consider an effective group of fine-leaved plants is shown on the opposite page. The illustration was engraved from a photograph sent to us by Mr. Usherwood, of Dorking. It shows a group in Mr. Butler's garden at Harrow Lodge, Dorking. Here during the summer some of the larger plants are placed out from the greenhouse, and these add greatly to its beauty and to the health of the plants in that somewhat sheltered position. The principal plant in the group is a fine Musa Ensete; in front of this is a Dicksonia antarctica; to the right, Latania borbonica (Fan Palm); behind this is a tall Dracena australis (about 12 feet in height), and to the right is Seafortia elegans and Date Palm (Phoenix dactylifera). The smaller plants are Cycas revoluta, Maiden-hair and other Ferns and plants, the whole being well backed up by Laurels and some fine Oak trees.

FRUIT GARDEN.

PRUNING TO PROMOTE VIGOUR.

It is refreshing to find "J. S. W." still waging war as vigorously as ever against the pruning knife at p. 87. He marshals his arguments, ventilates his science, cites his cases, formulates his conclusions with the same confidence as if they had never been called in question. This is well so far as it goes. It carries conviction with many, and it provokes protest from the sceptical, and thus may lead to the clearer elucidation of truth. Certain it is that there is hardly a more important operation within the entire circle of horticulture than that of pruning. Nor can anyone absolutely affirm that its principle or practice is thoroughly understood, or that the last word has yet been said about pruning as a means of culture. For example, "J. S. W." contends that pruning to promote vigour is an anomaly or impossibility. Defining vigour as the power of producing the greatest amount of growth and crop in a given time, "J. S. W." contends, through p. 87, that more of both will be produced without pruning than with it. The contention is open to grave doubt, if not positive disproof. But as "J. S. W." seems fond of correct definitions, it is the more surprising that he confounds things so radically distinct as growth and crop in his definition of vigour. These two are not only widely different, but to a great extent antagonistic. The vigour that forces growth checks or reduces crops and *vice versa*. Hence the difficulty of fairly discussing the logical results of pruning or vigour, while the latter term is made to include fertility as well as growth; for if any one axiom is more clearly established in horticultural

science or experience than another, it is that growth and fertility seldom or never run in parallel lines, but in diametrically opposite directions; growth and sterility link their forces together, while fertility represents a lack of vigour or suppression or check to growth. As growth and fertility are thus to a great extent the product of opposing forces, it seems impossible that both can be either fostered or checked abreast by any one system of pruning or want of it advocated by your enthusiastic correspondent or anyone else. But "J. S. W." furnishes us with yet another description of vigour—as strong shoots, good and abundant foliage, and long life. I have purposely omitted his fair crop of fruit and flowers from this description for reasons just stated. Practically, too, long life may be eliminated. Annuals, such as Sunflowers, for example, may be as vigorous as other plants though they live but a few months, and the longevity of

plants is daily becoming of less practical importance as propagation has become more rapid, and what may be called express or intensified production is more generally practised.

The correlation of youth and vigour is so close and generally recognised by all cultivators, that it becomes of the more importance to have the question cleared of all such extraneous matters as the long or short life of individual plants. The question is less now than it ever was how long will a Rose, Vine, or any other plant live, but how much produce of the highest quality it may be made to produce in a given time? It must not, however, be taken for granted that I am about to yield the point that pruning shortens the life of individual plants. By no means. On the contrary, it may lengthen it. Non-pruned plants are apt to perish from sheer extension, ending in exhaustion. Pruning concentrates, and so augments force, and virtually renews the youth, and so lengthens the life of the plant. The

pruning as absurd. In a similar summary manner "J. S. W." dismisses the pruned Vine with the remark that nothing was put into it by cutting away the whole of its top, and nothing more could thereby come out of it. We may accept the first statement here, and with equally good logic and propriety reject the second, and show that both may put more vigour in the pruned Vine.

Supposing twelve pigs are feeding out of one trough, and eleven of them are removed or killed, would there not be many times more food for the one pig left, though nothing more were put in the trough? The illustration may not be either elegant or absolutely correct, but it is near enough for the purpose. The pruner, by reducing the buds in a wholesale way, increases the supplies for the few left, and as these ultimately appropriate the whole to their own use, they, of necessity, are better fed and become more vigorous in consequence of the

reduction of mouths. Nor does this arithmetical mode of looking at the question exhaust the invigorating advantages of close pruning. It is not true that, as nothing is put into a plant by pruning, nothing more can come out in consequence. The doctrine of the concentration of force is even more true in vegetable life than in mechanics. Granting even that no plant food was husbanded by reducing the number of buds by pruning, which I do not, yet even their vigour would be augmented by the concentration of growing force. This is a law of vegetable life established by universal observation and experience. In the early period of growth, top growth gains most by the concentration of the vigour of the plant. But as growth progresses the roots



Group of tropical and sub-tropical plants on a lawn.

vigour of plants cannot be measured off by a tape line, on the principle of so many feet in circumference or diameter to so much vital force. No, no; the smaller the area not seldom the larger and stronger the vigour. Even the size of leaf and strength of shoot are not always a safe test of actual vigour, for the real vigour of plants must be tested by what they finish more than by what they promise. But, accepting these two tests of "J. S. W." as, on the whole, reasonable, then I contend that Rose and Vine shoots, like walking-sticks, are more certainly produced by severe pruning than by not pruning.

This is almost as obvious as that twice two are four, or that three from four leaves one. "J. S. W." only reaches an opposite conclusion by confounding gross with special vigour. Toting up the vigour of his masses of small Roses, and pitting these in the gross against the vigour of a few exhibitor's Roses, he dismisses the argument in favour of

also partake of the benefit; and as the growth of the latter becomes more closely assimilated to that of the tops, they powerfully aid the plant, not only in developing a maximum amount of vigour, but in concentrating that vigour in a minimum of space. While contending that this is the uniform result of severe pruning, I would by no means contend that it is the highest object of the cultivator. On the contrary, it very seldom is, unless his object is mere bulk of grass, timber, or some other such product. Mere vigour of plant, on the whole, is seldom what the horticulturist wants. Hence, could this be secured through non-pruning, such abstention would be unwise. But my present contention is that it would not be thus reached, notwithstanding "J. S. W.'s" Rose case to the contrary. Further, this case illustrates the invigorating effect of division, replanting, and doubtless, though this is not stated, deep digging, trenching, and

manuring quite as much or more as non-pruning. For, after all, straggling shoots were sheared over once a year. Assuming, however, that these Roses, from the fact of their flowers being gathered for drying, were of the Cabbage, Moss, Provence, or Damask type, the fact of their annually sending up limbs as thick as walking-sticks is sufficiently extraordinary to make us curious to know more about them, and a few of such growths and of clothes-basket-filling boughs would prove most welcome exhibits at the summer show of the National Rose Society. For though they might fail to convince rosarians that their present systems of pruning were in league with weakness, disease, and death, while to prune not at all was the true secret of vigour, they could not fail to reflect credit on "J. S. W.'s" successful culture of old-fashioned Roses. D. T. F.

PRUNING AND ITS EFFECTS.

PRUNING is generally admitted to be one of the most important operations connected with the cultivation of plants grown either for use or ornament; but on this, as on other matters relating to gardening, opinions differ. "S." writing in *THE GARDEN* a short time back, condemned the hard pruning of young Peach trees, which he alleged used to be practised with the object of filling up the lower part of the wall, and recommended the use of maiden trees, which, he asserted, would cover a wall sooner than trained trees. The views here expressed are only partially correct. In times past mistakes were made in pruning, as at present, and they will be likely to continue if many hold the same views as the writer in question. No one is likely to defend the hard pruning of which he speaks; and if by hard pruning is meant the mischievous practice of cutting the shoots close in to the extent that used to be done in the case of newly-planted trained trees, or trees that had got established, I quite agree with the condemnation. But that kind of treatment has never been followed by those endowed with ordinary powers of observation and reflection, even in past times. The same writer tells us that it has been proved that a maiden Peach or Nectarine, if skilfully managed, will cover a wall more quickly than a trained tree. A maiden tree, planted and treated as the words used imply, has no pretensions to being skilfully managed, and, moreover, will not cover the space required in less time than a trained tree, provided both, at starting, are equal in size and general condition. If by covering the wall more quickly is meant that the maiden will sooner reach the top, the assertion may hold good, for much of the bottom of the wall will be left bare, and some of that which is occupied will be furnished with weak branches that will quickly perish through starvation, owing to the strong leading shoots in the centre monopolising all the strength—an occurrence which those who advise the use of untrained maidens admit when they say that it is not worth while troubling about covering the bottom of walls. It is, however, worth while remembering that garden walls are costly things, and those who act reasonably adopt means that will insure all the available space being covered. For my own part I would rather have a maiden than a stunted or a badly trained tree, such as one composed of a few strong shoots in the middle and weak ones right and left below them; the latter die off in time, and leave the bottom of the wall bare. But there is no need to have either stunted or badly-trained trees.

AS TO ANY CLIMATIC CHANGE interfering with the cultivation of outdoor Peaches and causing the trees not to last so long as they otherwise

would do, as mentioned by "S.," there is not an atom of evidence in that direction, but rather the reverse. Where the trees do not last so long as they used to do, the cause is not far to seek. Cheap glass caused considerable additions to be made to the indoor fruit department, and there was therefore less incentive to make the most of trees on open walls. Through this and the work required during the bedding-out mania Peach walls naturally were more or less neglected. But where the trees are kept clean, their roots properly supplied with water, and the bearing wood kept sufficiently thin, coupled with spring protection in keeping with the requirements of the locality, Peach trees will last as long and bear as well in this country as ever they did. Of this there is plenty of evidence to satisfy anyone who has had experience in outdoor Peach culture in different districts. I am acquainted with places in which Peaches are as well grown on open walls as they ever were or ever will be; whilst near at hand, under similar conditions as to soil and other local matters, the trees are in as sorry a plight as they well could be. In the former case they get all they want, and in the latter their wants are neglected. The idea that Peaches must have the borders re-made with fresh soil whenever the trees are renewed is just as fallacious as the statements already referred to. I have planted young trees in borders with no addition in the matter of soil that have done as well as I could wish them, although there had never been a barrowful of new material added for more than thirty years. That Peaches, like other trees, like new soil there is no doubt, but they will do without it provided other matters connected with their cultivation are right. There are, doubtless, many localities in which Peaches either fail altogether, or, where they do so, succeed indifferently. But the foregoing remarks do not refer to such. It is often observed that if a Peach on an open wall has a house erected over it, even if the tree is old and has little apparent vitality, it quickly takes a new lease of life. The reason is not difficult to find; when the cost of enclosing it with glass has been incurred, there is usually a disposition to give it the attention which it requires, and which, if bestowed on it in the absence of the house, would have been equally effectual. This I have proved in the case of old trees that have come under my charge in as indifferent condition as they well could be, and I have also seen similar results follow in the case of trees in bad order in the hands of others.

APPLE AND ROSE PRUNING.—Within the last few years there has been a decided movement towards a better system of Apple culture, and not before it was wanted. Though the Apple is the most important of all fruits grown in this country, there are none worse managed, especially in those parts that should be the principal sources whence a supply of the best kinds in the best condition might have been looked for, that is, from the extensive orchards in the districts where soil and climate are best suited to the growth of Apples. The retention of worthless kinds of no use for general consumption is one of the causes that have an adverse influence in the matter. But indifferent treatment in pruning, or rather an absence of any treatment in the matter, is the cause of good kinds often being so small and inferior, that they are not worth marketing. And yet, in the face of this state of affairs and of the unanimous verdict of all practically conversant with hardy fruit culture, there are some who persistently proclaim that unpruned standards are the only right form of tree—old as the practice of pruning cultivated plants is. Hazy ideas respecting it continue to be entertained. On the one hand, pruning has been described as a

means of promoting vigour; on the opposite, it is condemned as tending to weaken all plants so operated on. Pruning either as applied to a Rose bush, a fruit tree, or any other kind of plant does not increase vigour in a collective sense, that is, it does not strengthen the roots, the trunk, or the branches, but the reverse. Nor is pruning resorted to with the intention of its having such an effect, but for the purpose of concentrating the strength that is in the plant on given points. The Rose grower requiring exhibition flowers retains only a limited number of shoots, and prunes these to a few eyes, with the object of directing the strength of the plant to the production of a few growths that will give large flowers. The grower who wants as many flowers of fair quality as can be had, prunes sufficiently to enable his plants to produce them; but this is a different proceeding, and with different results from that which follows when the trees are left unpruned altogether in the way in which we are now told vigour is to be imparted. The stem of a Rose may gain in strength and thickness through being left unpruned, but Roses are not grown for the wood that is in their stems, but for their flowers, and in order to have these in condition worth the name, the plants require to be pruned. A few of the strongest climbing sorts, such as some of the Noisettes, Boursaults, and the Ayrshires, do without pruning, but they do better with it so far as thinning out the weak wood that is not strong enough to bloom is concerned. This I have proved many a time by pruning some and leaving others unpruned. Pruning is simply the means to an end: those who follow a reasonable course prune their Roses in accordance with the object they have in view—closely if they want a few large blooms, less closely if they want a good display of ordinary flowers. The intelligent Apple grower who requires good-sized fruit that will sell well prunes so far as is requisite to concentrate the strength of the trees within the needful limits that enables them to produce such in place of the starvelings that are borne by unpruned trees when they have passed the early stages of bearing, and which, as anyone conversant with the subject knows, are of little value. With standards, as with Apple trees of any form, not only is it needful to give the larger branches sufficient room, but also to keep the bearing branches thin, without which, except in the case of the largest culinary varieties, it is useless expecting fine fruit; and even in the case of large sorts it will pay well to prune sufficiently. The idea that the standard form is the best for all sorts of Apples indiscriminately is not likely to be entertained by those who are practically acquainted with the subject. The large and medium cooking varieties are the most suitable for this form of tree, such, for instance, as Dumelow's Seedling, Cobbett's Fall Pippin, Lord Suffield, Keswick Codlin, Mère de Ménage, Nelson Codlin, Yorkshire Greening, Loddington Seedling, Echlinville, Alfriston, Annie Elizabeth, Besspool, and Blenheim Pippin. With the small sorts, which include much the greater portion of the best dessert varieties, like Court Pendu Plat, Cox's Orange Pippin, Ribston Pippin, Cockle Pippin, Claygate Pearmain, Ashmead's Kernel, Fearn's Pippin, Irish Peach, Kerry Pippin, Margil, Boston Russet, and others that represent the cream of the dessert kinds, where grown as standards, all goes well for a time whilst the trees are young and in a condition to produce full-sized fruit; but when they get older and something like the maximum growth is reached, when the trees should be at their best for yielding, the fruit comes undersized to an extent that much of it is worth little. This is so apparent to those who have had anything to do with Apple growing that it seems strange

those who hold that the standard is the only right form of tree have not been able to see the inconsistency of such teaching. Whereas, if the kinds just named and other desirable varieties are grown as large bush-shaped trees, so managed as to keep them to something like 12 feet in height, they will keep on for an indefinite time producing full-sized presentable fruit.

THE NON-PRUNERS sometimes instance the growth made by ordinary forest trees of branching habit that have had from the first room for their branches to extend, with the intention of making out that the pruning of Apples is wrong. Any comparison of this kind is not admissible, the object in the two cases being totally different. The large-headed trees referred to are more for ornament than use; those who plant forest trees for use plant them close, and in so doing are the hardest of pruners, only that they get Nature to do the work, inasmuch as the branches die through not having room enough given them in which to grow. Extremes are generally best avoided, and those who proclaim against moderate pruning act as inconsistently as those who follow an opposite course. T. B.

THE QUINCE.

SHORTLY after the commencement of the present planting season I ventured a few remarks on our quaint old friend the Medlar, and now, with your permission, I should like to extend my plea in favour of another neglected member of the pomaceous division of the Rosaceae, the Quince.

Independently of the fact that the praise of this ancient tree has been sung by classical writers, that it was worshipped by the Greeks, while Hercules is credited with having stolen the historical "Golden Apples," which, by the way, were Quinces from the gardens of the Hesperides, so famous in ancient fable, the tree for its own intrinsic value as a prominent member of a well-known old family is worthy of general cultivation in our arboreta and shrubberies. If we take up any good author on hardy trees we invariably find an interesting history of the Quince. One tells us the forbidden fruit presented by Eve to her spouse, poor man, was a Quince, which Jewish tradition describes as "Golden." Another says, as I have just observed, the Golden Apples of the Hesperides were bright golden Quinces, not Oranges; while others assure us that an ancient statue of Hercules himself was found in Rome holding three Quinces in its hand. The Quince was thought by the Greeks and Romans to be the emblem of love and happiness. It was dedicated to Venus, and the temples of that goddess at Cyprus and Paphos were decorated with the fruit. The nuptial chambers were also decorated with it, and the bride and bridegroom ate of the fruit after the marriage ceremony. This custom, according to Brand in "Popular Antiquities," was continued as late as 1725, when the husband presented a Quince to his bride at an English marriage ceremony. So much for its ancient history; but what a falling off, what a far cry from the gardens of the Hesperides to an isolated corner in an out-of-the-way orchard, for this is now the fate of the classical Quince in modern England. But why allow it to remain in obscurity? Will no one introduce it as he would a standard Thorn or any other deciduous tree to his choice collection of stately Conifers, sadly

needing relief, or plant it in the shrubbery where the beauty of its flowers, independently of its golden fruit, would well repay the little care devoted to it? I well remember some years ago passing through a gentleman's orchard in Gloucestershire, and there the last tree, hemmed in by tall sheltering hedges, was a Pear-shaped Quince, literally weighed down with its bright golden fruit. It grew by the side of a small rivulet, just the very spot for it, as the beauty of its large fragrant pomes testified.

THE COMMON QUINCE (*Cydonia vulgaris*), so named by the ancients from its growing abundantly near Cydon, in the isle of Crete, is indigenous over a great extent of Europe, Asia, and the north of Africa, and is found growing in great profusion on the rocky banks of the Danube. It was introduced into this country before 1573, as we learn from Gerard, who was alive at that date, that it was often planted in hedges and fences to gardens, a fair proof that it may have been common centuries before the period mentioned. It is a hardy deciduous tree, 15 feet to 20 feet high, with crooked branches forming a bushy, spreading head, thickly clothed with bright, roundish, ovate leaves. The flower-buds push early in the spring and elongate into a branch with five or six leaves, and at the extremity a single flower, white and of great size, is produced in May or June. The fruit is large, round, or turbinate according to the variety; on approaching maturity, it assumes a fine



Fruit of the Quince (*Cydonia vulgaris*).

golden colour, giving the tree a very ornamental appearance; but owing to the strong odour, by no means unpleasant, and the austere flavour, they cannot be used in an uncooked state.

SOIL.—The Quince prefers a moist, deep soil near water; the edges of ditches or streams seem to be its favourite site, and when the soil is rich and loamy, almost approaching clay, the fruit attains its largest size and brightest colour. In light, dry soils neither the tree nor the fruit are satisfactory, a fact which accounts for the Quince having fallen into disrepute as a stock for Pears when planted indiscriminately where moist, generous food is denied it. A warm sheltered situation suits it best; but being liable to injury from intense cold, full exposure to the sun, to ripen the wood and fruit, is important.

PROPAGATION may be readily effected by means of cuttings or layers, the two modes generally adopted in this country. Cuttings of well-ripened wood of the current year put in early in the autumn soon strike root. They should be inserted in warm, moist soil, much as we plant

Rose cuttings, where they can be regularly attended with water in dry weather. If intended for Pear stocks, they should be transplanted into nursery lines, when they will be fit for working the second or third year. Layers put down in the autumn make plants quickly, and soon become fit for removal from the stools. If wanted to form standards for planting in orchards or pleasure grounds, they should be transferred to good ground, where they can be allowed to grow for a year, when they must be cut down to induce the growth of a vigorous shoot from one of the lowest buds. This shoot must be carefully trained to a straight stake, all side shoots being pinched, not too close at first, until it has attained the required height for the formation of the head. The Quince being a straggling, grovelling grower, incessant attention to the training of the stock is needful, and as most planters require only a few trees, it is questionable if the cheapest, certainly the quickest, mode of procedure would not be by purchase from a good nursery. Bought trees should then, if possible, be planted where they are to remain, as frequent removal means loss of time and stunted growth. When thoroughly established, the head should be formed by cutting out all cross shoots and shortening strong ones to secure an even distribution of the sap, much as we prune and manipulate Apples and Pears. In course of time, if neglected, the trees will tend to a horizontal or pendulous habit of growth, but the object, at least for ornamental purposes, being the reverse of this, the drooping shoots which would soon hide the bright grey stems must be cut away, while others taking a vertical direction should be encouraged.

VARIETIES.—The three principal varieties grown in this country are the Apple-shaped, the Pear-shaped, and the Portugal.

1. The Apple-shaped Quince is a round, full shaped fruit resembling the Apple, as its name implies. The tree is quite hardy, bears abundantly, and the fruit is excellent, but it does not keep long after it is ripe.

2. The Pear-shaped Quince is the one which is most generally grown. It is hardy, bears well, and although not so juicy keeps longer than the round-fruited variety. The tree of this variety being often extremely quaint and ornamental is one of the best for general cultivation on the lawn, in the shrubbery, or in the grounds, where, in company with the Thorns or backed up by dark Evergreens, it produces a most pleasing and picturesque effect. When laden with its large, bright golden, Pear-shaped fruit, even in this country, its beauty is greatly enhanced, and one can readily imagine what lovely objects the numerous trees of this variety must have been in the south of Europe.

3. The Portugal Quince is a shy bearer in this country. The tree is a much taller and stronger grower than either of the preceding, and for this reason it is frequently planted for the ornamental appearance of its flowers and fruit. The fruit is also less astringent in flavour, and turning, as it does, to a rich red colour in cooking, it is much prized for making into marmalade and jam. Although less prolific, its vigorous growth gives it the highest value in the nursery garden, as it is to this variety we are indebted for stocks for our millions of dwarf bush and pyramidal Pears.

Of recent introduction Messrs. Bunyard offer Reay's Prolific and Champion. The first is an American variety; the second they believe to be the finest yet raised. W. COLEMAN.

Strawberries in cold frames.—Merely a covering of glass, without anything else, forwards such things as Strawberries and Asparagus immensely, and there is often a considerable break between the

last of the forced crops and the first from the open ground; especially is this so during cold backward seasons, and the cold frame supply meets this deficiency. There are several ways of carrying out the plan. Sometimes a reserve stock is grown in pots and plunged in a bed of soil and manure within a foot of the glass. The roots will find their way out of the bottom of the pots and draw nourishment from the compost in which they are plunged. Good crops are invariably obtained in this way. Now that movable frames are so common and so cheap, one of the uses to which they might be applied is covering a bed of Strawberries to bring the fruit on before the bulk comes in. They need not be put on the beds before March, as the Strawberry plant is hardy enough, and the low temperature of winter has a beneficial resting effect if the crowns have made the requisite growth in autumn.—E. HOBDAY.

Apples on the Paradise stock.—A recent writer in THE GARDEN has good words for these fruitful shrubs. There is much to say in their favour, and the wonder is that more of them are not planted. They will fruit the second year, and bear an annual crop afterwards, and the fruit is usually very fair and fine, often surpassing that grown upon standard trees for colour and quality. Each little twig realises that it has to produce its share of Apples, and it is this unanimous self-imposed responsibility which so frequently results in the surprising load of fine fruit one sees upon these little trees. They are the only form of Apple trees that should ever be planted in a small cultivated garden. Where space is important they may be placed even 5 feet asunder, care being taken that the planting is not deep enough to induce roots above the stock. Very little pruning is required, and as the roots are near the surface, digging near the trees should be avoided. Of course few would think of planting these for profit or market, and yet an acre of them in full bearing would give a fine product. But it takes years to get a standard Apple tree in bearing, and then it wants a vast amount of room to spread itself, more than it usually gets, in fact, for it is wide-spreading. All this time the little Paradise tree has been dropping its ruddy fruits in your lap, and you have been admiring its beauty in your garden or lawn, for it really is a very pretty little thing, and worth growing as an ornament merely. Then, too, see how many varieties can be grown on a small plot, and how soon one can see what a new Apple is like by placing Paradise roots under it and getting the fruit right away. There is only a single trouble with me, and that may perhaps be prevented by extra vigilance. The borer is specially fond of this stock, and will soon cut off your trees at the ground unless rooted on the start. But my advice is by all means plant Paradise Apple trees.—H. HENDRICKS, Kingston, N.Y.

Unnailing Peach trees.—I perceive that "W. C. T." (p. 92) considers it safe to unnailed Peach trees earlier than the end of January. Perhaps he has not been so unfortunate as to have the wood of his Peach trees killed by severe frost, and therefore he cannot understand how it can occur in less favourable positions. I can assure him, however, that I have had some painful experience of the power of frost to injure the young wood of Peach trees. When writing the remarks to which "W. C. T." alludes, my memory carried me back to the severe winter of 1860, and again to 1866. In the first-named year I had all my Peach trees unnailed at the end of November; the severe frost that occurred before the end of December killed more than half of the wood on some trees and terribly disfigured others. In the year 1866 I saw some Peach trees in a large garden not far from Watford which had also suffered terribly from the effects of frost. Therefore, ever since then I have been very cautious in dealing with Peach trees during winter, and in recommending others how to treat them; but it is only right to say that in both the cases to which I have referred the position of the gardens was low, and therefore liable to feel severely the effects of intense frost. I therefore know from actual experience that the advice which I gave was sound, and that it was best to err on the safe side. After such experience I could not recommend the unnailed of Peach trees earlier in the winter in all sorts of positions, although it may be safe to do

so in many gardens where the position is high and the soil naturally dry. With reference to the winter dressing of Peach trees, "W. C. T." could not have read my remarks very attentively, or he would have understood that I was not opposed to such a course as he advocates of syringing the trees with diluted paraffin; the practice to which I object is that of painting the branches with a compound of clay, soot, and other obnoxious materials, which, I am persuaded, do more harm than good. For myself, I quite agree with the treatment which he advocates. I believe it to be capable of destroying insect pests without doing any harm to the trees.—J. C. C.

ROSE GARDEN.

FRAGRANT-LEAVED ROSES.

THE foliage of Roses is by no means without odour, and its amount and character vary very considerably between differing Roses and distinct species. But it is not of such differences, however interesting, that I would now write, but of the desirability of endowing our best and most popular garden Roses with the fragrant foliage of the Sweet Brier. No doubt not a few rosarians will deprecate the attempt, as a step backwards, while some botanists may assure us that it is impossible. The latter, however, remains to be proved; and, so far as I am aware, there is no physical or physiological obstacles in the way to prevent the crossing of the Sweet Brier with our Roses. Assuredly it forms a rather indifferent stock, but that affords no proof against its intercrossing. Neither do I think it would prove a step backward, but a long one forward, could we furnish our modern Roses with Sweet Brier leaves, even though our flowers lost size and a good many of them became single or semi-double in the process. Neither might such a reversion to single types take place, for we have one or more double Sweet Briers; and no doubt a greater variety of Briers would be forthcoming were a demand to arise for them for cross-breeding or other purposes.

The following varieties of the Sweet Brier and probably others are already in cultivation, in addition to great variation in colour and character of the common Sweet Brier, or *Rosa rubiginosa*: Double white, double scarlet, scarlet or deep red; Splendid, light crimson; Celestial, semi-double, blush; Rose Aigle, lilac-rose; Superb, red. In the last sort the flowers, if not the leaves, seem more fragrant than in any other variety. Several of these varieties vary a good deal in size, and even form, of flower. The range of colour is also very wide and varied; and could a yellow Sweet Brier be obtained by crossing with *Harrisoni* (Austrian Brier) or the old yellow Cabbage (*Rosa sulphurea*), or by any other means, we would have sweet-foliaged Briers of nearly all possible shades of colour. The odour of the Sweet Brier is so universally popular, that the attempt to impart it to our Tea, Perpetual, and other Roses is worth almost any effort. Possibly, too, by reverting to such primitive types as our Sweet and other Briers and single or semi-double species of Roses, new forms and mixed types would be produced of special botanical interest and decorative value. It is hardly likely the success would be so great as to result in producing boxes of show Roses with Sweet Brier leaves, but a multiplication of the number and enlargement of the size of such Briers would be a decided gain to our all too scanty list of fragrant-leaved plants; while should the crosses take freely, entire new races of fragrant-leaved Roses would greatly enrich as well as sweeten our future gardens and landscapes.

Roses are not so easily crossed as many other

flowers, and as a means of obtaining chance hybrids, as well as of adding greatly to the interest and enjoyment of most beds and gardens of Roses, it would be well to surround or entwine them with hedges or plants of the common Sweet Brier and as many of its varieties as could be obtained. Most of these seed freely, and under such conditions and in close proximity to so many varieties of Rose, the probability is that a good many chance flowers would be fertilised with strange pollen. There are, however, difficulties in the way of this happening, unless the Roses bloom simultaneously with the Sweet Briers. Even such semi-double Roses as some of the Moss, Provence, Albas, Chinese, and the old Damask Rose de Roi would be more likely to cross with the Briers than the latter blooms of Teas and Hybrid Perpetuals. The autumnal blooms of the latter yield the most pollen and set and swell seeds the most freely; and as we have not as yet an autumnal strain of Sweet Briers, it will be desirable to husband a good stock of pollen to use at that season when the double flowers have become less double, and fertilisation becomes in consequence at once more easy and more sure. Will Mr. Bennett, whose skill and genius is about to enrich our gardens with Her Majesty, turn his attention to the passing of the fragrance of the Sweet Brier into the leaves of our Roses, and thus make us all more deeply his debtors? By the way, if Her Majesty is a cross between Mabel Morrison and Canary, it would be interesting to know which was the seed-bearing parent. Her Majesty may also be accepted as a proof that in cross-breeding it is often the unexpected that occurs, for here we have a soft yellow semi-double Tea, and little better than a semi-double Perpetual, with the faintest dash of white, producing between them a larger double rose-pink Rose than La France having, according to all reports and illustrations, little in common with either of its parents; hence we do not despair of having Her Majesty and La France yet further enriched with Sweet Brier leaves.

D. T. F.

FLOWER GARDEN.

MY WORK AMONG HELLEBORES.

FOR a great many years I have been growing Hellebores from seed and endeavouring to raise new varieties. I have also collected most of the well-known varieties. Unfortunately, the Dutch growers are apt to send varieties untrue to name, and I have received from one great firm at Haarlem, under the names of *H. niger ruber* and *H. niger de Graaff*, a common red *H. atro-rubens* and a common *niger*. Who will help to put down this unfair custom?

DIVISION.—To separate Hellebores the best way is to lift them early in autumn and put the roots under a strong jet of water. Then, when all the soil is washed out, cut with a very sharp knife the different divisions of the rootstock as required. Then put the whole mass into a pail of water and pull the cut portions apart. In doing this under water not a root will be injured. This is the best way to divide rare Tritomas.

ASPECT.—The best aspect is facing west, as nothing does the young plants so much harm in early spring as the sun coming on their leaves when hard frozen. Though they like plenty of water, they ought to go very deep for it, and never have it stay near their crowns; so in recommending the soil to be moist, as most treatises do, there is great danger of producing those curious deformed buds which so often appear in

spring, and are not the result of slugs, but of defective root action. Every Hellebore observer will confirm my remarks. They will do well under trees if the tree's roots are not plentiful, and one well-known grower plants her Hellebores in sawdust which has previously been prepared by exposure to the weather. The soil at Bingham was a most unfortunate one for Hellebores—very deep black clay, which became very wet in spring and baked hard in summer. I should most of all prefer a soil on the new red or old red sandstone, or any alluvial deposit of any kind. Rapid drainage, partial shade, and moisture in summer and dryness in winter are what is most wanted. A little loose Moss on the soil will keep the blooms free of splashed mud. In some soils, such as in Mr. Wolley Dod's garden at Edge, Malpas, *H. niger* seems to absolutely refuse to grow in any situation, or in any compost. Under Gooseberry or Currant bushes and low fruit trees, Hellebores grow well. And I remember a bed of fine plants of *niger* also planted in full sun. Only those grew that were partly under some dwarf Pear trees.

PROPAGATION BY SEED.—I always found my *nigers* at Bingham seed freely, though I have never seen a seed on *maximus*, or could ever obtain one in any way. Directly the seed was ready to drop, before it had quite opened its seed capsules, it was put on sandy soil in wooden boxes and a slate pressed firmly down on it, the slate absolutely lying on the seed. These boxes were placed in the shade. In October they were moved into a frame to be more carefully guarded from slugs. About December, if the slates are lifted, every seed is found to be coming up strongly. Nearly all the Hellebores at Sunnyside were thus raised from seed, but they have not shown much variety and have been very much injured by being improperly planted while I was away in London. I have nearly all the well-known varieties of Hellebores, and a great many seedlings of the Lenten Rose kind, differing not much from known varieties, though they were all the result of careful crosses by hand. There is a good batch of my seedlings at the Apothecaries' Garden at Chelsea. One of the best and most striking of all the tall-growing kinds I know of is the Continental *H. luteus grandiflorus*, which makes a great contrast to the dark red *colchicus*. The finest plants I ever saw of *giganteus* (*maximus*, *altifolius*) are at Mr. Wolley Dod's garden, where a glass is placed over them in the autumn. The flowers are enormous and in great profusion; indeed, there is no plant, hardy or tropical, so splendid as this great white Hellebore when properly grown.

HYBRIDISATION.—Mr. Burbidge has asked if anyone has crossed *niger* with *atrorubens* and the taller-growing kinds. The first experiment I made of this sort was crossing *niger* on to *foetidus*, the great creamy-green English wild plant. This was done under a large handglass raised over the plant, and every bloom of *foetidus* depollinised before it quite opened. The pollen of *niger*, nicely dry from a cool-house flower, was applied. Most of the flowers set seed. The seedlings were not quite so tall as *foetidus*, and showed no alteration in their colour or size. This was an interesting, but disheartening, experiment. Then I got *niger* into pots, and with great care crossed it with *atrorubens*. These crosses are now at Mr. Barr's nursery at Tooting. There is no appearance in the leaf of any cross, and yet no possible dust even of pollen of their own kind could have approached the flower. I raised also a quantity of *niger* crossed with *maximus*, and of these seedlings a considerable number are also at Tooting, and I have hopes may give us something good. These experiments being failures

should not debar other people from trying, as they show us that *niger* when carefully depollinised yields seed to the pollen of Hellebores widely distinct from itself. FRANK MILES.

Sunnyside, Shirehampton, Bristol.

SINGLE AND DOUBLE POPPIES.

ALMOST as long as one can remember, annual Poppies in some form or other have been grown in gardens, but until recently we had no such bright colours as are now to be found in *Papaver umbrosum*, *P. Danebrog*, and *P. Hookeri*. Those grown previous to the introduction of these were confined to the Opium Poppy group (*P. somniferum*), and in any cottage garden might have been seen a dozen or more kinds all different in colour and varying from single to double. Some Poppies unfortunately, and *Rhæas* in particular, do not keep long when cut, although scarcely as bad as Burns asserts them to be, when he says:

But pleasures are like Poppies spread;
You seize the flower; its bloom is shed.

On the contrary, all the double forms keep for days in water, and even the intense scarlet flowers of the Oriental single Poppy, if cut when the buds are just opening, will unfold its great petals



Double and single *Papaver Hookeri*.

and keep together for a considerable time in a cool shady room. From the great and ever-increasing numbers now in cultivation, select kinds that are bright in colour, and a change of position may sometimes be needful. This may be done by simply carrying a pod or two of seed and sowing wherever it may be desired. They will germinate in favourable seasons almost as soon as sown, and become sturdy plants by spring, and ready on the first approach of summer weather to burst into flower. *P. Hookeri*, represented in this illustration, was, we believe, sent to Kew amongst a miscellaneous collection of seeds from Cashmere about two years ago, and although no double forms of it appeared in the bed the first year, we now find them in gardens as double as a *Hollyhock*, and varying in colour from the most vivid scarlet to pure unspotted white. The native country of this plant seems to be unknown; it is said to have been long cultivated and is now fairly common in gardens in India, so that one can only guess at its origin. Its nearest affinity seems to be *Rhæas*. It is indeed not improbable that that species may have been introduced to India, and under altered circumstances assumed its present form. It may be briefly described as having the leaves and flowers of a *Rhæas*, while the capsule more nearly resembles that of *P. somniferum*. It is an excellent garden plant, and one which should be in every collection. We must not overlook the Munstead Poppies; though not annuals, properly speaking,

they do well under almost the same conditions as those here described, *i.e.*, sowing this year for next year's supply of bloom; we are indeed not certain that the produce of annual sowings is not larger and better coloured than that of old plants—they are certainly more numerous. *P. Hookeri* likes a very rich, light soil, plenty of sunshine and plenty of water. *Hooker's* double Poppy has been introduced to cultivation by Messrs. Haage and Schmidt, of Erfurt. K.

IRISH DAFFODILS.

THE climate of Ireland, with the direct influence of the Gulf Stream on its shores, is both mild and humid. We have therefore many cultural advantages which England does not possess. If, for instance, we had a rich capital in Dublin and a better spirit existing among all parties, we, in South Cork, would be induced to make another Cornwall of the south-western portion of that county for the supply of early flowers, fruits and vegetables. As it is, with direct rail communication from Bantry via Dublin and Holyhead, I don't see why, with some encouragement in the way of State purchases of land put out in allotments for enterprising market growers, we could not be in a few years able to compete, certainly in early produce, with Cornwall. For instance, all round Glengariffe Bay, scarlet *Pelargoniums*, blue *Lobelias*, and yellow *Calceolarias* live out of doors during many of our winters; and just this time twelvemonth I tested the matter by getting cut blooms of beautiful wild double Daffodils from near Whiddy Island, while I failed at the same time in procuring any from the southern portion of England. Some may say, what has this to do with the big early Irish Daffodil? I answer, nothing more than merely to reiterate all that the Rev. Wolley Dod has said in its praise and earliness under climatic advantages. I have two varieties now in flower the one larger than the other, but both equally early. The larger I purpose calling in Irish "*Ard-Righ*" or Irish King, in order to give it "a local habitation and a name;" the other, the King's Son—in Irish, "*Tanist* or *Roy-damna*." I hope to have no opposition in this matter at South Kensington, though I believe the bulb is already catalogued as "*Yellow King*," but not certified. I am obliged to the Rev. Wolley Dod for his notes in *THE GARDEN* (p. 101). Ireland being isolated from the influence of South Kensington, one (like Mr. Krelage, with his General Gordon) incurs some danger by giving names to Daffodils. It is but two years since we had our Daffodil conference, and it is a wonder to me after what the Rev. Wolley Dod says how this Irish King Daffodil, so full of promise and with so good a character, should not have been thought of until now, as it appears he has been growing it for seven years. I certainly would have written or said something of the giant, but could not until I first saw what others had by way of contrast.

I potted all the following the first week in October and they came into bloom in the order here given, viz.:—

| Name. | Native grown | First bloom. |
|---|----------------------|-------------------|
| <i>Pallidus precox</i> | Native grown | Dec. 25, 1885. |
| " " | One-year Irish grown | Jan. 25, 1886. |
| <i>Ard-Righ</i> , or Irish King | Native grown | Jan. 10 " |
| The Tanist, or King's Son | Native grown | Jan. 18 " |
| <i>Italian pseudo-Narcissus</i> , or <i>precox</i> | Irish grown | Jan. 18 " |
| <i>Obvallaris</i> | Tenby bulbs | Jan. 20 " |
| <i>Lobularis</i> | Dutch bulbs | Jan. 24 " |
| <i>Golden princeps</i> var. <i>Telamonius</i> , a fine Daffodil | Native bulbs | Jan. 26 " |
| Minnie Warren, smallest white known | Native bulbs | Jan. 27 " |
| <i>Trumpet maximus</i> | Native bulbs | Jan. 29 " |
| Dutch forms of <i>spurius</i> | Dutch bulbs | Jan. 29 " |
| <i>Incomparabilis Stella</i> | Irish grown | Jan. 30 " |
| <i>Irish princeps</i> | Native bulbs | Jan. 30 " |
| <i>Propinquus</i> | Dutch bulbs | Feb. 6 " |
| <i>Trumpet major</i> | Irish bulbs | Not yet in bloom. |

The above list puts the Irish King and his son in good places, and I purpose potting them in August of this year, if spared, and sending to *THE GARDEN* cut blooms in November and December.

I made another experiment in connection with the Irish giants with six sorts grown in England, all

forms of *spurius*. I potted them in the first week in November, and cut the first blooms last week, while the English sorts are only just above the pot's rim; the varieties out of doors will all bloom this month (February).
WM. BAYLOR HARTLAND.

Temple Hill, Cork.

Corbularia monophylla I have now in flower in the open air. After repeated failures, from planting in places where the conditions were unfavourable, it is pleasant to be able to report success. These are growing within a few inches of the foot of a wall facing west, in the spaces between the roots of some Vines that are trained to cover the wall. The foliage of the Vines keeps the ground close to the wall very dry all the summer, and gives the bulbs the thorough ripening and drying they require. The soil is very light and sandy. They had a covering of snow for a week till within a few days of the present date (Jan. 29), but are none the worse. Some flowers are expanded, and the crop of plump buds promises a liberal show of bloom shortly. *Corbularia citrina*, its rather harder sister, rejoices in the same position. Indeed, it would doubtless suit all the tenderer of the Hoop-petticoat Daffodils. From the appearance of the buds it would appear that *C. citrina* will follow *C. monophylla* at about a fortnight's interval.—G. J., *West Surrey, in Field.*

Snowdrops, single and double.—In Mr. Allen's admirable article in *THE GARDEN* (p. 75) he says of *Galanthus nivalis*, "it will grow anywhere, everywhere"; and on p. 112, "D. T. F." says, "I wish some remedy could be found for the doubling of *nivalis*; in some places singles are becoming almost extinct," from which I infer that in his experience single *nivalis* turns into double. This is not my experience in either case. My sad lot is that I am compelled to insert a little negative in Mr. Allen's sentence and say of single *nivalis* "it will 'not' grow anywhere," and here I am at one with "D. T. F.," for in my borders, on my lawn, in my wood single *nivalis* is practically extinct, but I have never noticed it turn into double, although I have watched it most carefully. During the last five years I have purchased about 5000 single *nivalis*; they have been planted in clumps and carefully marked; they bloom well the first year, poorly the second, hardly at all the third, and then only a label remains to show where they should be! Plants of double *nivalis*, on the other hand, flourish and increase very rapidly, but in no case has one appeared in the place of the true clumps of single. I do not say "D. T. F." is wrong; but though I have carefully watched, I have never detected conversion, and, as a fact, my clumps of singles have disappeared and my clumps of doubles have increased. May it not be that "D. T. F.'s" clumps of single had a few stray doubles when they were planted, and these flourished amid the ruins of their far lovelier companions? or that the seed of some of the singles have produced doubles, which have grown up amid the decaying fibres of their parents? I am not yet convinced that the theory of the conversion of true single-flowering bulbs of any kind into true doubles is not due to seeding or to inexact observation and marking.—W. WILKS, *Shirley Vicarage.*

Antirrhinums.—It is worthy of notice that old plants of these in a large mass have stood the winter remarkably well, and now look green and vigorous. I have seen very often similar breadths totally destroyed when the winters have been milder, but perhaps rather wetter than the present one so far has been. It is difficult to account for such diverse results, but it may to some extent be due to the prevalence of some fungus at certain seasons. Although I usually treat the Antirrhinum as an annual, yet it is pleasant to get the plants which first bloomed the preceding year to stand well through the winter, as then only can the real character of the Snapdragon be seen. From the base of the plants come up stout stems, and these produce grand spikes of bloom such as the best annual plants cannot give. Next to having a quantity of winter plants to bloom early in the summer, there is the advantage of securing a much more lengthened season of bloom, as ere these have finished blooming the spring-sown plants come in and continue the succession of flowers till late in

the autumn. Snapdragons are quite as great favourites in the garden with most people as Sweet Williams are, but with this advantage that they will bloom freely the same season if seed be sown early. Whilst the dwarf strains are so pretty when employed for bedding purposes, the finer or taller kinds give the best general effects and much the finest spikes and blooms. Rich and various coloured selfs, beautiful stripes and flakes, singular and most pleasing bicolors are all found in any good large flower strain. The larger spikes are not adapted for cutting, but when the side shoots break out later these give quite a wealth of material for cutting. Seed may be sown at once in a frame or greenhouse, and plants will be ready to dibble out early in the month of May.—A. D.

INDOOR GARDEN.

DIPLADENIA BOLIVIENSIS.

AMONGST twining plants there are few that possess so many desirable properties as the different *Dipladenias*. Like many other cultivated plants, some of the varieties raised from seed surpass the species from which they have sprung in floral beauty, and in the case of some of the seedlings flowers are produced with even greater freedom than by the species themselves. When *Dipladenias* are in good condition they give a continuous succession of bloom for six or seven months, but they are somewhat difficult to manage, and, therefore, many are deterred from attempting their cultivation. The cause of failure when it occurs, in nine cases out of ten arises through over-watering; if the soil is kept as wet, even in the height of the growing season, as most plants require to have it, the feeding fibres will be almost sure to perish, leaving the tuber-like roots with nothing to support them. In this way the plants frequently linger on for a time, making next to no top growth and ultimately dying off altogether. Through this natural tenderness of the roots *Dipladenias* are not so well adapted for planting out as some kinds of plants are. There is more likelihood of the soil getting too wet than when in pots, and there is not the same chance afforded of renewing it annually. The Bolivian species is, however, an exception, in so far that it is much less impatient of water in the soil than any of the others, either species or varieties. Indeed, in order to see it attain the strength and size of which it is capable it requires to be planted out. Although a somewhat slow grower it ultimately attains a size and strength much in excess of all the others. Another important matter in its favour is that it will succeed with less heat than any of the other kinds. It will even thrive in an intermediate house, though its season of flowering when thus grown is, as a matter of course, much shorter than where more heat is given; so treated, it does not begin to bloom so soon in spring, nor does it keep on so late in autumn. In a house where there is room it will cover a large space—as much in fact as that generally allowed for a *Stephanotis*, and it should be trained to the roof in the same way.

THE SIZE OF THE BED that it occupies should necessarily be ruled by the size to which the head of the plant is to be allowed to grow; where there is plenty of head room the roots will fill a bed 2 yards square. In preparing this, 3 inches or 4 inches of drainage material should be put in the bottom, and over that a layer of pieces of turfy peat; the soil ought to consist of the best fibrous peat, chopped or broken into pieces the size of hens' eggs, keeping all the finer earthy matter out, as the object is to make a bed that will last for some years. With a view to still further secure this, there should, in addition to the usual quantity of sand, be a good sprinkling

of broken crocks mixed with the soil. The bed should be about 9 inches or 10 inches deep; it will be better the first year to make up only half the space that is ultimately to be occupied, as this will give the roots a better chance of taking possession of the soil before it has any tendency to get too wet, for it is well to bear in mind that the soil of which a bed consists, that is, under the influence of the heat and moisture present in a house of this description when comparatively out of the reach of the drying influence of the air, much sooner gets unsuitable for the roots of plants than in a greenhouse. The plant to be turned out should be strong, such, for instance, as has been grown for a year or two in a pot, as young weak examples of this and similar things have not the amount of roots sufficient to enable them to occupy the soil within a reasonable time after planting, and which it is desirable they should, as where present in sufficient quantity they keep the soil sweet by extracting the moisture from it. The ball which the roots occupy should be carefully handled in getting the old effete soil away and loosening the roots, as if bent about much they are likely to get injured to an extent that will take the plant much time to make good.

PLANT OUT in February in a house in which there is warmth enough to excite growth, as by getting the plants to move thus early a longer season of growth will be secured. The bed should be made up several days before the plant is put in it, so as to admit of the soil getting warm. In planting, press the material moderately firm about the roots, but in doing this it is necessary to be careful not to injure them, as their fleshy nature causes them to be liable to rot if cracked or bruised. Presuming that the soil is in right condition as to moisture at the time of planting, neither too wet nor too dry, no water must be given until it has got so dry as to require moistening, which will possibly be in the course of two or three weeks. A sprinkle with the syringe overhead once a day will assist growth, continuing this through the season, as even when in bloom the flowers will not be injured thereby, and it is a necessary operation to keep down insects which, like most other plants grown in heat, it is subject to. It is not advisable to cut the plant in previous to planting out, except so far as the shortening of any shoots that are much longer or stronger than the rest, for the larger the head the more flower may be looked for. In summer, when root and top-growth is moving freely, manure water, not too strong, may be given every time the soil requires moistening, discontinuing its use when the rate of progress becomes less in autumn. It is not well to cut the shoots in much until the space to be occupied is filled, after which it will be advisable to shorten a few of the branches back near to where they begin to spread out under the roof so as to keep the whole space furnished with flowering wood. So far, nothing has been said about the flowers, which differ much from most others of the genus, being much smaller. They are trumpet shaped, and about 2 inches, or a little more, in diameter, pure white in colour, with a conspicuous orange mark at the mouth of the tube. There is a peculiar elegance in the appearance of the flowers that have a silky smoothness in their texture that is equalled by few things; they last well in water, or made up in bouquets, for which purpose they are well adapted. The distinct appearance and the purity of the colour have made this *Dipladenia* a favourite with the London bouquetists, but so far only a few of the market growers have made the acquaintance of the plant. The flowers are equally suitable for arranging in the shallow little bowls and stands that have now all but taken the place

of the taller receptacles. There is scarcely any plant that could be named that will give such an immense number of flowers during the long season it blooms as this *Dipladenia*, and there is no stove climber that better deserves a place.

HYBRIDISING.—That the different species of *Dipladenia* cross freely is shown by the beautiful varieties, such as *D. amabilis*, *D. Brearleyana*, *D. insignis*, and others, which have originated by crossing *D. crassinoda* with *D. splendens*. It seems strange that no one tries what can be done with the plant under notice and *D. crassinoda*, or any of the seedlings named. If *D. boliviensis* was fertilised with the pollen of any of the high-coloured sorts, thus making it the seed parent, the progeny might be expected to partake of its hardy constitution, and so getting a race of plants that require less careful management.

T. B.

GREENHOUSE EUPATORIUMS.

ALTHOUGH a very large proportion of the species of *Eupatorium* are what are usually termed weedy, there are a few decidedly ornamental and useful for greenhouse decoration. The genus, which now includes the plants formerly known as *Hebecliniums*, has been very materially improved for horticultural purposes in consequence of that addition being made. All *Eupatoriums* are of easy culture, but they well repay for liberal treatment by producing much larger corymbs of flower-heads. Cuttings strike readily in spring and may be grown all summer in frames. In winter some species require more heat than others; consequently it will perhaps be best to give them attention individually. Throughout February and on till April good bushy plants of *E. atro-rubens* and *E. ianthinum* (generally grown as *Hebecliniums*) are very conspicuous arranged amongst other greenhouse occupants, and seldom fail to gain admiration because of their distinct and ornamental character. In spring it is not unfrequent to have a sort of glut amongst greenhouse flowering plants, and if these lack variety a too frequent repetition on the stages is an inevitable result. *E. atro-rubens* is, moreover, attractive on account of its fine large leaves and dark hairy stems, as well as for its numerous flower-heads. This species and *E. ianthinum* are natives of Mexico and require a warm greenhouse or cool stove temperature in winter, the season when a great part of their growth is made. Young cuttings of either species root readily in spring and summer after the stock plants have flowered and any cuttings can be procured. They may be grown on and flowered the following spring as plants with single terminal corymbs. After flowering, a resting period should be allowed by partially withholding water and subjecting the plants to a cool temperature. It is not a good plan to lay them under a stage, a plan sometimes adopted, as they become too dry at the roots and do not start again properly when required. Towards the latter part of summer watering may again be practised and growth for the following year encouraged. So soon as it commences, repotting should be attended to, but pots small in proportion to the size of plant are much better than the reverse. If pruned back each year after flowering large bushes may, in course of time, be obtained, and under proper treatment there are few of the shoots which fail to produce flowers. It is advisable to keep propagating a few for replacing any that become too old and do not break readily after being rested. A rough, rich soil, good drainage, and plenty of water when growing are the principal cultural requirements; a little artificial manure acts most beneficially after the flower-heads are formed by assisting their proper development. A winter temperature of from

60° to 65° in mild weather is not too hot for the species of *Eupatorium* already referred to; 10° less when the plants begin flowering will suffice, but the leaves soon droop if subjected to cold.

Amongst cool greenhouse kinds there are three well deserving of culture which flower at different seasons and are quite distinct the one from the other. *E. Weinmannianum* is a shrubby species commonly grown under the name of *E. odoratum*. Its flowers are fragrant and produced in corymbose heads in early autumn and winter. This merely requires a little cutting in after flowering and an annual repotting early in spring; it will do then in pits under the same treatment accorded many other greenhouse subjects during summer. Succeeding this in the order of flowering comes *E. riparium*, a slender-growing, somewhat spreading species with small flower-heads very numerous disposed in terminal and axillary corymbs. It grows very freely, and is best propagated from cuttings each spring. Single plants may be grown in 5-inch pots, but a far more satisfactory method is to place three plants each triangle shape in pots of about 7 inches diameter, and train the growths a little to a few slender stakes. In this way large specimens may be obtained that have a more marked effect, and are far more useful generally than single plants, which become more or less starved in small pots before the flowering period arrives. The other *Eupatorium* to which I wish to refer is *E. ferrugineum*, sometimes met with in gardens under the name of *E. Wendlandi*. It follows the last named in flowering, and succeeds under precisely the same treatment. Neither will bear subjecting to much heat without becoming weakened and drawn. Any airy frame will suit them all summer, and a house where frost is merely excluded is warm enough in winter. *E. ferrugineum* is a free, upright-growing plant which attains a height of from 2 feet to 3 feet, and if pinched in the early part of the season will form bushy specimens in 5-inch pots. These are, perhaps, best grown singly in that size, or in 6-inch pots, and one of the main objects should be to keep them as dwarf as possible by maintaining a cool temperature and admitting plenty of air whenever weather permits. The terminal corymbs and the individual flower-heads of *E. ferrugineum* are rather large compared with those of the other two species; the flower-heads in each case are white. Those of *E. ianthinum* are pale purple, and those of *E. atro-rubens* are reddish, shaded lilac.

A rich compost consisting of two parts loam, one of fairly dry cow or horse manure, and one of leaf soil will suit all the greenhouse *Eupatoriums* for their final potting. Insufficient attention to these plants in summer is doubtless the explanation of their being so seldom seen in a good, floriferous condition in spring. The two Mexican species first mentioned are really deserving of better treatment, and the others are very useful where a greenhouse has to be kept furnished all the year round. Provide liberal treatment, and good growth, which is especially an essential in the successful culture of all terminal flowering subjects, will, with the plants under notice, be almost certain to follow.

J. G. K.

SHORT NOTES.—INDOOR.

Azalea Fielder's White.—One of your readers wishes to know the origin of this *Azalea*. It was raised from seed by Mr. Fielder, gardener, Enfield Chase, and I think Mr. Fraser, of Lea Bridge, had the stock of it for distribution.—J. SPEED, Bolton Abbey, Skipton.

Erica melanthera.—A specimen which we have of this is by no means unattractive. It is nearly 5 feet in height, pyramidal, and literally covered with an innumerable number of small flowers; and although it has not been repotted for the past five years, it makes good growth and is otherwise healthy.—J. C. C.

Lapagerias best in pots.—Amongst greenhouse climbers the red and white *Lapagerias* are always conspicuous, especially when growth is luxuriant and flowers abundant. In order to secure these desirable conditions the general impression is that they succeed best when planted out in a bed or border, but in my opinion many make a mistake in doing this. I know of many instances in which healthy plants in 6-in. pots have been turned out into a bed and from that time for a year or sometimes a number of years they actually refused to move. This applies more particularly to alba than rosea. About half-a-dozen years ago we turned out a plant of the latter into a bed in the conservatory. It grew away freely and soon covered a large space. The following year a plant of alba was put out in the same way against the next pillar, and at the present time it is very little larger than the day on which it was planted out. Every provision has been made to protect the young growths when they came up, but they have never appeared. The plant exists, but that is all. The roots are healthy and the soil good, and yet it stands still. This is by no means a solitary instance. I have seen several plants elsewhere in much the same condition, and I have heard many say they were sorry they ever turned them out, as they got on well so long as they remained in the pots. This and some experiments made in reference to another plant induce me to infer that there is a possibility of planting out the *Lapageria* too soon; and however anxious we may be to get our little half-guinea plants to assume large proportions, the latter would be attained more quickly if the plants were kept in pots for a time and potted on from one size to another until they had abundance of roots and some strong top growths. One plant of alba which I have treated in this way has far outdistanced the planted-out specimen, and in another month or so this latter will be lifted and put in a pot, where it will doubtless grow and yet become useful.—J. MUIR, *Margam*.

ORCHIDS.

NOTES ON CYMBIDIUMS.

THIS genus of Orchids is not so popular as some others, such as *Cattleyas* and *Lælias*, but it, nevertheless, contains species remarkable for their beauty and others prized for their perfume. The best, perhaps, is the ivory-white *Cymbidium eburneum*; until recently this was considered to be a rare species. It was first discovered by Griffith at Myrung, on the Khasia Mountains of East Bengal, at an elevation of from 5000 feet to 6000 feet. It flowered in this country in 1847, and was figured in the *Botanical Register*. In those days it did not succeed satisfactorily, owing to its being kept too warm and placed in unsuitable potting soil. I remember purchasing six good-looking imported plants at a sale and lost them all but one. Another grower purchased a score of plants at the same sale, and lost them all. I would therefore recommend beginners to purchase established plants; they are not very expensive and there is little chance of losing them. Orchid growers err in potting them as they would *Cattleyas*. They do best potted in loam with a little manure added to it. The pots should be three parts full of potting soil, and it must not be piled up higher than the rims. This *Cymbidium* succeeds best in a *Cattleya* house temperature. Its flowers, which are sweetly perfumed, are now opening. A species not so well known as it ought to be is *C. giganteum*, a noble plant, some of the varieties of which have flowers much superior to the best of those produced by *C. Lowianum*. It was discovered by Wallich in Nepal, who also introduced it into England. This is a variable species, as may, indeed, be seen from the early plates of it—first in the *Sertum Orchidaceum*, t. 4, then in the *Botanical Magazine*, t. 4844, and lastly in the same work, t. 5574, under the

name of *C. Hookerianum*, but believed to be merely a form of *C. giganteum*. It was in epiphytal species, requiring treatment similar to that given to *Cattleyas* and also a *Cattleya* house temperature. It flowers in autumn. *C. pendulum* is variable and distinct, its pendulous spikes being very ornamental. It was discovered by Roxburgh in Sylhet, and later by Wallich in Nepal; the latter sent it to Dean Herbert, who flowered it in August, 1838, and sent the spike to the Royal Horticultural Society. It was 3 feet long and had on it a dozen flowers which were yellowish brown, and the labellum red with a dash of white on it. This form was figured in the *Botanical Register* in 1840, t. 25. A much more beautiful variety from Java flowered with Messrs. Rollisson in March, 1868, and was named *atro-purpureum*. This is well figured in the *Botanical Magazine*, t. 5710. Its spikes often measure 2½ feet long; the sepals and petals are maroon-purple, and the lip is pale rose and spotted with the same colour as that of the petals—altogether a truly handsome Orchid. It should be grown in a basket and suspended when in flower in the *Cattleya* house.

C. TIGRINUM ought not to be omitted, for although no great beauty, it is quite distinct in character from any other species. It was discovered in the Malay Peninsula by Parish in 1863, growing upon rocks in the Tenasserim Mountains, 6000 feet above sea level. It has very small, compact pseudo-bulbs, and produces two or three flowers only on a spike; it makes a good basket plant for the *Cattleya* house, and should be grown in the usual Orchid compost. The narrow sepals and petals are yellowish green, and the lip, which is large and white, is marked with short purplish red transverse bars. A plant of it with a three-flowered spike is figured in *Botanical Magazine*, t. 5457. *C. Huttoni* is a very remarkable species, quite distinct from any other, either as a plant or as regards its peculiar flowers, which are placed on a pendulous raceme about 10 inches in length. Messrs. Veitch's collector, the late Mr. Henry Hutton, after whom it is named, discovered it in Java. The spikes issue from the base of the matured bulbs and hang over the side of the pots or baskets in which it is grown. The flowers, which are closely placed on the spikes, have greenish yellow sepals densely marked with small chocolate bars, chocolate petals, and the lip is greenish bordered with a chocolate band and marked like the sepals. *C. Mastersi* is the most graceful of all the *Cymbidiums*, if we except *C. affine*, a species allied to it. Its flowers, which have a sweet perfume, are pure white, and placed in an elegant manner on the spikes. It resembles *C. eburneum* so much, that the one is often mistaken for the other until the flowers open; their cultural requirements, too, are similar. Our plants of it flower in January. The earliest information we have about its flowering in this country is given in the *Botanical Register*, 1845, pl. 50, where it is stated that Messrs. Loddiges received it from the East Indies in 1841, and flowered it in December, 1844. In growing these two plants plenty of air is required and a temperature ranging from 50° to 55° at night for three or four months in winter, giving it 5° more in summer. *C. affine* is a rare form, pure white with magenta spotting on the lip. It seems to differ but little from *C. Mastersi*, and Reichenbach seems to be rather doubtful about it, referring it to *C. micromeron* of Lindley and *C. densiflorum* of Griffith, but whether a distinct species or only a variety, it is very beautiful and winter flowering. *C. Lowianum* is quite a recent introduction and nearly allied to *C. giganteum*; indeed it was first

named by Reichenbach fils *C. giganteum Lowianum*, but on a comparison with the older species it seems to have proved sufficiently distinct to merit a specific name. *C. Lowianum* pushes up its flower-spikes early in winter, but the flowers do not open until March, and then continue in full beauty until June; whereas *C. giganteum* flowers in the late autumn months. This species has been very prominently noticed, owing to its being so well adapted for exhibition in May and June. Perhaps the best plant yet seen of it is now in Baron Schröder's collection at The Dell, Egham. One very handsome well-grown plant of it might have been seen in Mr. Bull's nursery last year. It is a very easily grown Orchid, and is readily propagated by division; like *C. eburneum*, it may be potted in loam. Some grow it in the warmest house, but I fancy it does best in the *Cattleya* house, where it grows and flowers freely both summer and winter. The spikes are very long, and produce as many as twenty-eight flowers on each. *C. Parishii* is a queen amongst *Cymbidiums*. It was exhibited during the past season at one of the meetings of the Royal Horticultural Society by Sir Trevor Lawrence, and well deserved a first-class certificate, which was awarded to it. It is a very scarce plant, but Messrs. Low have succeeded in importing a small quantity of it, but as yet it is dear. A fine specimen of it has flowered with Mr. B. S. Williams, of Holloway. It produced a spike bearing three flowers. The latter are white, and have broad sepals and petals, a blotch of deep orange at the base, and spotted with violet-purple. It flowers in July, a time when others are not in bloom. The plant resembles *C. eburneum* in habit of growth, and requires similar treatment. It was first discovered by the Rev. C. Parish, in Moulmein, in 1859, and first flowered in Mr. Leach's collection, in Manchester, in 1878.

C. DEVONIANUM, a rare and distinct species, ought not to be omitted. A handsome flowering specimen of it was exhibited by Mr. Lee, of Leatherhead, at the Orchid conference in May last year. It had one pendulous spike, which in habit of development resembles that of *C. pendulum*, but the flowers are very different. They are not quite so large as those of *C. Huttoni*. They have greenish sepals and petals spotted with red. The lip has two conspicuous black spots on each side, and is striking and effective. It is an Indian species, and was figured many years ago in Paxton's *Magazine of Botany*. Indeed, it is named in honour of the late Duke of Devonshire. J. DOUGLAS.

Imported *Cypripedium spectabile*.—Great numbers of this Lady's Slipper are now imported from its North American home every year in the shape of large tangled masses of roots, studded more or less thickly with fine promising crowns, that under favourable conditions yield a good display of blossoms. But little special care is needed to ensure flowers the first season, as they are already present in the bud state, and only need favourable conditions to develop themselves. We pot such roots as soon as received in good fibrous peat, corresponding as near as possible with the light vegetable matter in which they have grown. In potting plenty of drainage is used, and the tops of the crowns are just covered with soil. They are then placed in a cold frame, and no further care is needed except to water when necessary. As flower-stems make their appearance the plants are shifted into a light airy greenhouse, as by this treatment the blooms are much better coloured than where heavily shaded. In some of the imported clumps there are several flowering crowns; therefore, if large masses are desired, all that need be done is to pot them without dividing them, or, as the roots do not descend to any great depth, pans that are not

too shallow may be used. In any case the finest flowers are borne by those that are thoroughly drained and liberally watered.—T.

GARDEN FLORA.

PLATE 531.

BURTONIAS AND JOHNSONIAS.*

LAST spring we had an opportunity of inspecting a beautiful collection of drawings made from Australian plants by Mrs. Rowan, who had painted them as they grew in their native haunts. Some of them were strangers to us; a considerable number we had never seen in cultivation in Europe, but there were also among them a great many of those beautiful hard-wooded greenhouse plants which a generation ago were so popular with plant growers. Most of these are, however, not now to be found in English collections, but we trust that, by bringing some of the choicest and most beautiful of them before our readers, attention will again be directed towards them, and their merits as greenhouse flowering plants be properly recognised. It is so easy to procure seeds of Australian plants now-a-days that there can be no obstacle to the re-introduction of such as are of marked beauty and are likely to prove serviceable garden plants.

JOHNSONIAS.—The pretty, graceful, grassy-looking flowers represented in our plate along with the *Burtonias* are those of a member of a small genus of Australian plants, the botanical position of which is between the Onion and the *Asphodelus* sections of the great Lily Order. We suspect that very few indeed of our readers will be other than astonished on learning that this Grass-like or rushy-looking plant has nothing to do with either, but is really a Lily! Unfortunately, we cannot congratulate ourselves on the introduction into English gardens of this remarkable and really beautiful plant, for it does not appear to have ever found its way to this country. Probably, however, its appearance here will induce someone who has friends in South-west Australia to procure seeds of it for trial in our greenhouses. There are three species of *Johnsonia* known, all of them natives of the neighbourhood of King George's Sound, where they grow in sandy places fully exposed to the sun. They are tufted herbs with Grass-like stiff leaves and a simple Rush-like flower-scape. The flowers are arranged in spikes and are concealed in large overlapping, dry, glume-like bracts not unlike the scaly coverings of an *Aphelexis* flower.

J. LUPULINA is the best of the three kinds, its flower-heads being larger and brighter coloured, and the leaves and flower-stalks longer than in the other two, the names of which are *J. hirta* or *pubescens* and *J. acaulis*. The flower-stalks of the kind represented in the plate are 1½ feet in length, and the glumaceous flower-heads are from 1½ inches to 2 inches long. We cannot speak of the value of this plant for decorative purposes in this country, but that it is beautiful and well worth a trial no one will deny after seeing our plate. If it thrives at all with us it will be under greenhouse treatment, as the locality where it grows wild is rich in plants which are or have been well grown when treated as greenhouse or conservatory plants. A picture of *J. lupulina* is included in the collection of paintings made by Miss North when in Australia, and may be seen at Kew.

The genus *Burtonia* consists of about half-a-dozen species of small compact, Heath-like shrubs, which bear spikes or corymbs of richly coloured pea-shaped flowers, and form beautiful little pot plants for the greenhouse or conservatory. They

* Drawn by Mrs. Rowan in the Australian bush.



are closely allied to the equally beautiful flowered *Pultenaea*, *Dillwynia*, *Aotus*, *Chorozema*, and *Gompholobium*, which, along with many other pretty, but now, alas! rare greenhouse plants, are all natives of the south-west regions of the Australian continent, from whence Drummond, Cunningham, and Burton sent to England a great number of useful garden plants. The last-named collector was sent out in search of new plants for the Kew collections, and died in Australia after sending home a considerable number of new things; the genus *Burtonia* was named after him.

THE CULTIVATION of *Burtonias* requires a little more skill and attention than does that of a *Geranium* or *Fuchsia*, but not more than is given to many plants that are popular in gardens today. A mixture of good peat and sand, three parts of the former to one of the latter, careful drainage, deep pots, but not over large, and an airy position near the glass in a greenhouse, are necessary to their healthy growth; whilst for water they require to be kept in the same condition at the roots as an *Erica* or *Chorozema*. They do not like water overhead at any time. It will be understood that by an airy position it is not meant that these plants would thrive if placed close to an open ventilator where the cold air and winds would play full on them, but what they must have is a good supply of fresh air at all times, a stuffy atmosphere being quite as injurious to such plants as the other extreme would be. The roots of *Burtonias* are long and wiry, and no doubt in their native home the object of these long tap-roots is to penetrate below the layer of dry surface-sand to the moisture which, in the places where these plants abound, is not more than a foot or so from the surface. For their propagation cuttings may be formed from the lateral or basal shoots, not from the stout leaders; they should be put in about February, using well-drained pots, very sandy peat, covering them with a bell-glass, and then placing them in a shaded part of a warm greenhouse.

B. CONFERTA.—A compact freely-branched little shrub, of erect habit, the branches wiry when mature, and clothed with Heath-like foliage placed closely together, and differing from the leaves in the other cultivated *Burtonias* in being simple instead of trifoliate. The flowers are arranged in compact corymbs on the tops of the ripened branches, about a dozen flowers to each corymb, and their colour is bluish purple with a blotch of deep crimson at the base of the broad vexillum or standard; they are produced about July. We have met with this plant in several gardens where hard-wooded plants are in favour, notably at Clapton several years ago, and only recently in the nurseries of the Messrs. Veitch, who include this and several others in their catalogue of greenhouse plants. We should say that this species is the best of the known *Burtonias*, as it grows and flowers freely in an ordinary greenhouse, and remains gay with bloom for several weeks. A well-managed plant of it is pleasing to look upon both when out of bloom and when laden with its compact heads of Sweet Pea-like flowers.

B. PULCHELLA is a graceful little shrub with long wand-like branches, Heath-like foliage, each leaf being made up of three linear leaflets united at the base. The flowers are borne upon the upper portion of the longest shoots, and are arranged so as to form a spike; they are a rich purple colour, an inch broad, the standard being spread out flat, and revealing a yellow spot at its base. The grace and beauty of the curved wand-like flower-branches may be gathered from the representation in our plate of

B. SCABRA is somewhat similar to the above

as regards the character of its flowers, but is easily distinguished by its foliage being shorter and pressed almost closely to the branches. The flowers are developed on the upper half of the ripened shoots, and their shape and colours are shown in the plate, the tall spike on the right and the shorter one on the left of the picture representing this species. For the introduction of this plant it appears we are indebted to the renowned Richard Whately, Archbishop of Dublin, who received from Australia and sent seeds of it to the Trinity College Gardens, where it flowered in 1857. According to the "*Hortus Kewensis*," the species had been, however, in cultivation fifty years previous to this date, and flowered at Kew in 1803.

B. VILLOSA.—This is the largest flowered of the *Burtonias*, and is well represented by the middle spike in the plate. In habit it is a rigid, Heath-like shrub, with erect virgate branches, trifoliate leaves, and flowers 1 inch across the standard; their colour is rich pale purple with a large conspicuous yellow blotch at the bottom of the standard. Flowering season usually about May. This species was introduced by Messrs. Lucombe, Pince & Co., of Exeter, to whom Drummond sent a great many of his seeds collected during his travels in Australia. B.

NOTES.

PRUNING ORCHIDS.—"The question of pruning Orchids is as yet far from settled, and much depends on the way in which it is performed. We often differ in opinion from each other simply because our local surroundings are different, and not so much because we really think a certain practice to be right or wrong in a general way. I knew an old exhibitor of stove and greenhouse plants in Yorkshire who grew *Dendrobium nobile* better than I ever saw it elsewhere, and he always cut away the old bulbs—i.e., some of the three and all the four-year-old ones—when he dressed up his plants for the shows. We have all been brought up to the dogma that the old pseudo-bulbs of Orchids are reservoirs of nutriment—savings banks, as it were, of superfluous sap. This may be true, wholly or in part, as the case may be. In a state of nature, every provision is no doubt the actual outcome of absolute necessity; but what is necessary to a plant growing fully exposed to all the vicissitudes of Nature may be very unnecessary when the plant is placed in artificial circumstances, and receives regular cultural attention so far as heat and moisture are concerned. If it be true that the young growths of Orchids draw on the old pseudo-bulbs during the early and rootless stages of their existence, as seems probable, it is also equally true that the shrivelled and rootless old bulbs plump themselves up only at the expense of the young growth, and mainly just at the time that it attains its full development. It must be self-evident that rootless old pseudo-bulbs have no power of acquiring anything from the compost." This much was written in 1882, but during the last year or two the subject has made considerable progress, and the whole matter is better understood. Mr. Blandford has shown *Laelia anceps*, and Mr. Princeps an equally fine specimen of *Dendrobium nobile*, showing that no injury has resulted from pruning if carefully carried out. This seems the gist of the whole matter, viz., the knife and all other useful, if rightly used, appliances must be used by skilful and responsible cultivators only, and not by foolhardy, or inexperienced assistants.

FLOWERS IN SEASON.—*Clematis cirrhosa*, or is it *C. calycina* which is now dangling its pale greenish flowers among the Ivy leaves on the old

grey walls? It has four calyx lobes only arranged in a bell-shaped manner, and these are faintly dotted with pale red inside. Its habit is slender and its evergreen foliage finely cut, and altogether, although not showy, yet it is always so fresh and pleasing in aspect that one wonders it is so rarely seen. The *Hepaticas* are peeping everywhere, giving charming glints of pink, rose, white, and blue. The grey Almond buds are swelling, and on one is the first flush of pure rose as an earnest of the harvest of blossoms to come. In the sunshine the crimson buds of the bearded *Rhododendron* catch the eye in contrast with the green blossoms of the Bear's-foot *Hellebore* (*H. leticidus*). Snowdrops are whitening the edgings of Grass here and there, and the perky little golden *Aconite*—a Buttercup in an Elizabethan collar—is popping up everywhere. The first Daffodil is showing colour, and one or two Crocuses bear it company, while, for contrast, we have the Rush Lily (*Sisyrinchium grandiflorum*) dangling its wine-purple bells in the wind of February.

HEDYCHUM GARDNERIANUM.—When in fruit this noble-habited plant is very effective, but while it blossoms freely its fruiting is not so certain, unless it be carefully fertilised. A couple of plants here are now very brilliant in the sunshine, and have been so for many weeks. They are grown in pots in a moderately warm temperature. Some years ago, Mr. H. Bennett, then of Hatfield, brought some fruiting specimens to South Kensington, and these were at the time to many a novelty, and they were much admired. This plant is quite hardy in warm districts, flowering, but of course not fruiting outside; indeed, it is generally cut to the ground level by the first severe frosts. The finest specimens of this plant I ever saw were growing and flowering most profusely last October in the Kibble conservatory of the Glasgow Botanical Gardens. Planted out in such a large structure, the plants attain to the utmost luxuriance, and add quite a tropical aspect to the jungle of Bamboos, Eucalyptus, Palms, and Tree Ferns with which they are therein associated. By a little trouble in the fertilisation of the flowers this plant becomes twice beautiful, and the fruit lasts as many weeks as the flowers last days.

HELLEBORUS NIGER AND VARIETIES.—A dictionary-maker is said to have referred his zoological definitions to the once celebrated Cuvier. Amongst them was one defining the shore-crab. "Shore-crab is a red insect, which walks backwards," was the description. "Quite right," said Cuvier, "except that the shore-crab is not an insect; it is not naturally red, nor does it walk backwards!" This little story occurred to me on reading Mr. Tymon's statement (p. 113) that *Helleborus niger angustifolius* is "the most narrow-leaved of the niger group;" whereas a comparison with other kinds proves it to be otherwise. *H. niger caucasicus* and others have narrower leaflets, and so has *H. niger scoticus*, the plant to which the late Mr. McNab applied the name *angustifolius*. As I pointed out in my paper (January 23), no one now knows what forms were the *angustifolius* or the *latifolius* of Sweet or Don. Again, all the wild or geographical forms of *H. orientalis*, *H. atrorubens*, *H. antiquorum*, &c., have Latin names, those having English names being garden seedlings raised by the late M. Sauer, of the Berlin Garden, and named and sent out by some Continental nurserymen. So far as I know and believe, all the known forms of *H. niger* are wild types, and so deserving of Latin varietal names.

PLANT NAMES.—Mr. Tymon's letter (p. 113) reminds me of the fact that plant names are now becoming so confused and complicated, that the

less naming effected, even in English, by any one individual the better. The naming of plants by isolated and often but partially informed individuals is one cause of the present labyrinth of synonyms and erroneous names. If we could send all our questionable plants to Kew, and so obtain a correction of their nomenclature, all would be well; but it is scarcely just to expect the public service to minister to all private needs in that way. The naming of garden plants generally should be carried out on some well-arranged plan by the Royal Horticultural Society, or other central and authoritative body. The motion adopted by the Narcissus conference was satisfactory, but should now be extended to all known plants. Nothing could be more plain and simple—all wild types to be named in Latin, all plants raised in gardens to be named in English. But above all is it necessary for the work to be done by some public body, composed of botanists and cultivators, each having some special knowledge of the vegetable kingdom.

NARCISSUS CITRINUS.—All the Hooped-petticoats, or Trompet Marin Daffodils, are most quaint and beautiful when in bloom. Just now *N. citrinus* is flowering freely in pots in a cool, airy greenhouse, along with *N. nivalis*, *N. Umberto I.*, *N. Regina Margherita*, and one or two other early kinds. I find that a good many good gardeners quite fail to bloom the lovely *N. monophyllus*, the snow-white variety from Algeria. This much is true, even in pots in a greenhouse or frame, although Mr. Barr flowers it under a light or two in that bleak bulb field of his at Tooting. With *N. citrinus* the cultivator will experience no such difficulty, as it grows and blooms year after year quite freely, and much earlier than do the deep golden or typical forms of the species.

I was reading to-day Salisbury's account of some Narcissi in the "Transactions of the Horticultural Society," vol. i., p. 343 to p. 366, in which their synonymy is curiously entangled, but there is some interesting gossip about the older growers, and some information respecting habitats and authorities worth reading by those interested in the genus. Salisbury appears never to have seen a white Hooped-petticoat Daffodil, although he says he saw a dried specimen belonging to Haworth.

OLD YELLOW PROVENCE ROSE.—It is pleasant to find the rare old flowers of Shakespeare's epoch, even if not those of Chaucer, now being inquired for by amateurs and other cultivators of hardy flowers. In the kitchen gardens at "Burghley House, by Stamford town," the above old Rose used to be, and perhaps now is, quite at home growing on an old sandstone wall in front of the gardener's lodge. A word from our good friend, Mr. Gilbert, would, however, settle the question. For the information of "F. W. Y." (p. 127), I may say that in Mr. W. Paul's Rose list for 1885 I find *Rosa sulphurea* offered at eightpence each. It is a fine old flower if grown happily, but that it is capricious is only saying what is true of many other beautiful blossoms. Old Parkinson describes it in 1829, and it was the pride of many old country house gardens of our grandmothers' days. Like many other fine and distinct old Roses, the fashion for Hybrid Perpetuals, or show kinds, caused them to be neglected, and in many cases lost altogether. I wish Mr. Paul would exhibit a collection of flowers and buds of all the old kinds of Roses he cultivates this next season, both single and double. We have had so much of the show Rose business that many of us would like to see and know more of the beauty of the older species and their varieties.

BRIDAL SNOWDROPS.—I see by the papers

that Miss Gladstone and her bridesmaids carried bouquets of Snowdrops the other day. Here in a warm locality they are barely above ground, but I am told that this lovely flower blooms earlier and more vigorously in the north than in the south. Is this true? Mr. Fish's note (at p. 112) would seem to bear out the truth of this statement, or can it be that there are early and late forms of *G. nivalis*? Certainly I never saw Snowdrops in England in October. The constant habit of doubling possessed by the Snowdrops on some soils is well worthy of careful investigation, and might, if carefully carried out, throw light on the question of single Narcissi turning double. Salisbury notes the fact of the double Jonquil turning single in market gardens near London during his time, but, so far as I know, has no mention of any single Narcissus turning double, as it seems clear single Snowdrops often do in particular localities. At any rate, Snowdrops that would bloom in October and November would be a very welcome addition to many good gardens; but where are they to be obtained?

VERONICA.

KITCHEN GARDEN.

CULTURE OF TOMATOES.

THE culture of Tomatoes has so much increased during the last few years, that their production may now be counted by tons; whereas a few years ago hundredweights only were produced. People who are in a position to grow their own Tomatoes have a considerable advantage over the householder who has to purchase in the market, for the difference between a well-ripened Tomato, cut from the plant and used at once, and a purchased specimen from a country greengrocer is as "sunshine unto moonshine, or water unto wine." We have grown Tomatoes in pots for years, and the produce of these pot plants is always very highly valued. The first fruits ripen the last week in April or early in May. We sow the seeds in the first week of the new year. They are now (Jan. 26) thriving little plants in 3½-inch pots, and are growing along with young Melons in a house the temperature of which at night is from 60° to 65°. In this temperature, and with a plentiful supply of water at the roots, they grow freely indeed. We shift them twice from these small pots; the first time into 8-inch pots, and the next into 11-inch or 12-inch ones. The potting soil consists of two parts good loam and one part decayed stable manure. The object of growing them in pots is to have the choice of moving them into any houses where they can be placed in a position to get plenty of sunshine. The best lot we ever had was last year, when a dozen plants were placed against the back wall of a vinery, in which they ripened their fruit before the Vines shaded them too much. The variety (Hackwood Park Prolific) grown proved to be a good one. After cutting fruit all through the summer, the plants were placed out of doors against a deal fence facing the south, and from these we gathered fruit as late as October. A market grower informed us that he found the common, or large red, produced the greatest weight of any variety he had hitherto grown. It is not so well formed as some, but he did not find that to depreciate its value in the market. If the plants, instead of being potted, can be planted out and trained to a trellis, as Melons and Cucumbers generally are, the results are as good as when grown in pots, and the labour of watering is not so great. Under pot culture the roots grow so closely matted together that it is necessary to water them twice daily. When

planted out, a succession of fruit can be obtained until fruit is ready out of doors.

FOR PRODUCING FRUIT IN WINTER the plants should be propagated from cuttings about the end of August or early in September. Indeed, it ought to be universally known that to produce any good variety of Tomato true it must be raised in this way. Seedlings cannot be depended upon to be exactly like their parents, while cuttings produce plants of the exact character of the parent. Cuttings root freely, and form the best plants when placed singly in the centre of small pots. The pots should be plunged in a bottom heat of 85°, and the temperature of the house should be about 60° at night. The plants may be trained to the back wall of a house where they get plenty of light and a temperature of about 60°; they may be grown in pots, as has been already recommended, the cultural requirements being the same.

OUT OF DOOR CULTURE is very simple, and is much the same as that of growing Dahlias. The plants ought to be grown at first under glass. If propagated from seeds, they must be sown about the end of February in a hotbed or forcing house. The young plants appear very speedily, and should be planted out singly into small pots as soon as the first leaf is formed after the seed leaves. The little plants will have long stems under these leaves, but these stems must be put under ground, leaving the seed leaves just above the surface. When the plants have made about six leaves, shift into a larger pot, and then into pots 6 in. or 7 in. in diameter. The plants need not be grown in a warm house; on the contrary, they should be placed in cold frames early in May, where they can be gradually inured to stand in the open air in order to fit them to be planted out the first week in June. They do remarkably well if planted on open spaces against walls facing the south or west. If walls are not available, plant them on a piece of well trenched ground, but not very rich. The warmer the position the better. Each plant requires a stout stick standing 3 ft. out of the ground to support it. When the plants have grown to the top of the sticks all the young lateral growths near the top should be pinched out; this will throw all the strength into the young fruit which will now be forming. Continue to pinch out the lateral growths, as the fruit which might form on these would not ripen, but would only take the strength from those which had already formed on the plants. The large red is a good sort for out of doors. Earliest of All and Acme are also well adapted for that purpose; Hackwood Park Prolific would doubtless also do outside.

J. DOUGLAS.

Raising early Celery.—Sow the seeds thinly in pans or boxes in rich soil, and cover lightly with fine sandy soil—I generally cover with sand only—and every good seed will grow. The pans should be placed in a moist genial temperature; a few degrees of heat one way or the other is not of much importance. The more warmth the quicker the seed will germinate, but there is time enough starting about the middle of February without undue forcing, which takes away that robustness of growth so essential to quality. As soon as the seedlings appear thin out to half an inch apart, removing the weakly plants. If we sow a hundred seeds of any given species of plant, a small proportion of them will be more robust than the others, and by removing the weakly plants we give the strong plants a better chance of fulfilling their destiny, viz., the survival of the fittest. In the course of a short time after the plants have been thinned more room will be required, and to meet this demand prick them out 3 inches or 4 inches apart into boxes or a bed of rich soil, making a further selection of the plants, discarding any which show signs of being less

robust than the rest. During the time of growth they must never be allowed to become dry, as a check of any kind will be likely to injure them and may possibly cause premature bolting. Harden off and plant out in well-prepared trenches in May; shade and water as required. If true, the Sandringham White is an excellent early kind, and Carter's Incomparable Crimson is one of the best reds. But something depends upon how the seeds are grown and saved, and in a matter where so little is required it is always wise to go to the very best source for supply.

—E. HOBDAY.

Peas, new and old.—It is pleasing to find such a good authority as "A. D." standing up boldly for quality in preference to size. But I confess that I was somewhat disappointed when he, who knows Peas and other vegetables so well, concluded without naming for the guidance of amateurs, who are now all anxiety about the best Peas to sow, say half a dozen of the best to grow this year. I was also under the impression that it was no longer necessary to grow such comparatively flavourless Peas as Sangster's No. 1, which "A. D." still cites as the earliest, if not the best early Pea. His suggestion of showing varieties of Peas in pots or boxes to illustrate their stature, habit, general character, and fertility is one that it is hoped may be acted upon in all cases where valuable special prizes are offered for Peas.—D. T. F.

Broccoli.—Snow's Broccoli has never done so well here as it seems to do at Burghley. It was cultivated for half a dozen years or more in succession, and the result was always the same. It never became fit for use at its specified time, and, therefore, it was discarded, nor do I regret its loss, as there are others equally good and more certain. Of late, Veitch's Self-protecting has been succeeded by Sutton's Winter Mammoth, Osborn's and Backhouse's varieties, and unless the weather is very severe these keep up a constant supply—so constant indeed that I would never trouble myself further respecting the growth of Snow's. In my opinion the first week in May would be altogether too late to sow winter Broccoli, but the kinds named above are perfectly satisfactory if sown in the open during the last week in March or the first week in April. I once tried a pinch of Snow's from Burghley with no better results than from other sources, but that was before Mr. Gilbert had made his selection.—J. MUIR.

Carter's Leviathan Bean.—Messrs. Carter in THE GARDEN (p. 98) ask to be allowed to "assist in the discussion" on the vexed question of the distinctness or the identity of the Leviathan, Aquadulce and Seville Longpod Beans. They state that they "introduced Leviathan in 1879," and that, as far as they can trace, "the first reference to Aquadulce in any English retail catalogue appears in that of Messrs. Sutton for 1882, so that Leviathan had been before the public at least four years before Aquadulce was heard of." As a matter of fact, Aquadulce was offered to the English trade in Messrs. Vilmorin's wholesale catalogue for 1878-79, being there described as "Aquadulce, extra long-podded (new)." The appearance of Leviathan (which is so like Aquadulce as to be practically synonymous with it) in 1879 was therefore a singular coincidence. Messrs. Carter are incorrect as to the date of its appearance in English retail catalogues, for in the retail spring catalogue for 1881 of Mr. Robert Veitch, of Exeter, it is there offered and described as "Aquadulce, a new Continental variety, surpassing in the length and size of pod the famous Seville Longpod. Invaluable for exhibition." I have not an earlier edition of *Le Bon Jardinier* than that of 1882, but it is there referred to as follows: "The most remarkable among the long-podded Beans are the Seville and, above all, the Aquadulce, of which the pods attain to 0m.30 to 0m.35 (say, from 12 inches to 14 inches) in length, and generally contain eight or nine seeds."—A. HOPE, *Exeter*.

— I am obliged to Messrs. Carter for their offer to send me Seville Longpod and Leviathan Beans, but my stocks of Aquadulce and Seville Longpod were in bulk from a first-class foreign house and the Leviathan from an English house. As in all cases the seed came from thoroughly impartial sources, I don't therefore see that anything is to be gained by

any further trial. Certainly, I had last year plenty of pods as long and clean as any I have seen exhibited at any time, and these from all the kinds alike. The question of identity or otherwise, however, is of much less moment than that of general cropping qualities and average usefulness. If we have a good thing, it does not so much matter under what designation we have it, although it is but natural we should like to have it correctly named. Now, last year it so happened that amongst the Seville breadth was one "rogue" only, and that one proved to be of much stouter and more erect habit than the true kind. The average number of pods produced of the Seville strain was five or six per plant, which seldom exceeded two stems. This rogue had three stout stems and no less than thirteen good pods, and on a breadth of equal proportion would have beaten the Seville by double the bulk of produce. Certainly the pods were shorter, but they were also more erect. None the less when shelled the produce of seed was twice that of the Seville, so that for all ordinary domestic or market purposes the "rogue" was a long way the best. I admit, however, that the Seville strain is a week or so earlier.—A. D.

WORK DONE IN WEEK ENDING FEB. 9.

FEBRUARY 3.

Fog and sleet the day through and work outside quite at a standstill, all hands being employed with the usual description of inclement weather jobs, and which of late have been so frequently alluded to, that it is unnecessary again to refer to them. In the houses plant cleaning and pot washing have been to the fore. Picked loose bark off Vines in two latest houses, and painted them over with a solution of Gishurst and soft soap. The walls will now be lime-washed and the borders top-dressed soon as the soil is sufficiently dry to be worked about without getting pasty. Put in cuttings of variegated *Panicum*. Six cuttings are inserted in a 3-inch pot, and are never potted off, but are grown on in that form, being occasionally pinched to make them branch out. We find them most useful for furnishing baskets in rooms, as they make a desirable outer line or fringe to drape over the vases and baskets. *Impatiens Sultani* is also another excellent, easily raised and grown vase plant for border decoration, and is best when in a young state. Cuttings of this we have also put in to-day, and sown seeds of *Ferdinandia eminens* and *Ferula communis* for sub-tropical bedding.

FEBRUARY 4 AND 5.

Both days have been fine, with sunshine for a couple of hours each day. Earliest Vines and Peaches have made perceptible progress, which, in part, is no doubt due to our unfailing rule of closing up all through the earliest forcing stages whilst the sun is at its meridian, one hour of sunshine being of greater help than very many hours of artificial firing in cloudy weather. Did final disbudding to early Vines; the spurs are not very regular, i.e., as to distance on the rods, so that two and in some cases three shoots are left to each spur, according to the space there is to cover on trellis; of course, when the spurs are close together only one shoot is left. Then, again, with regard to stopping or pinching out the points of shoots, we have no hard and fast line, but stop at the second, third, or fourth joint beyond the bunch, according as there is likely to be room for the full exposure to light of the foliage, and of this the more the better—at least, such is my experience, though I have heard it asserted, but never saw an instance of it, that good fruit can be had with puny foliage and wood. Partially disbudded early Peaches. I also like to see good leaves on these as well as Vines; the quality of fruit is then certain to be of the first order; overcrowding of wood gives plenty of foliage, but of a flabby texture, that soon becomes a prey to insects or scorching; therefore, we disbud freely and early. The latter is necessary to prevent unnecessary exhaustion of sap as well as injury to shoots by stripping off pieces of bark with the shoots. Though the first fruit seems safe, we shall not syringe much till there is an end to the cold, frosty nights and mornings; the merest dewing over when closing up is all the syringing that will be done for the present. Potted off a few more *Chrysanthemums*. These may soon be

called all-the-year-round flowers; we began with them in the open border at the end of August, and we have still a few plants in good flower. Outside work has again been shrub and hedge cutting; finished pruning at orchard. Renewed linings to manure frames and turned over leaves and manure that is intended for renewal of heat in Pine beds. Dug up *Asparagus* for forcing in manure frames; blanching is objected to, and therefore, we merely just cover the roots with light, vegetable mould, and give a soaking with warm water to settle the soil well about the roots.

FEBRUARY 6.

Eight degrees of frost this morning—a cold north-east wind, but otherwise a splendid day, with a good amount of sunshine, which we made the most of by closing up all forcing houses by one o'clock. The pollen of Strawberry blossoms, on the slightest touch, dispersed in all directions—a tap on the shelf was quite sufficient to its distribution; but second house of Peaches not being so advanced, the earliest opened blossoms were touched over with a camel's-hair pencil. Thinned Strawberries that were set to from four to five fruits on a plant, and put them into greater heat. Our first batch is just on the turn for colouring, and ventilation will therefore be increased to aid quality, which so early in the season can only be expected to be second rate at the best, but their production is in our case a necessity, and, therefore, quality has to take its chance. Figs, being nicely on the move, and the walled in inside border crammed with hungry roots, a rich top-dressing has been applied to-day, consisting of well decayed droppings, half inch bones, wood ashes, and loam, the whole being mulched with cow manure and soaked with water at a temperature of 90°. The house is now kept at 50° by night and 60° by day, and the trees are well syringed at mid-day. Putting in fresh relays of forcing plants and cleaning up being the only other inside work done to-day. As the family is now, for a time, non-resident and the work somewhat in arrears, by reason of "extras" and bad weather, the usual Saturday's clean up has been shirked, and for the first time this year we have had all hands in kitchen garden. Dug up Parsnips, so that manure can be got on and the ground trenched in readiness for main crop of Peas. Celery, too, has been dug up with all the soil possible left on the roots, and has been thickly heeled in on a north border, and the ground will now be deeply dug for Potatoes; provided we had plenty of ground, neither of these crops would yet have been lifted, as both would have been best in the ground for some weeks to come. Parsnips, however, keep fairly well in sand, and Celery in the way mentioned; and there is this advantage in respect of Celery, seeding is effectually checked, and the same is true of Leeks, which are also doomed to be lifted in the same way soon as we are ready to trench the ground for another crop. Our August-sown Onions are a wretched lot by reason of last summer's drought, and the best of them we have transplanted, giving them place on a warm border, and the ground they should have covered will be dug over, and planted with early Cauliflowers; no manure will be needed, as it had a good supply and was deeply trenched for the Onions. Sowed another long row of Peas, and also of Broad Beans, with a first sowing of summer Spinach between the rows of Peas. Winter Spinach is another of our failures; hence the reason for sowing Spinach so early.

FEBRUARY 8.

Ten degrees of frost this morning, but nothing is forward enough to be injured. Apricot trees at Christmas seemed more nearly in flower than they do now, a circumstance that shows the severity of the weather since that time. All kinds of fruit trees seem stationary, and betoken a late spring, which, as a general rule, proves a safe one for fruit crops, which hereabouts promise to be good as last year, as all kinds of fruit trees fairly bristle with fruit buds, thanks to the heat and drought of July, August and September last. As the sun shone out to-day I made an examination of plants reputed to be of doubtful hardiness. Large bunches of *Phormium tenax*, *tenax variegata*, and of *P. Colensoi* are quite uninjured; the Blue Gum (*Eucalyptus*) is, I fear, killed, but the red is not a bit damaged; Australian

Dracenas are all but killed. Chusan Palms (*Chamaerops Fortunei*) are fresh as ever; *Echeverias*, many of them killed; *Veronica Hendersoni*, and also the variegated variety, not hurt, neither are *Hydrangeas*. The only Conifer that seems to have suffered is *Picea lasiocarpa*, or *Lowi*, and the foliage of this is only a bit discoloured. Our outside bands have again been employed in kitchen garden with same jobs as on Saturday, and also with mulching Gooseberry and Currant quarters with well decayed manure. Digging amongst fruit trees is a practice we never resort to except to clear the ground of Couch or other troublesome weeds, or for the purpose of root-pruning, and of course this is never needed by small fruits, such as Currants and Gooseberries. We simply point up the surface of the soil, and give the best surface dressing of manure we can afford. This way of applying the manure has also the additional advantages of making it cleanly for getting about amongst the trees and keeping the ground cool and moist in summer. Work in the houses is much the same from day to day. Propagating and seed sowing for summer flower gardening, potting Ferns, also potting on Tomatoes, Melons and Cucumbers being some of the jobs in hand to-day.

FEBRUARY 9.

Another splendid day, with a repetition of the frost of yesterday morning. Trenching in kitchen garden; the ground lately occupied with Parsnips has been well manured, but the Celery plot is being trenched without adding manure, as plenty is turned up from the old Celery trenches, and this is distributed over the whole plot as trenching proceeds. Pruned and put fresh stakes to young bush and pyramidal-formed Apple and Pear trees. The Pears are on the Quince, and the Apples on the Paradise stock, and all are very full of fruit buds. These dwarfing stocks are invaluable for positions in narrow borders in the vegetable garden (as ours are), as growth is never rampant, and fruit-bearing is a certainty, of course, damage from spring frosts always excepted. Put Asparagus roots in manure frame to force. The heat of the bed ranges from 80° to 90°, but as the plants are laid on a good thickness of half decayed leaf soil and covered very lightly indeed with the same material, such a great heat is not likely to do any harm to the roots, but as a safeguard, vent holes have been made with a dibber all over the bed. A constant supply of Seakale is kept up by putting in heat three or four large pots weekly. Potting off *Chrysanthemums* and the first striking of winter flowering Carnations. Put in more cuttings of Dahlias, also cuttings of *Ageratums*, *Heliotropes*, *Lantanas*, and double *Petunias*.

HANTS.

FRUITS UNDER GLASS.

MELONS.

If not already transferred to the fruiting pots the best of the plants raised in January should now be ready for turning out. The weather has, however, been very bad, hardly a ray of sunshine throughout the past month, and it is more than probable the first sowing will have produced a set of weak spindly plants which will never become satisfactory. The experienced Melon grower, fully alive to the numerous mishaps by which he is beset, provides for these emergencies by making fresh sowings every fortnight, and throwing away these earlier weaklings until his perseverance is rewarded by a set of well rooted, stocky plants that will start away freely, and most likely produce earlier and better fruit, as they can be grown on from the seed pot to the finish without undergoing a check. But, assuming that the young plants have gone on well and the large pots intended for their reception have been plunged up to their rims in a bottom heat ranging from 80° to 90°, fill the latter with suitable compost, and allow it to get thoroughly warm before it is pressed or made firm with the rammer. Then, having selected and watered the plants, turn them out, and plant one on a cone formed in the centre of each of the fruiting pots, keeping the seed leaves well up above the level of the rims, as earthing up the stems is objectionable. Make the soil firm, and give a little warm water to settle if very dry, not otherwise, as atmospheric moisture will keep them going until after fresh root

action has set in. Having secured the plants to sticks, train to, thence up the trellis, and allow the leaders to grow until they have made some 3 feet or 4 feet, and are strong enough for stopping. This check will result in the production of a number of side shoots furnished with female flowers, and as these first shows must be fertilised, male blossoms hitherto rubbed off may now be allowed to grow freely. Impregnate every female flower as it opens, and when two or three evenly balanced Melons on each plant can be seen swelling away together, remove all superfluous shows, pinch the laterals at the first leaf beyond the fruit, and cut away all useless spray, also at the first leaf from the main stems. From this time forward more water may be given, but not too freely at first, as a flush of water before the young Melons have attained the size of large Walnuts sometimes produces a check from which they never recover, but turn yellow and die.

Plants intended for pits and frames should have their points pinched out at the third or fourth rough leaf to induce the formation of side breaks. If two plants are to be turned out in each light, two breaks from each will be sufficient; if only one is thought sufficient, then four breaks will be needed. In order to save time and have strong plants ready for turning out as soon as the bed has toned down to suitable planting condition, they should be allowed to break again before they are removed from the nursing pit; if, on the other hand, the plants are in advance of the bed they may be shifted on into larger pots and be kept growing close to the glass until the bed is in good condition, as turning out matted Melons is worse than useless. Shifting or retarding should, however, if possible be avoided, as young plants that are kept constantly growing are less susceptible to attacks from red spider, they are less liable to lose their lower stem leaves, the preservation of which is a very important point in good culture, and they invariably produce the finest and best flavoured fruit. To obviate the necessity for making use of unsatisfactory plants, sowings should be made at short intervals and early planting in small hills free from the danger of burning should be strictly adhered to.

CUCUMBERS.

Plants that have passed through the winter in a satisfactory condition and are now growing freely must be brought gradually into a liberal course of summer treatment. Others that have not wintered well and have become infested with spider, mildew, and other enemies may be removed with as little delay as possible, as fresh healthy plants that so readily respond to high pressure treatment can, after this period, be grown into a fruit-bearing condition in much less time than would be frittered away in cleansing and restoring the old ones. If the first set of plants now in full bearing have not already been divested of a few of the oldest leaves to make room for young growths, their gradual removal may now be taken in hand; the plunging material must also be turned and renovated, as it is of no use trying to grow fresh, sweet-flavoured Cucumbers without plenty of bottom heat. Rough flaky pieces of light, rich turf laid on and partially over the rims of the pots will induce the formation and escape into the bed of fresh surface roots. As days increase in length and we have more sun, gradually increase the supply of diluted liquid, not only to the roots, but over every part of the bed, and ply the syringe more freely when the house is closed about 1 p.m. on bright days. Tie in the young growths regularly, and pinch the points out of the strongest to maintain an even balance of Vine and foliage over every part of the trellis, but carefully avoid overcrowding by cutting out all useless spray. Crop lightly, and always cut the fruit under rather than over the size to which later on it may be grown. Keep a sharp look out for aphids, spider, and mildew, and apply the usual remedies should they appear. When these pests are troublesome it is a good plan to keep a tub filled with sulphur water and another with soot water for syringing purposes, as prevention is always better than cure, and the smoking of Cucumbers and Melons for aphids should, if possible, be dispensed with. Last, but not least, observe cleanliness not only in the house, but outside also. Insects, parasites, and diseases always make rapid headway where sanitary

matters are neglected, and for this reason cleanliness both in regard to the removal of dirt from the glass, limewashing the walls, and scrubbing the floors should be strictly attended to.

Houses that have been a long time in bearing may be greatly improved—that is, if they can be dispensed with for a short time—by a general cutting over as a preliminary to a new start. Let every fruit, large and small, be cut off, remove as much old Vine and foliage as can be spared, tie in and regulate the young growths, top-dress the pots, and renovate the plunging material. Water sparingly at first, but do not let the roots suffer, as drought at any time is fatal, and treat the plants to plenty of atmospheric moisture.

The frame ground.—Pay particular attention to the preparation of fermenting materials for pits and frames, and when in suitable condition make up the beds for the latter on a dry, well-drained spot fully open to the south and sheltered from cutting winds. When the heat begins to subside, firm and level the bed, place sods, grass side downwards, across the centre and introduce as much compost as will form neat hills or ridges. When the soil is thoroughly warmed through, cover the remainder of the manure with a layer of dry soil to keep down steam and turn out the plants before they become pot-bound. Many people do not now go to the trouble of making up early Cucumber beds, and fortunate are they who can do without them, but, notwithstanding the trouble which they entail, they are not an unmixed evil, as they enable our less fortunate friends to propagate cuttings and raise many plants which they could not have were they deprived of the moist genial heat which fermenting materials give. Cucumbers, like Melons, do best when grown away from the seed to the fruit without a check. The frame answers admirably for this purpose, as we can sow a few seeds once a fortnight or as often as the requirements of the place may necessitate. We can shift on from small to larger pots without running the slightest risk of a sudden check, and a good stock of short-jointed plants, either pinched or trained to sticks for transfer to trellised houses, can be kept on hand until the frames are filled with their legitimate occupants.

THE ORCHARD HOUSE.

If any of the trees intended for fruiting in late houses are still out of doors, lose no time in getting them into their summer quarters. Let the pots be well washed, examine the apertures to ascertain that they have not been choked by worms, and place them at once in the positions they are intended to occupy. If it is found that worms have found their way through the drainage each tree should be well soaked in lime water to expel them at the outset, and watering with water at the mean temperature of the house must from this time receive careful and regular attention. Houses that are properly heated may be allowed to come on steadily under ordinary late or mid-season Peach house treatment; but others not hitherto safeguarded by a flow and return pipe must be retarded by constant and liberal ventilation when the weather is not decidedly severe, as advanced trees in these heavily handicapped houses frequently suffer, not only from sharp frosts, but also from a long continuance of cold, damp, sunless weather when they are in full bloom. Years ago the owners of these useful and interesting structures thought hedge walls good enough, and looked upon hot-water pipes as a superfluity, and dearly they have paid for their fancy, as one out of the many crops that have been lost would have paid for the apparatus, by means of which their too often blamed gardeners would have been able to contend successfully with the elements. The cost of fuel, again, for these houses is so very small compared with the immense value of the heat which it produces, that one can only conclude this penny-wise-pound-foolish neglect is persisted in by gentlemen who have never had the danger pointed out to them. But many may say, "I do not wish my orchard house forced; all I want is a crop of fruit late in the season." Just so; then why withhold fire heat, as it is a well-known fact that retarded trees absolutely require artificial warmth after the fruit is gathered to ripen up the wood? This important point secured, the trees may stand out of doors all the winter, and it is possible a bright genial spring may favour a

good set of fruit without its aid; but how often do we find our blossoms pushed forward by mild weather in February, and enveloped in dense black vapour when they are expanding. Then comes the pinch; the temperature may never descend to the freezing point, but the petals of the flowers perish, the delicate organs of fructification are paralysed, and the crop is lost for the want of three weeks' fire heat, which might be obtained from a few barrow-loads of slack or cinders.

The forcing orchard house.—The amateur who started his first house early has had a bad time of it, as we have had severe weather and very little sun; but, aided by gentle fire heat and a good stock of patience, all may yet go well. Although Peaches invariably set best in a brisk temperature with plenty of fresh, warm air moving through the house, it does not follow that anything more serious than delay is occasioned by allowing the thermometer to range as low as 40°, provided the blossoms are kept dry, and moisture is not condensed during the hours of darkness. The better to avoid these unfavourable conditions, let all watering be performed early in the day, and give the trees the benefit of gentle fire heat, with as much air as it will be safe to admit without creating a cutting draught. When superfluous moisture has been expelled, gradually reduce the fire-heat and air, and, if absolutely necessary, close the ventilators to the smallest chink along the front until the following morning. Although some fruit growers pooch-pooch the process of artificial fertilisation, prudent cultivators, anxious to leave no stone unturned, generally apply the camel's-hair brush on fine days during the time the trees are in flower. Many trees, doubtless, would set their fruit quite as well without this aid; but others, notably varieties that have made strong wood and are not over well ripened, are often saved from complete failure by the performance of this simple process. When the latest trees have set it will be necessary to ply the syringe freely on fine days to liberate the fruit from the decaying flowers, as well as to produce a moist, genial atmosphere, with closed ventilators, favourable to rapid development and a brisk circulation of the sap. If Strawberries occupy the shelves they must be well looked to, both with the syringe and water, as they are generally, if not always, leaders of the van in the dissemination of green fly and spider. The first can easily be destroyed by fumigation, but the second is a terrible pest, and can only be kept under by copious syringing and generous treatment. Thus, the trees, when the fruit begins to swell, will be in a fit state to receive good mulching and liberal supplies of warm, diluted liquid; the latter should not, however, be applied too often at first unless they are decidedly weak, as over-feeding may be carried to an extent that is positively injurious. When this stage has been reached, disbudding will require attention, and trees that have set an abundance of fruit must be carefully thinned, as nothing is gained by leaving more than a fair percentage of the best placed fruits above the number they are intended to carry to maturity.

W. COLEMAN.

Eastnor Castle, Ledbury.

Romneya Coulteri.—Mr. Miles is quite right in his supposition that *Romneya Coulteri* likes to be kept dry in winter. At Glasnevin it is cultivated against a south wall, where an old tower keeps off much rain, and in such a position it flourishes and flowers abundantly. Last summer over seventy flowers were open at the same time. On the approach of winter the loose shoots are fastened close to the wall, and a barrowful of peat is put round the crown. During very severe weather a mat is nailed over the plant, otherwise the shoots above ground are liable to be killed, and then it does not flower so profusely next season. In spring a good dressing of manure is substituted for the peat.—F. MOORE.

NOVELTIES FOR THE AMERICAN TRADE.

We have been somewhat amused in reading some of the English circulars offering novelties to the American trade. No people are better pleased than our own to purchase real novelties in trees, fruits, and plants, and many are quite as well pleased if they prove to be the greatest of deceptions, provided they are sold at a high price. To have the best thing offered cheap would at once stop all sale. Here we have a Pear called the Kieffer, the same as the old Chinese Sha-lea, introduced by the Royal Horticultural Society sixty years ago, and selling at £1 each, as worthless as the most worthless Pear cultivated in England. This only shows that the people will have novelties, good or bad. The late Mrs. Morgan, of New York, had a collection of Orchids which cost 200,000 dollars. They were sold by auction for as many cents.

Among the novelties now offered in the circular referred to is the once famous *Dioscorea Batatas* (or Chinese Yam), which the writer asks as innocently as a lamb, "Has any American grower ever yet tried this?" We are not quite yet antediluvian, but the *Dioscoreas* planted in my garden thirty years ago keep constantly popping up, though we have dug down 6 feet to find the roots. Old cultivators used to say that it went through the earth and climbed



Flowering spray of *Berberis (Mahonia) Aquifolium*.

on the other side in China! Again, "as a change from the American Sweet Potato it will be much appreciated." Whew! And then we are told how to cook it, and when the mode is "once hit upon the Yam is delicately white, mealy, and of a most agreeable flavour." Perhaps this is a matter of taste. The Mexicans like pulque, but the Englishman prefers champagne. Somebody ought to read our horticultural literature of thirty years ago. When these Yams were introduced here they were stated to be of such value, that the Potato would disappear for ever from cultivation, and they were sold at high prices. They were planted, tried, eaten, and all dug up as far as it was possible to do so. More than one cultivator has told me that he could extirpate Horse-radish, Artichokes, and Dock-root, but the Chinese Yam mastered him. Nothing short of 10 feet in the hardest ground would accomplish the job. Then we have the valuable information that "Black Currants will not grow in America," and to obviate this sad fact, the writer inquires, "Have our American friends tried the effect of raising from seed?" by which means there might "arise a variety that will prove itself adaptable to the dry, hot American summer," and prove a "small fortune" to the raiser. Exactly!

"Many Gooseberry plants," the circular says, "are annually imported into America," but as all this "must therefore necessarily mean much trouble and expense," seeds are offered of a "magnificent strain"

to obviate this. What will the old Gooseberry men of Lancashire, whose rooms are ornamented with trophies for big specimens of Crown Bobs, &c., say to this? Every cultivator feels indebted to the men whose perseverance and skill have re-ulted in the production of new fruits or flowers, and is thankful to the men whose enterprise place them within their reach. Our American people are especially indebted to the skill of English, French, and Belgian cultivators for many superb novelties; but then, to talk of Chinese Yams, Black Currants, and seedling Gooseberries as novelties of value to Americans betrays such a woful ignorance of our horticultural intelligence, that we must protest against it. H.

TREES AND SHRUBS.

THE HOLLY-LEAVED BARBERRY.

(*BERBERIS (MAHONIA) AQUIFOLIUM*.)

THE pinnate species of *Berberis* form such a distinct group from the rest of the *Barberies*, that they were originally and with good reason placed in a distinct genus—*Mahonia*, a name under which they are still generally known in gardens and nurseries. There are about a dozen of these pinnate-leaved *Barberies* (or Ash *Barberies*, as Loudon called them). Of these there are about four North American species, all of which are undoubtedly hardy in this country; whereas there is always some doubt about the hardiness of the other *Mahonias* from Japan, China, the Himalayas and Mexico. These four American species are all handsome evergreen shrubs extremely valuable if not wholly indispensable in a well-planted English garden, and common as one of them, *B. Aquifolium*, has become, it is, like the Holly, a shrub of which one never tires.

B. Aquifolium, or Holly-leaved *Barberry*, was introduced into British gardens about fifty years ago, and so highly was it esteemed at that time that plants of it are said to have been sold in the nurseries for ten guineas a-piece; whereas one can now buy a decent specimen of it for tenpence. Lindley was not far wrong when he pronounced it to be "perhaps the handsomest Evergreen we yet possess." That was said of it soon after its introduction, but to-day we see it in perfection, for it has become quite acclimatised with us—we might almost say naturalised—in a good many places. People are apt to esteem things lightly when once they become common, and this is the case with this shrub; were it still sold for a guinea a plant, we should perhaps value it more than we now do. First, there is its rich deep green leaves shining as if varnished, and changing in autumn to a bronzy red, rendering them so precious to those who like to mix foliage with flowers, and no other foliage lasts so long in water. Then in April and May the plant is adorned with a profusion of yellow flowers, and these are succeeded in autumn by a crop of plum-purple berries, grey with glaucous bloom. As this *Barberry* is now so common there is no need to describe it further, and there is equally little need to advocate its planting, as it forms part of the "regular stock" of every nursery, large or small. It is an accommodating plant and not at all capricious in its requirements, but, like a good many other shrubs, it is often planted without due regard to its adaptability to the spot in which it is placed. In its native haunts it is said to grow in rich vegetable soil among rocks or in woods, making a dense undergrowth. It is certainly very partial to shade even if it be dense; hence it

is one of the few plants that one can reckon upon succeeding under trees, and that is why it makes such capital covert. It is snug and warm for game, and yet, unlike such things as *Rhododendrons*, it is not too dense. Though it likes shade it does not refuse to grow and even thrive on dry, exposed banks, but in such places the foliage rarely acquires that luxuriant deep green which it does under shade.

As to soil, as far as our experience goes, it delights most in a deep moist loam, as, indeed, do all the *Barberries*. It even thrives in wet places and also in clay. Its use as an ornamental shrub is varied. Nothing, as before remarked, is better for planting under trees, and even under *Beeches* where the shade is densest it may be planted if the soil is stiffish. What it does not like is being crowded in the ordinary huddle-muddle shrubbery, for it is a plant that likes plenty of room to spread and send out its runners, and that is why it is such a capital shrub for planting just on the margin of a shrubbery, so as to allow its branches to arrange themselves on the turf. There are some admirable examples of this *Barberry* as a lawn shrub in the London parks, particularly at Battersea, where there are some as much as 10 feet through and 5 feet or 6 feet high. This shrub having been so much in request and is propagated rather slowly otherwise than by seed, large quantities of seedlings have been raised, with the natural result that a good many seminal varieties have sprung up. There are about a dozen of the most distinct of these which have been named. They all differ more or less widely from the type. Perhaps the finest of these forms is one called *rotundifolia*, an appropriate name, inasmuch as the leaflets are quite rounded in outline and not toothed nearly so much as the original. The leaves, moreover, are thicker in texture, and it is even more floriferous than the type. Other named varieties are *erecta*, of more upright growth than the type. Another named *stricta* is probably identical. The variety *gracilis* is of more slender growth, and in *anemonifolia* the leaflets are more deeply divided, while *crassifolia* is of thicker texture in the foliage and more like *rotundifolia*. None of these varieties are common, and one may look through a dozen tree nursery catalogues and not see one of them mentioned. This *Barberry* is found wild in Oregon and northwards, where, according to the "*Californian Flora*," it is known as the Oregon Grape. It is the hardiest of all the American *Mahonias* on account of its northern haunts. The other species are *B. repens*, *B. pinnata*, *B. fascicularis*, and *B. nervosa* or *glumacea*, as it is called. These are all handsome and valuable for ornamental planting and worthy of the best attention. Our common *Barberry* (*B. vulgaris*) inhabits the Eastern United States, and there is one species in Canada, *B. canadensis*. The *Barberries* of Mexico and Texas and the Southern States are of doubtful value in this country on account of their tenderness.

Flowering *Ribes speciosum* early.—The *Fuchsia*-flowered *Ribes* which is so justly valued as an ornamental flowering shrub, will, under glass, anticipate its usual season of blooming by a long time, and produce both its beautiful crimson *Fuchsia*-like blossoms and attractive glossy foliage by the beginning of March, at which time a bush of it forms a conspicuous feature in the conservatory. To forcing, as applied to *Deutzias*, *Lilacs*, and such things, it is not amenable, but with the assistance and protection of a light glass structure, with little, if any, fire heat, it may, as stated, be had in bloom at a time when under ordinary conditions it would be still dormant. This *Ribes* is a most beautiful shrub, but like the golden-flowered species (*R. aureum*) it is rarely seen, while the ordinary flowering *Currant* (*R. sanguineum*) and its many varieties is met with

in nearly every garden. True, this latter will often grow, and even thrive, where the conditions are very unfavourable, while *R. speciosum* is more particular in its requirements; but where at all favourably situated it forms a handsome bush, and if the soil is moderately good, a most vigorous one.—T.

GARDEN HEDGES AND SCREENS.

I was surprised to find that Mr. Molyneux made no mention of *Thuja Lobbi* for this purpose. For forming a thick hedge or screen quickly there is no Evergreen equal to it; it beats the *Arboretæ* both in rapidity of growth and in appearance, as it does not lose colour in winter, but of the two takes on a deeper tint. For forming boundary hedges between the vegetable and kitchen garden and the pleasure ground, or for similar situations it is, on account of its uniformly handsome appearance, very suitable; if thrifty young two-year-old plants are set out into good deeply stirred soil they will form a screen 5 ft. high or more in four years. In order to obtain a hedge well furnished to the bottom it is important to secure plants that have never been crowded, and for this reason I advise the use of quite young ones. Sometimes, with a view of obtaining a fence quickly older specimens are employed, but they are sure to have become more or less leggy, and a hedge never gets thick at the bottom when such plants are used for its formation. Too little thought is generally given to the foundation and too much to the top, which is bound to come right if the proper kind of plants are used and the planting is properly done. The same remark applies to *Holly*, by far the best of all hedge plants, and which will grow almost as rapidly as *Quick* if the ground is well prepared for it. The little extra expense involved in the outlay on *Holly* is well repaid by its impenetrability and handsome appearance at all times of the year. For *Holly* the ground should be trenched 2 ft. deep, and plenty of good manure should be worked into the full depth. If this is done, in the third year from planting the plants will make from 18 in. to 2 ft. of growth; whereas if the ground is poor and not well stirred they may remain for years before they make a start. It is a common plan to plant *Holly* on a bank; but where the soil is fairly light or well drained the extra labour thus entailed is by no means necessary; in fact, *Holly* is by no means so difficult to please in the matter of soil as many imagine. Where primary cost is an object and there is a large amount of fences to make, a *Holly* hedge may be eventually obtained by planting three *Quicks* to one *Holly*, as in time the latter gets the mastery. Sometimes *Quick* hedges become through neglect bare at the bottom, and when this is the case I know of no better remedy than planting strong bushy *Hollies* in the thin places. They should be planted in the autumn, as they then get roothold by winter, and are not so likely to suffer from drought the following summer. As the soil at the base of a *Quick* hedge is sure to become very dry, it is well to give it a good watering now and then. The great point is to ensure their making fair growth the first year; the following one they will take care of themselves. *Privet* may be used in the same way, is more easily established, and grows quicker; but it forms such a mass of roots near the surface as in time to quite spoil the soil for several feet from the hedge. Nothing so completely ruins a hedge as to allow weeds to grow amongst the young plants; their growth is thereby stopped, and the lowermost shoots die away in time. Another important point, especially in the case of *Quick* and *Privet*, is to frequently clip the sides. If clipping is deferred until July the wood has become so far ripened

that it does not break again; whereas, by clipping the soft shoots early in June, they start away again almost immediately, thus causing the hedge to thicken. J. C. B.

DECIDUOUS TREES IN FEBRUARY.

NOTWITHSTANDING the ungenial weather which has lately been experienced, most of our common deciduous trees, though bare, and to the cursory observer showing few if any signs of life, will, on closer examination, be found to present the most unmistakable evidence that the dormant season is rapidly passing, and that spring is within a measurable distance.

The Oaks hereabouts, which is rather a high and exposed position, have already put forth an abundance of buds, and although another couple of months, or perhaps more, have to pass away before these buds develop, and the leaves emerge and clothe the branches in a mantle of green, there cannot be the slightest doubt that the trees show unimpaired vitality.

The common, small-leaved Elm is a tree which now looks more bare than the Oak, and besides the variation in its general conformation, in the size and character of its buds its difference from the last named tree is very marked. Though these, however, are less conspicuous, the indications that Nature is again at work are readily enough seen.

The Ash, with its dark brown excrescences, which contain the germ of what will in a few weeks burst into growth and deck the now sombre branches, is a tree which at the present moment can hardly fail to arrest attention. Leaving, for a moment, the hard-wooded deciduous trees, the *Poplars* will stand a little looking into. Amongst these the buds of the common Grey or White Poplar are sufficiently far advanced to need only the higher temperature of the coming months to start away into full growth. With respect to the *Willows*, which are nearly akin to this family, its numerous species and varieties seem to keep pace with the other trees. The one which will be first remarked is the Goat Willow (*Salix caprea*), as for some weeks past the buds of this species have been slowly swelling, and, in spite of the lowness of the temperature, and their frequently being covered with snow, are now bursting, and the catkins appearing. The Crack Willow (*Salix fragilis*) is also showing a quantity of buds, and will be one of the first to make leaf. A tree of this species grows in a slight depression below my house, and in the spring-time is remarkable for the tender green of its foliage, whilst many other trees are still naked.

Returning to the hard-woods, the Field Maple does not show any great signs of the latent forces which are nevertheless at work, still it shows enough to prove that it is participating in the general movement which is at hand. The catkins of the Hazel are very abundant, and its buds are slowly developing, and more numerous are those of the Hawthorn. The Wild Service occurring here and there has large green buds, though they are, from its habit of growth, not distributed very thickly. Another species of *Pyrus*, the White Beam, is also showing signs of the lengthening days. So far as present appearance tells, the Elder and the Wayfarer's Tree will be early in sending out their leaves, and the common *Lilac* seems to be already anticipating the warmth and sunshine in store.

Indeed, though differing in form and in the degree of development at this early date, though in no way abnormal, the coming growth of our common deciduous trees and shrubs may be easily enough distinguished, and to watch this gradual development caused by the action of the

now hidden forces of Nature is, to say the least, extremely interesting and instructive. What should encourage many to do this is the fact that no great inroads upon the time are necessary, and no expensive apparatus has to be purchased to obtain results. The few trees which have been mentioned of course only indicate the direction in which subjects for observation may be found. It is rather a surprising thing with regard to trees and their growth that many whose lives are spent amongst them take but little notice of the marvellous changes which are constantly going on. These changes must from time to time be seen, as they are directly before the eye, but they are not seen in a way which suggests any enquiry into the most common phenomena of Nature. If notes were systematically taken by the readers of these pages and the results of the observations communicated, much valuable information would certainly be the outcome, and, what is equally certain, a deep interest would be aroused in a limitless field of study. It is not in every case where recreation and work of practical value will go hand in hand, but this is without doubt an instance. Then the present there could scarcely be a more opportune time for taking up the subject, as, after the suspended growth of the short and cold days of winter, as has been pointed out, everything is showing signs of renewed activity. From the incipient bud to the perfect leaf, flower, and fruit, every week will now mark an epoch of progress. Rustic.

Cuttings of Evergreens.—Is it too late to put in cuttings of evergreen shrubs, such as Holly, Yew, Juniper, and common Laurels, or of any other kinds of shrubs, and also what is the best way of making the cuttings?—SUBSCRIBER.

* * Cuttings of such shrubs as those just mentioned should be put in in autumn, but still fairly satisfactory results may reasonably be expected (at all events in the case of some of the kinds) if put in now. If it is intended to strike them in the open ground, as sheltered a position as possible should be chosen—sheltered from the sun and cold drying winds, provided it is free from drip. The length of the cuttings and the depth they should be inserted will depend, to some extent, upon the ground; where light and sandy (and cuttings root best in such soil), a length of about a foot is very suitable, and of this 8 inches or 9 inches should be buried, leaving but the upper 3 inches exposed. In selecting the cuttings the soft immature points of the shoots should be rejected, as they only shrivel up and perish during the dry, harsh winds generally experienced in March. A good sharp knife is essential, in order that the base of the cutting may be formed by a clean cut, and if too long, or the upper part is immature, the soft portion should be cut off in the same clear manner. In inserting the cuttings care must be taken that they are put in firmly; the best way to ensure this is to form a trench by inserting the spade in a perpendicular manner and drawing the soil towards the operator, till a sufficient depth is obtained; then place the cuttings in an upright position against the undisturbed portion of the soil, and fill it in with that taken out, treading it down firmly. In this way a plot of ground can be filled by working row after row till the space at command is exhausted. For striking cuttings such as those named above (at this season especially), the most satisfactory results will be obtained if a frame can be accorded them, and if such can be spared the cuttings need not be so long or so firm in texture as if fully exposed; but still, even then well matured shoots are best. Some of the shrubs above mentioned are by no means among the easiest of subjects to strike from cuttings at any time, especially in the open ground. Amongst these may be named the Holly, which is propagated by seeds, and in the case of the varieties by grafting or budding on seedling stocks. Cuttings can be struck, but they take a long time, and failures are frequent. The Yew and the different Junipers are also tardy in the production of roots unless put under glass, while the

common Laurel roots freely in this way. The evergreen shrubs most likely to succeed at this season in the open (and they, too, would be better in a frame) are Aucubas, Euonymus, common Box, Privets, and Laurustinus.—T.

THE WEEPING INDIAN JUNIPER.

(JUNIPERUS RECURVA.)

This Juniper is one of the most distinct, beautiful, and valuable ever introduced into Britain. True, although perfectly hardy, it is somewhat fastidious and difficult to manage, and, like many another of its Chinese relatives, has its likes and dislikes both as regards soil and situation, but these being favourable no more easily cultivated tree or shrub will be found in the whole category of Conifere. Planted in cool, moist, shady situations, it soon forms an elegant and distinct specimen with recurved, feathery foliage, which is of an unusual, though desirable, greenish grey colour and abundantly produced; while the contrast of the light green of the young and the rusty brown of the older foliage is strikingly remarkable, and renders the tree as uncommon as it is beautiful. As a straggling bush of from 6 feet to 12 feet in height, it may be found inhabiting the rocky crags of the Himalayas, from Bhutan to Cashmere, but in the valleys it is said by Sir Joseph Hooker to attain a height of 30 feet, dimensions that have never been attained in this country, although specimens that I have seen growing under remarkably favourable circumstances had reached half that size. On this estate, growing in fine loamy peat that rests at no great depth on shale rock, and in a sheltered, shady situation, are some usually fine plants of the Weeping Juniper, the bright, healthy foliage of which at once points out that they are quite at home, and also clearly proves that, with a little attention to its now well-known requirements, this handsome shrub is well adapted for culture in this country, and may be as successfully grown as our common native species. The plants just referred to, it may be well to point out, are growing in what may best be described as a semi-shady situation, where tall, stem-pruned Oaks prevent at all times direct sunshine from striking on their foliage, this latter being much in favour of the successful cultivation of several species of Juniper, but none more so than the one in question.

Gordon, in his "Pinetum," made the rather unfortunate mistake of describing *Juniperus recurva* as dioecious, an error into which subsequent writers ("Senilis" in his "Pinaceæ," and Veitch in his "Manual of Conifere") have either fallen or followed. That the tree is monoecious I have now ascertained beyond doubt, as both male and female flowers have been produced on several trees at Penrhyn, and good, well-filled seeds obtained. What has heretofore been known and sent out by nurserymen as the male or pollen-bearing form of *Juniperus recurva* is, judging from specimens here, nothing more than *J. densa* in an unfruitful condition. Unfortunately, this latter has also become confused in nomenclature with *J. squamata*, but from which it is readily enough distinguished by the yellowish green, rather sickly-looking foliage, much taller, erect habit, and by its never spreading to such a wide extent as is a marked characteristic of that species.

The dark purple, oval-shaped berries of *J. recurva* are borne in great profusion on the trees at Penrhyn, and impart to them during the winter and spring months an appearance that is as unusual as it is pretty. Each berry contains but one seed, which is ripe in January or February, and should, if wanted for propagating

purposes, be then collected and placed in fine sand or sown in light, sandy peat, after removing the outer fleshy coating.

Cuttings are readily struck in a cool frame—indeed, this is our usual method of reproduction—but the plants produced in this way are not altogether satisfactory, they usually assuming a flat, spreading habit, with little or no inclination to form a leading shoot. By care and attention in the way of pruning an upright tendency may, however, be induced, but I have always noticed that plants raised from cuttings seldom put on the upright growth that is noticeable in the parent plants, but this is, perhaps, the case with most Conifers—a goodly number whatever.

Any moist, not over-rich soil and a shady situation will be found sufficient for the wants of this plant, and when used as a single specimen on the lawn or in close contiguity to other trees, few of our ornamental shrubs are more interesting, distinct, or attractive.

A. D. WEBSTER.

TAXUS ADPRESSA.

As far as the adaptability of this shrub as an isolated specimen I quite agree with "Alpha," for it is one of the most distinct of Yews, but as to its origin I differ. As a matter of fact, it was raised from seed in the nurseries of Messrs. Dickson, of Chester, more than half a century ago, and was considered to be a hybrid. In Gordon's "Pinetum," p. 287, it is erroneously stated to be a native of Japan, seldom growing more than 6 feet to 8 feet high; whereas I have recently seen specimens growing in the Newton Nurseries, Chester, of the following dimensions:—

No. 1, height, 13½ feet; circumference, 43 feet

No. 2, " 10½ " " 42½ "

No. 3, " 10½ " " 44½ "

proving, if necessary, that the information on the subject in the work referred to is not to be relied upon. At the same time it will be interesting to know if the plant Gordon referred to in Japan is similar to, or nearly approaching, this distinct hybrid, but I am inclined to think it is not. It was originally named *T. brevifolia*, and sent out by the raisers under that name. The name *T. adpressa* was given to it, I believe, by a London nurseryman, Mr. Knight. But hereon hangs a tale, for it seems Mr. Knight, when looking through Mr. Dickson's nurseries in the absence of the proprietor and their responsible fireman, noticed the young plants, and bought them at the ordinary common Yew price and took them away with him, the attendant accompanying him being ignorant of its value, or, indeed, that it was a new plant; and Messrs. Dickson, on learning the case, at once wrote explaining the error, and asking for the plants to be returned, as they were not for sale. This most reasonable request was refused. Then came a race as to which firm could put the plant into the market first—eventually Messrs. Dickson, who had the original plant to work from, doing so under the name of *T. brevifolia*, Mr. Knight distributing it under the name of *T. adpressa*, possibly as good a name, but not the one it at first bore. These facts may be interesting to those who admire this really good Yew. The upright variety, *T. adpressa striata*, is also well worth having, and is said to be a seedling raised by the late Mr. Standish. It will be interesting to know if such be the case, or if it is a sport fixed by grafting.

G. G. M.

Variegated Elæagnus.—The variegated forms of the Japanese *Elæagnus* are all handsome shrubs, and, unless in the case of very severe winters, their beauty is not marred by frost; indeed, during the dull months of the year the variegation appears to be (probably from contrast with the surroundings) even brighter than it is in the summer. They are of good free growth, holding their own even on light sandy soils; but as a matter of course the best results are obtained where more favourably situated, as then the green portion of the leaf acquires a deep tint, which tends to show off the variegated part. The little scales that clothe the young shoots and leaves are characteristic of most kinds of *Elæagnus*.—H. P.

THE AMERICAN DOGWOOD.

(CORNUS FLORIDA.)

THIS pretty flowering shrub or tree is beginning to attract a larger share of attention than formerly, and I think deservedly so. It has long been one of the most attractive objects in the margins of our spring woodlands and sunny openings all through the Atlantic States, in Southern Minnesota, and other Western States. It is a precocious wildling, coming into bloom freely in May and before the leaf buds are fully expanded. It seems to delight in the edge of a wood where it may laugh at the sunshine and toy with the shade, and still remain under the protecting arms of some lofty Oak or other deciduous neighbour, flinging out its broad and sweeping racemes a little farther into the open field and sunlight than anything else. As though cognisant of its beauty, and desiring to hang out its share in the floral banner of springtime, its roots will usually be found imbedded in a moist, peaty soil. The flowers, with their large white bracts, often measure over 3 inches in diameter, and thus the tree is very showy, attracting the eye at a long distance. The Dogwood blooms along the shores of Hudson River; in May forms a brilliant and attractive feature in the varied landscape of that famous stream. For nearly two weeks the flowers remain in good condition; then follow the thick, glossy, oval leaves and the fruit, which is a bright red berry. These often remain on the tree during the winter; then early in autumn the leaves change to a deep red, adhering to the branch a long time, and thus for the second time in one season the tree becomes one of the most glowing and conspicuous objects in the woodland. But the Dogwood leaf is not well adapted for preservation; it is thick and fleshy, and will not retain the brilliant colouring after pressing like a Maple leaf. The flowers of this species come into bloom just as the Magnolia begins to fade, and they form a pleasing succession to that charming genus.

This species of Dogwood often attains considerable size and height when left undisturbed in its chosen location. It is a rapid grower, and trees 30 feet and 40 feet high have been found. Near Roslyn, L. I., is a beautiful specimen of this tree. It rises with a round and symmetrical head to a height of over 30 feet, having a similar spread. The trunk is straight, measuring about 10 inches across at the base. To one who has never seen such a specimen when in full bloom a just conception of its beauty is scarcely possible. Another fine large tree may be seen at Orange, N. J., not far from New York city. Occasionally this species is found with a decided suffusion of pink in the involucres instead of the usual white. Friend Carman, of the *Rural New Yorker*, was, I think, the first to make this discovery, and he called attention to it in his paper about five years ago. Since then others have found similar specimens, and propagators have not lost their opportunity. Among others, Messrs. Parsons and Sons have lately been offering a variety having deep red flowers, which they call *Cornus florida fl.-rubra*. While such as these are novel, pretty, and valuable acquisitions, they can never be as attractive and striking in a mass as the white-flowered specimens, by rea-

son of the lesser contrast presented with the leaves.

In an economic point of view the wood of *C. florida* possesses many valuable qualities, and for this alone it would be well worth growing. It is, in fact, a beautiful wood in grain and texture. It is hard, tough, fine-grained and heavy, specific

gravity being 0.8153. In colour it is nearly white, slightly reddish at the heart. It has a beautiful satiny appearance, and takes a high polish readily. The medullary rays are numerous and conspicuous. It is an excellent wood for turning. As an amateur I have frequently used it in the lathe, and always with the greatest satisfaction. I know of nothing superior to it for this purpose in our American woods. I have often wondered that it was not used by engravers to a greater extent than it is, although I am told it is already employed for woodcuts quite largely. It seems well adapted for machinery bearings, and I should think it would make excellent wagon-hubs. For tool and all manner of handles and mallets it has no superior. There is a tendency toward checking during the process of seasoning, however, especially in large blocks, which needs some care to overlook or prevent. But this is very apt to be the case with all hard, close-grained woods. The bark, in addition to being very pretty in its outward appearance by reason of its fine even net-work, is also of economic value, especially the bark of the root.

It is said to have bitter tonic properties, similar in some respects to Peruvian bark, and it is used successfully in fevers and malarial diseases. By some this bark is accorded a very high place among the vegetable medicinal products of North America.

As an ornamental tree it has not been planted to the extent its merits would seem to warrant.

It may occasionally be found upon the grounds of those having a just appreciation of trees and plants in accordance with their individual merits, irrespective of their habitat and native frequency; but rarely or never elsewhere in this country, and because this flowering Dogwood grows so commonly in our American woodlands is the very

reason it is so seldom planted in our lawns. This senseless craze for exotic plants, without regard to features of adaptation, use, or beauty, has long been the bane of American gardens, and many a fine place has been brought to ruin by such immoderate and foolish indulgence. Our woods and waysides abound with interesting plants, half the beauties of which have never yet been told, or even discovered. Why shall we continue to reach out, over these, to foreign lands for botanical treasures, often at large expense, and without knowledge of their requisites, or facilities to supply them?

As a matter of fact, this species of Dogwood makes a beautiful tree which would be an ornament to any lawn where properly planted, either at its season of flowering, when in full foliage merely, or in its brilliant garb of autumn decline, and even 'mid the snows of winter, with its clean branches red with fruit. Messrs. Ellwanger and Barry, the veteran gardeners of Rochester, New York, regard it as among the most valuable trees for ornamental planting we have, placing it next to the Magnolia. While its situation should be partially sheltered, the foliage needs to roll back in the sunshine to secure ample bloom. A continuous supply of moisture at the roots is necessary to keep up its rapid and vigorous growth. In planting, it is not well to select too large a plant. Proper attention to these points will usually secure success with this species.

H. HENDRICKS.

Kingston, New York.

Hardy Butcher's Brooms.

— The only dwarf evergreen shrubby plants which will grow tolerably well, even under the dense shade and objectionable leaf-deposits of the Yew, is the Box Holly, or Butcher's Broom; and as it succeeds well in such a situation, it is not too much to say it is well adapted for all very shady places, though it berries better, certainly, when grown in more exposed sunny

places. The Butcher's Broom (*R. aculeatus*) is an indigenous plant still to be met with as a dwarf under-shrub in Epping Forest and elsewhere, though not so plentiful as it might be, owing to the fact that the fresh green growths are cut down, as often as is sufficient to be found, and carried away for sale to herbalists, tobacco manufacturers,

Cone of the Foo Chow Fir (*Abies Fortunei*).

&c., in the metropolis, each growth, I am informed, producing to the itinerant vendors one penny; indeed, where the plant is known to exist in private gardens it is not safe from such individuals. The name Butcher's Broom was given to the native species because formerly butchers used branches of the plant for sweeping down their blocks. It is a shrubby plant of the average height of 2 feet. The greenish white flowers are produced during the months of April and May, and the bright scarlet berries, which are very ornamental, and about the size of small wild cherries, ripen about the month of October. A far more interesting species is *Ruscus Hypoglossum*, a low evergreen shrub found in Italy, Hungary, and Africa, and said to be abundant around Algiers. That it is a more pretentious shrub need not be said when it is stated its average height grown in this country is 6 feet or 8 feet, that its leaves are larger, its habit more branching, which, together with the peculiar gloss upon its leaves, give a pleasing effect. A small leaf grows out of the midrib of the primary leaf, and between the two parts of such compound leaves, the flowers, and ultimately the berries, form, adding greatly to the interest of the plant. I have found it growing perfectly under the dense shade (near to the base) of a very large vigorous *Rhododendron ponticum*, than which a drier place during summer it is difficult to imagine. *Ruscus racemosus*, or the Alexandrian Laurel, is also an elegant plant deserving of cultivation.—W. EARLEY.

THE FOO-CHOW FIR.

(*ABIES FORTUNEI*.)

In 1850 Lindley described in Paxton's "Flower Garden" a Conifer which a few years previous had been sent to this country by Fortune from China or Japan to Messrs. Standish, who raised seedlings and distributed them. This description was accompanied by the illustration of a cone here-with given, and it was said to be "a magnificent evergreen tree probably perfectly hardy." Lindley named the tree *Abies jezoensis*, presumably because it was alleged to have been a native of the island of Yesso, Northern Japan. This, however, appears to have been incorrect, as the tree has since proved to be a native of South-eastern China, where, according to Veitch's "Manual," it grows abundantly on the Foo-Chow Mountains. This tree is said to be remarkable in several ways. Its growth is peculiar, being of the aspect of the Cedar in the adult stage, and possessing the foliage of the Silver Fir. It is, moreover, singular botanically, and one botanist (Carrière) has even gone so far as to place it in distinct genus—*Keteleeria Fortunei*. It would be interesting to know if any of Standish's seedlings still exist in the country, and where. Perhaps some of our readers may know of specimens in some of the older pine-tuns. Being a Chinese tree, it is doubtful if it is a suitable tree for this country, and there is little hope indeed that it will fulfil Lindley's prediction of being a magnificent evergreen tree. It is tolerably clear, however, that it is a remarkable tree, possessing quite the characteristic Chinese aspect, and it is to be regretted, if it is a fact, that it is wholly unsuitable for even the warmer parts of these islands. With regard to the true Yesso Fir (*A. jezoensis*), confusion exists among botanists, judging by the long list of synonyms given in some of the standard works on Conifera. Koch considers it synonymous with *A. sitchensis*, *ajanensis*, and *Menziesi*. Carrière evidently considers it distinct, as he describes both *A. sitchensis* and *jezoensis* separately. In Veitch's "Manual," it is regarded as a distinct species, and is placed between *A. excelsa* and *Menziesi*. In this work it is stated that the Yesso Fir was introduced in 1879 from Yesso by Mr. Maries when travelling for Messrs. Veitch. It is evident that there is a group of *Abies* that are very closely allied, pro-

bably too nearly related, for critical botanists, though perhaps distinct enough from a garden point of view. In this category may be placed *A. Menziesi*, *ajanensis*, *sitchensis*, *jezoensis*, and others which are sometimes regarded as synonymous and sometimes distinct. They are probably geographical forms of a widely-distributed species.

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 9.

CONTRARY to what was generally expected, there was a really interesting and attractive exhibition in the South Kensington conservatory last Tuesday. Forced hardy flowers were particularly numerous, and, notwithstanding the hard frost, there was a fair show of Orchids, which included a splendid series of varieties of *Cattleya Trianae*, which is now in full season.

First-class certificates were awarded to the following plants:—

CATTELEYA TRIANÆ SCHROEDERIANA.—A magnificent variety rivaling the famous *Leeana* in size and *Bonnyana* in form and colour. The side sepals are unusually broad, of oval outline, and of a pale lilac tint. The enormous lip has a long shelving lobe, which is exquisitely frilled at the margin. The colour is an intensely rich carmine-magenta, running off into a heavy blotch of orange-yellow in the throat. This extraordinary variety must be classed with such varieties as *Leeana*, *Russelliana*, *Backhouseana*, *Bonnyana*, and others of the select few. A strong specimen was shown by Mr. Ballantine from Baron Schroeder's garden at The Dell, Egham.

CATTELEYA TRIANÆ ERNESTI.—A remarkable variety as regards the colour, which is in the way of that of *Backhouseana*, characterised by having heavy blotches of deep colour on the lateral sepals. In this variety the sepals are very pale, almost white in fact, and the blotches of magenta-crimson occur at the tips; the lip also is highly and richly coloured. The flower is smallish, but the form is admirable, the sepals standing almost erect. This was shown by Mr. R. J. Measures, of Cambridge Lodge, Camberwell.

ARUM PALESTINUM.—This is the red Palestine *Arum* Lily about which some American notes have appeared in *THE GARDEN* lately. A plant was shown by Messrs. Heath, of Cheltenham, having a large, well-developed flower. It is a handsome plant, but the spathe cannot really be termed red or crimson in colour. It is more of a crimson-black, exactly similar to the colour of the so-called *Black Dahlia* (*D. Zinapani*). The surface of the spathe shines like satin, and the spadix is a dull jet black. The leaves are heart-shaped and pointed, about 8 inches in length, and lined with pale veins. It is not a showy plant, but interesting, particularly on account of its being a native of the Holy Land. It is not new, having been introduced long ago to this country.

IRIS RETICULATA CYANEA.—A variety of the netted *Iris*, having the flowers of a bluish purple instead of true purple; therefore it is quite different from the ordinary form, and many would think it a brighter and prettier plant. A potful of bulbs in bloom was shown by Mr. Ware, from his nursery at Tottenham.

PRIMULA FLORIBUNDA.—This charming little Indian Primrose was shown by Mr. Ware in good bloom, considering the season. The profusion of the small rich yellow flowers and its continuous flowering season render it a most valuable plant for a cool greenhouse.

PRIMULA IMPROVEMENT.—A single flowered Chinese variety, perfect in every point as regards habit of growth and flowers. The colour is a splendid crimson magenta. Exhibited by Messrs. Cannell, Swanley.

GALANTHUS ELWESI.—Although this, the finest of all the Snowdrops, has been shown many times previously, it appears that no certificate has been awarded to it before the present occasion, when good plants of it were shown by Messrs. Barr and Son and Mr. Ware.

ORCHIDS.—The chief among these were the varieties of *Cattleya Trianae*, shown by various exhibitors, among them being Baron Schroeder, who sent a magnificent plant of the *Russelliana* variety, carrying no fewer than thirteen flowers on four spikes, one bearing four flowers. This superb variety is acknowledged to have few, if any, equals as regards the colour and size of the flowers, and no plant of it is finer than that shown. A splendid form of *C. Trianae* was shown by Mr. Haywood, of Reigate, and another large flower with a wonderfully fine labellum was exhibited by Mr. Pollett, of Bickley. Dr. Duke, of Lewisham, showed a variety of *Trianae* named *Dukeana*, remarkable for large size, rich colour, and admirable form. Dr. Duke also sent a plant of *C. Lawrenceana*, which is the first time it has been exhibited. The specimen was not of course established; therefore it could not be expected to give an adequate idea of the plant's true character. The flower is small, with a round lobed lip of deep purplish magenta, with white in the throat, while the sepals are almost as deep in colour. The only *Cattleya* with which it is comparable is the rare hybrid *C. triophthalma*. With this it seems almost identical judging by Dr. Duke's specimen, and this hybrid has likewise several flowers on a spike. It would be obviously unfair to pronounce an opinion upon the species from an imperfect specimen, as this was. Mr. Bull showed a number of beautiful varieties of *C. Trianae* selected and named from his collection. The most remarkable of them were those named *Juno*, with a splendid lip; *Phyllis*, sepals beautifully veined and blotched; *picta*, very pale, almost white; *bellina*, small, but of a beautiful colour; *notabilis*, with an uncommonly rich lip like that of *C. Percivaliana*; and the white *virginalis*. Mr. G. F. Wilson, of Heatherbank, Weybridge, showed a spike of the magnificent new *Phaius tuberosus*, an Orchid which has baffled the efforts of the most skilful Orchid growers to coax into vigorous growth. But Mr. Wilson has evidently found out the secret of its requirements, for he showed a spike carrying eleven flowers, and he left one on the plant bearing twelve flowers. Mr. Pollett showed a large plant of the new *Cattleya Measuresiana*, a plant a good deal like the old *bicolor*. Mr. Pollett also showed a fine spike of *Odontoglossum Schilleriana*, which may be best described as a rich golden form of *O. gloriosum* spotted and blotched with chestnut brown. Mr. Douglas, of Great Gearies, Ilford, showed a fine branching spike of *O. cirrhosum*, cut from a plant bearing five others equally large. The frosty weather had a peculiar effect upon the flowers. It made the colours of the spots run as if the flowers had been open a long time.

HARDY FLOWERS made an attractive display, and particularly a large group of forced *Daffodils* from Messrs. Collins and Gabriel, of the Waterloo Road. It was a happy thought of this firm to exhibit *Narcissi* so early, but of course they had to force the bulbs slightly. Everybody admired them, so welcome were they after such a flowerless season. There were about two dozen sorts shown, representing all the sections, even the late poeticus forms. Among the choicest were *N. Bulbocodium citrinus* *Grællsi* and *monophyllus*, *pseudo-Narcissus pallidus præcox*, *moschatus*, *cernuus*, *spurius*, *maximus*, and others, all of which admirably exemplified that *Narcissi* forcing can be carried out most successfully. A silver Banksian medal was deservedly awarded to the exhibitors.

Mr. Ware, of Tottenham, sent a large group of various hardy flowers, which had apparently been induced to open their flower-buds under the protection of frames. There was a large show of hardy *Cyclamens*, the specimens being in pans 1 foot across. The sorts were *Atkinsi* and varieties, *album* and *roseum*, and *Coum* and its varieties—all extremely pretty. Besides these there were various *Snowdrops*, including the late-flowering *G. latifolius*, *Iris stylosa*, *Leucojum vernum*, *Iris reticulata*, *Hyacinthus azurea*—a new species of not much garden value, being like an inferior *Muscari*. Mr. Ware also received a silver medal for his group.

A series of varieties of *Hellebore*s and other hardy flowers were shown by Messrs. Barr. Among the *Hellebore*s were such fine sorts as *abschasicus*, *colchicus*, both with deep red-purple flowers, and

another called Mrs. Tyerman, one of the guttatus hybrids with copiously spotted sepals. Messrs. Barr's *Galanthus Elwesii* specimens were uncommonly fine.

Cyclamens were shown admirably by the St. George's Nursery Company, Ealing. The group comprised a great variety of colours, and the committee deservedly awarded to the exhibitors a silver medal. Mr. Turner, of Slough, also received a bronze medal for a very fine group of white Cyclamens, large plants, well grown and flowered. Messrs. Cannell, of Swanley, exhibited a choice selection of their single and double Chinese Primulas, both plants and cut blooms, the former being perfect examples of good culture, large plants, a foot or more through, carrying great heads of bloom. The best of the singles were White Perfection, unquestionably the best white, Swanley Giant, Swanley Red, Princess of Wales, and The Queen. Among the doubles the select sorts were Annie Hillier, Princess Beatrice, Earl of Beaconsfield, Eva Fish, and Marchioness of Exeter. Mr. Barron sent from the society's garden a group of well-grown double Primulas; and Mr. James, of Farnham Royal, showed a new single white, called Purity, also two very fine *Cinerarias*—Paragon and Triumph. Mr. Woolford, of East Thorpe, Reading, showed a remarkably fine single Primula, called Mrs. Palmer—quite beyond the average sorts. From Coolhurst Mr. Scrase-Dickins sent a large gathering of his seedling single and semi-double Camellias. These were tastefully arranged in bowls and on Moss, and the colours being intermixed the group was most effective. This series included all those which Mr. Scrase-Dickins recently sent to us, besides a few which have opened since. Among these there was a lovely single pink flower, aptly named Pink Pearl, which is one of the most beautiful we have seen, the colour being so delicate. There was also a tiny white sort, another with large striped petals, and several others we had not previously seen. This group proved a great attraction, being an unusual sight at an exhibition, and the visitors seemed to be unaware that single Camellias were so beautiful.

Messrs. Heath showed a very fine group of *Odontoglossum Roezlii*, all admirably grown plants, for which they received a bronze medal. They also showed a species of *Ficus* said to be new. It is smaller than *F. elastica* and makes a handsome specimen. A fine specimen of a noble Bromeliaceous plant, *Bromelia macrodora*, was shown by Mr. Ross, from Pendell Court, Bletchingley. It is a spreading-habited plant having pendulous flower-spikes enveloped in pink bracts.

Fruit.—There were but few exhibits placed before the committee, the chief being samples of Cooper's Black Grape, from Mr. Wills, of Fern Hill, Windsor Forest, in order to show how well they had kept. The berries were remarkable for their fine bloom, and it certainly is a good looking Grape. From the same garden also came two dishes of Catillac Pear—one, high coloured fruits from trees grown on sand; the other, quite green from trees on clay. The committee wished to know what kind of stocks the trees were grafted on. Samples of Draper's Seabam Hall Kale were shown, and which the committee recommended to be put under trial at Chiswick. The great attraction in the fruit way were three large collections of Apples, shown respectively by Messrs. Bunyard, of Maidstone, who had 100 dishes of high-class fruits; by Messrs. Cheal, of Crawley, whose collection numbered 75; and by Messrs. Rivers, of Sawbridgeworth, who showed no fewer than 150 dishes. The fruits in all the collections were remarkable for their plumpness—a fact no doubt attributable to the sunny ripening season last year. The sorts which stood out most prominent were Cox's Orange Pippin (shown grandly by Messrs. Bunyard), Margil, New Hawthornden, Stone's or Loddington, Gascoigne's Seedling, Lane's Prince Albert (in fine condition), The Queen, Hoary Morning, Echlinville, Worcester Pearmain, Lord Derby, Winter Peach (a first rate sort not well known), Mère de Ménage, Peasgood's Nonsuch, Annie Elizabeth, Lady Henniker, Alfriston, Norfolk Beaufin, Blenheim Orange, and ReINETTE du Canada. These were a few among those which appeared to be the soundest, and consequently the best keepers. The committee awarded a silver medal to each of the three exhibitors.

ANNUAL GENERAL MEETING.

This was held in the Albert Hall on Tuesday, Sir Trevor Lawrence, the president, being in the chair. Most of the members of the council were present, and there was a fair attendance of Fellows. The annual report was adopted. The report, among other matters, states that the council had under consideration the practicability of holding a great international horticultural exhibition and conference in 1887. After two meetings, largely attended by prominent horticulturists, they entered into communication with the Royal Commissioners of the Exhibition of 1881. They regret to state that the encouragement the Commissioners felt able to hold out to them was not sufficient to justify them in undertaking so large a responsibility, especially in view of the very serious financial obligations such an exhibition would necessarily entail. The council are unanimously of opinion that the time has come for such an international exhibition, which would, they have reason to believe, be supported by amateur and professional horticulturists in all parts of the kingdom, and they are anxious that the subject should not be lost sight of by the Royal Horticultural Society. The council propose to resume the provincial shows which have, in past years, been of use in stimulating local interest in horticulture in several important centres of population. They hope shortly to conclude arrangements for holding a show in the summer at Liverpool.

The Primula Conference, to be held on the 20th and 21st April, has already attracted the attention of Primula growers abroad and at home, and will form an interesting feature in the Society's work this year.

The trials at Chiswick by the several committees have given good results. Those of the fruit committee comprised Potatoes, 200 varieties; Peas, 72 varieties; Cauliflowers and Strawberries; in each of which classes several certificates were awarded. Those of the floral committee embraced Fuchsias, 180 varieties; new Pelargoniums, single Dahlias, Begonias, Carnations and Picotees (of which the Society possesses a large collection), and Ivies, of which 80 varieties are now planted against the walls of the gardens. Experiments have been instituted at Chiswick by the Narcissus committee on the doubling of common *Narcissus pseudo-Narcissus*, and for the purpose of determining points of nomenclature.

It is proposed during the present season to continue trials by the fruit and vegetable committee of the newer varieties of Peas, Potatoes, Cabbages and Strawberries; and by the floral committee of Fuchsias, Ivy-leaved and zonal Pelargoniums, Carnations and hardy annuals. The making of a complete collection of the different varieties of Holly is under consideration.

At the request of various colonial governments the society has received and taken charge of large consignments of Tree Ferns and other plants from Victoria, South Australia, New Zealand, Ceylon and the West Indies, intended to be shown at the forthcoming exhibition. These plants occupy a considerable space in the Chiswick gardens, and have necessitated the heating of the large Rose house for their accommodation. As many of them may not be sufficiently established to be exhibited, Fellows of the society who may have large spare plants representative of the flora of any of these countries are invited to place them at the disposal of the society.

The auditors' report shows that there is a deficiency in the revenue of the society of £120.

The following Fellows were elected to fill vacancies on the council: Baron Schröder, Mr. Mitford, C.B. and Mr. Courtald. Sir Trevor Lawrence remains the president, Mr. Haughton the treasurer, and Mr. Lee (of Leatherhead) was elected secretary in place of Major Mason, who retired.

The president in the course of his address stated that it was with regret that he had to announce that the Fellows would be deprived of certain privileges in relation to the transfer of their tickets, the Commissioners of the Colonial and Indian Exhibition having decided that the tickets of the Fellows of the society shall not be transferable during the ensuing year.

The chairman then alluded to the chief events that took place in connection with the society during the

past year, and commented upon the prospects of other successful gatherings to be held this year, particularly the Primula conference in April, and the large provincial show which the society has been invited to hold at Liverpool. In conclusion, the president said it was impossible for the Royal Horticultural Society to continue in its present position any longer in relation to the Royal Commissioners. The series of exhibitions which have been held in the gardens would, he believed, absolutely terminate with the Colonial and Indian Exhibition this year. So far as he knew there was no definite idea as to the disposal of the gardens, but no doubt, as they were being encroached upon by buildings, they would soon have roads cut through them. It was not consistent with the dignity of the society to remain in their present position.

THE ANNUAL DINNER of the society was held at the Criterion on Tuesday night. Sir Trevor Lawrence presided, and a large gathering of horticulturists assembled. After the usual loyal toasts, Mr. Thelston Dyer proposed "Prosperity to the Royal Horticultural Society." He alluded to the deep interest he felt in the welfare of the society, which he regarded as the representative society of horticulture in this country. There was, he said, no country where he had observed better workmanship and more artistic cultivation in the horticultural art than in England, and he wanted them to realise how dignified a thing English horticulture was. He might say that some new things were in store for the public, and that some better business would be done in connection with the society in the future. They had had a dignified past, and he hoped that the impulse with which they started the work of the new year would carry them to such a position as would enable them to place the society before the world as the official representative of a great and splendid national industry.

Mr. Mitford proposed the toast "Success of horticulture," and in the course of his remarks alluded to the change in the directorate at Kew, which was regarded with great satisfaction in this country and abroad. Mr. Harvey, of Liverpool, in responding, expressed the hope that the society's operations would in the future be of a national character. He also expressed his opinion that a special Orchid society was not needed. Dr. Foster gave the toast of the "Visitors," and remarked that the society would benefit greatly by getting away from South Kensington and establishing a fresh habitation. The society wanted room for their meetings and a location for the Lindley Library. Mr. Baker, of Kew, alluded to the necessity of botanists and horticulturists working hand in hand, and said he should like to see the Royal Horticultural Society fill the intermediate position between botanists and gardeners. It was his opinion that the reduction of plant names was a necessity, but the tendency now-a-days was to increase them unduly. In reply to the toast of his health, proposed by Mr. Bateman, the president remarked that they had in this country a public interested in horticulture and willing to support their society as the representative of the art. What they wanted was to establish themselves in a place where they could hold their fortnightly shows under satisfactory circumstances. That difficulty he thought had now been overcome. He agreed with Mr. Harvey that an Orchid society was not needed, and that the work could be done by the Royal Horticultural Society.

LATE NOTES.

Rosa sulphurea fl.-pl. (p. 127) can be had from Messrs. Sompert & Notting, Rose growers at Luxembourg.—MAX LECHTELIN, Baden-Baden.

Rock plants at Edinburgh.—I am obliged to 'J.C.L.' (p. 109) for having directed attention to an unfortunate error which occurred in the list of plants which flowered in the rock garden, Royal Botanic Garden, Edinburgh (p. 44), viz., *Vinca* major fl.-pl. and *Vinca* major alba should have read *V. minor* fl.-pl. and *V. minor* alba.—R. LINDSAY.

Names of plants.—*C. Court.*—*Eriocephalus sericeus*, a pretty Cape composite, not unlike *E. africanus* in *Botanical Magazine*, tab. 1805. The genus is rarely met with in England. —*A. C.*—Cannot possibly name the Orchid. It may be a *Phalanopsis*. —*W. W. E.*—1, *Aloe variegata*; 2, *Gasteria verrucosa*; other specimens insufficient. We cannot name the Pear, or tell you the cause of the disease. —*K. C.*—1, *Blechnum occidentale*; 2, *Goniophlebium appendiculatum*; 3, *Asplenium Colensoi*.

WOODS & FORESTS.

HOME V. FOREIGN TIMBER.

ALTHOUGH "Yorkshireman" (p. 106) does not give a direct answer to the question, whether or not the timber growing above the coal pits is of a proper size and scantling for the use of the miner, yet one can gather from his article that it is not, and this is exactly what others as well as myself suspected; consequently, the miner cannot be blamed for not making a purchase from his landlord, more especially when he can get a supply of proper stuff for his requirements from others at a reasonable price. This state of things, however, strongly illustrates the truth of what I have formerly written upon this subject, namely, that it is a matter of great importance in the proper management of estates to plant and grow to a large extent the kinds of timber which is sure to be wanted in the neighbourhood. The writer says, "It is all very well for Mr. Webster to talk of growing the kinds of timber likely to be wanted. I presume that is what landlords have tried to do in the past, and what . . . we have to do now is to dispose of it profitably as it stands." But if landlords have tried to do so in the past, it is a pity their commendable efforts were not crowned with better success; otherwise, what has become of their mining timber when the foreigner can bring his timber and cut him out of the market on his own property? I can well understand the reason that some prefer foreign timber of some kinds for particular purposes, but mining timber, Larch, Scotch Fir, and Spruce, that can be grown to a proper size for such purposes on heather moor ground, wind-swept hillside, and deep peat bog—all of which may not be capable of producing heavy timber, yet capable of producing excellent mining timber if planted and properly reared for that purpose. In view, then, of such facilities in the shape of barren ground and cheap labour, I think it is not very creditable to timber growers generally, that things are in so deplorable a condition that the foreigner can grow and bring his timber such a distance and cut us out of our own market by fair competition.

The past, however, is pregnant as a lesson for the future, and if we are to compete with the foreigner for this class of timber with any reasonable prospect of success, we must plant or thin out the trees to a distance of some 5 feet or 6 feet apart, and grow them in masses by themselves for that purpose. One of the best blocks of this class of timber I ever saw cut was grown at such a distance apart that a person could traverse the ground without any great difficulty by treading on the stumps of the roots left in the ground. I recently saw a block of natural Scotch Fir growing upon this principle which I thinned about thirty years ago, and although the ground is of a poor, thin texture, at an elevation of about 1000 feet, yet the present crop of poles is really excellent; in fact, I never saw better under similar circumstances. It is admitted that British grown prop timber is superior to that supplied by the foreigner; likewise, that round timber is preferred, as it is easily handled and requires no labour or expense cutting it into halves or quarters, as the case may be when a heavier class of timber is used; and this ought to be a strong inducement to the cultivator in this country to try and produce the article as near the required size of scantling as possible, and this can be best accomplished by growing the trees rather thickly upon the ground in order to encourage a uniform cylindrical shape.

J. B. WEBSTER.

5455.—Willows for hoop-making.—The Willow to which "E. R." refers is probably *Salix*

viminialis, as, according to Loudon, this is more generally cultivated for basket-work and hoops than any other. It is readily distinguished from the other species of the section by the satiny under surface of the leaves. A variety, it is added, called the Dutch Willow, with brown bark, is preferred where hoops are the object. In cold, wet seasons *S. viminialis* has the disadvantage of not ripening the points of its shoots. *S. Forbyana* is better in this respect. *S. Helix*, *S. vitellina*, and *S. purpurea* are suitably where small tough rods are required.—D.

FOREST ROADS.

NOT the least perplexing thing in the management of woodland is the question of roads. In most cases these are mere tracks cleared of the trees and undergrowth, with no attempt made towards metalling in any form. This of course is a great drawback to the removal of the periodical fellings, and entails a considerable amount of wasted strength when teams have to draw loads upon the more or less soft surface. From the nature of the case, however, it is hard to see how the conditions could be materially altered, as from the infrequency of use of such roads as this, it is very seldom that it would answer to expend a large sum in metalling. Much, notwithstanding this, may be done in regulating the way in which they are used to prevent their becoming, as often happens, practically impassable. In the first place, when a forest road is in its normal condition, care should be taken that it is used as little as possible when the soil is very wet. To forbid its use altogether at such times would be hardly practicable, as it is often at such seasons that horses and men are available, and the timber or underwood, as the case may be, is required. The evil of loads passing over the track may be lessened by insisting, in the removal of underwood, that the wheels be of good width at the tyre, and that little more than single horseloads be carted at one time. With timber the case is somewhat different, as the weight cannot so well be accommodated to the circumstances. To overcome this, wheels in any shape should be as little used as possible, as it is really the ruts caused by the passage of these that breaks up the road and forms channels and sloughs for water to accumulate in. Where, therefore, the timber is of moderate size, and the distance to a metalled road is not too great, horses only should be employed, and the trees drawn along on the surface until the hard road is reached, where they may be loaded upon the vehicle intended for their final removal. The propriety of this method will of course be more or less apparent, according to the nature of the soil and subsoil, and where the soil is thin and lying upon a firm subsoil, it may turn out that the wheels will do less damage than the plan of snagging the trees along on the surface; but where the subsoil is clay the reverse is true, as although the dragging of the trees disturbs the surface, when care is taken that as the work proceeds the dragging is pretty evenly distributed over the surface of the road, it will be found that less damage will be caused than when the wheels are used which continually pass over the same spot. When, however, from any cause the road has been considerably disturbed and broken up into deep ruts and bog holes, if possible the soil should be filled in directly the work is finished and the surface again made even. It will sometimes be found necessary to do some little repairing in this way as the work goes on, and for very bad spots, when it is at hand, bundles of rough brushwood, which is of very little use for anything else, may be filled in and intermixed with the soil, or the soil be placed upon it. This is certainly a very rudimentary method of road-making, but it is nevertheless a very useful one,

and one which often saves a very considerable amount of wear and tear to horseflesh. Another way in which damage to forest roads may be minimised or prevented is to take the precaution that they are in all cases flanked by suitable ditches to carry off the superfluous water, as it is this which really causes the most of the trouble.

Where the ditches are required to cross the roadway, short logs from the loppings of the trees may be placed closely together athwart them, and so make an effective covered drain. At intervals along the roadside openings into the body of the wood or plantation may be formed by placing a couple of short logs across the ditch, and then laying some more logs transversely across these, and covering the whole with soil. Forest road-making will never become a fine art, as it will not admit of enough money being spent upon it; still, a little care and forethought will, to a great extent, remove the forester's troubles in this direction.

WILTSHIRE FORESTER.

MEASURING TIMBER.

THE question of measuring timber, upon which "R. P." asks for enlightenment, has from time to time been referred to in these columns, but as it is a subject of general interest, and one which is not too well understood, some further information as to the most common methods may be acceptable. In minor details practice no doubt varies in different districts, but as a whole the following remarks are of general application.

THE SYSTEM OF MEASUREMENT.—In selling unheewn or unsawn timber off an estate the system known as quarter-girth string measurement is almost always adopted. By some the tape is used in place of the string, but even when this is done the terms are virtually synonymous, as the system is denominated quarter-girth string measure in contradistinction to calliper measure. There are certain objections to the use of the tape in obtaining the girth, which will be presently referred to; but for taking the measure of standing timber the string is not suitable. The essential features of this method are ascertaining the length of tree in lineal feet and its circumference in inches. Before, however, entering upon this it will be well to say a word as to the equipment required by the measurer.

THE MEASURER'S IMPLEMENTS are few, but the following are indispensable. For measuring standing timber a rod and leather strap. The rod may consist of a single length of light tough wood, some 13 feet long, or may be made longer by means of joints, in which case the individual lengths would not be so long, to admit of more easy carriage. The strap may consist of a piece of leather some 6 or more feet in length, according to the size of the timber to be measured, and be somewhat of the character of an ordinary carriage rein. As it is difficult to get straps of this kind marked ready for use, the measurer will do well to prepare it himself. To one end of the strap a ring of from an inch to an inch and a quarter in diameter should be attached, and from this ring spaces of four inches should be plainly set off along the whole length of the strap. Within each of these spaces four other spaces of 1 inch each must be marked. As will be presently seen, each of these 4-inch spaces represent an inch of quarter girth, and each of the inch spaces within these the fractions of an inch in quarters. It will therefore be necessary that at the first 4-inch division from the ring the figure 1 be marked in, at the second 4 inches a figure 2, and so on at each 4-inch division along the whole length of the strap.

FOR MEASURING FELLED TIMBER a 66-foot tape (which, however, will require the presence of an assistant) or a 5-foot rod may be used to ascertain the length of the tree. The tape will, of course, be marked in feet and inches, but if the feet and half-feet are marked on the rod, which may be made of deal, it will be enough. As has been said, the tape is sometimes used to get the circumference to obtain the quarter-girth, but as it takes in excrescences on the tree and otherwise does not lie so closely on the bark as the string, it is not generally employed. The string itself merely consists of a sufficient length of whipcord fastened into a loop a couple of inches long at each of its ends. A knot should be tied a few inches from each loop, that when it has been passed under the tree the point in its length where it meets may be known.

FOR MARKING THE TREES either paint or a timber scribe is used. When the trees are standing, the numbers cannot be readily made clear by the marking instrument, so paint is generally used, and the trees numbered consecutively in the ordinary rotation. When, however, they are felled and the figures can be inscribed on the wood itself—in most cases on the butt—the timber scribe is more often adopted. To most who have to do with timber this instrument is familiar; and as in practice it will be found difficult to form curved lines upon the hard butt of a tree endwise of the grain, the Roman notation is often called into use, as the letters composing it mostly consist of straight lines.

THE DIMENSION BOOK.—This may consist of any ruled book of a convenient size for the pocket, and must be ruled into four vertical columns. The first of these will be for the number of the tree; the second, for its length in feet; the third, for its quarter-girth in inches and fractions of an inch; and the fourth, for its contents in cubic feet and inches. The book of tables by which the contents are found will be spoken of later on, as it is not necessarily a part of the equipment in wood or field. What has been mentioned hitherto the surveyor must carry with him in his work, but, as will be seen, the tools will be slightly different according to whether the timber is standing or felled.

TO MEASURE STANDING TIMBER.—Either the 13 feet or the jointed rod, and the leather strap will be necessary. When the number has been affixed to the tree, the first business will be as nearly as may be to ascertain its height in feet, and to do this, if the 13-foot rod be used, as an ordinary man reaches about 7 feet, 20 feet of its height is at once fixed. If the trees are not very large or tall, the distance of measurable timber above this can be readily estimated after a little practice and entered in the dimension book on the same horizontal line as the number and in the column next to it, viz., the second. If, however, the trees are very high, it may be well to use the longer jointed rod, as to judge the length of a tree when this is the case requires a good deal of experience. When the height has been satisfactorily fixed and entered, the next business will be to ascertain the quarter-girth, and to do this correctly is a more difficult thing than to estimate the length. In measuring timber, whether standing or felled, the object of the measurer is to ascertain the circumference, and from this the quarter-girth, of the tree at a point equidistant from each end. When it is lying on the ground this is obviously easy enough, but when it is standing it is a different matter. If the leather strap which is used for this purpose could be passed round the tree at half its timber height the dimensions would be found very nearly; but as this would necessitate the use of a ladder at each tree, which is a very tedious process, the

plan generally adopted is to take the measurement about breast high, and estimate from this what the size is at half the height. To do this requires some discretion, and if a ladder is available it is a very good plan to occasionally test the judgment, as an inch or two error in girth is more important than a foot of length. The allowance for bark would be the same whether standing or felled, and will be treated of in its proper place. I have here assumed that the trees are of irregular growth, such as are commonly found in fields or hedgerows, and are dealt with individually; but as trees growing in woods and plantations, especially Larch, Scotch, and Spruce, are tolerably uniform in height and size, in many cases the average of the trees can be struck and only a few measured, the bulk being estimated from these.

THE MEASUREMENT OF FELLED TIMBER is, of course, much more accurate. As has been said, the length of a felled tree can be ascertained by the tape if an attendant is at hand, or if not, by means of the 5-foot rod which can be manipulated by the measurer himself. When the tree has been numbered, this is set down in the dimension book as with the standing tree, and the quarter-girth when found, as should have been stated above, entered in the third column on the same horizontal line. To find the quarter-girth of a felled tree the string is passed underneath it at half its length, and when withdrawn folded twice so that the quarter of its circumference may be read off on the rules and entered as described. It must, however, be clearly understood that to take the entire timber length of a tree and its quarter-girth in the middle does not necessarily give its cubic contents. If the tree tapers gradually from end to end this would be the case, but if it suddenly drops off in size at two or three points in its length where a large branch has grown out, another plan of measurement must be used, viz., to take its length in sections, say from the butt to where the first large branch occurs, from there to the next sudden fall in size, and so on. Each of these lengths must be treated as though it were a separate tree, and girthed accordingly. Sometimes on making sales the larger portions of a tree will go at a higher price, and the smaller at a lower. This, of course, makes no difference in the manner of measurement, but the entries must be kept distinct.

TO CALCULATE CONTENTS.—When the length and quarter-girth of a quantity of timber have been taken the cubic contents have to be worked out, and as to calculate every separate item would entail a large amount of labour, a set of tables is almost always referred to. These are contained in "Hoppus's Measurer," a book which costs about 2s. In this book there are various sets of tables, but the one which affects us now is that given as solid measure. In this the quarter girth in inches and fractions of an inch is given at the top of the page, and the lengths in feet in the first vertical column. If, for instance, a tree was 25 feet long by 12 inch quarter-girth, the 12 inches will be found at the top of the page, and as each foot in length in this case represents a cubic foot, the measurement opposite the 25 will be found to be 25 feet. To find this by calculation, square the quarter girth, multiply by the length in feet, and divide by 144. Thus $12 \times 12 = 144 \times 25 \div 144 = 25$ feet.

ALLOWANCE FOR BARK.—In measuring all timber, with the exception of Oak, which is generally stripped of its bark, an allowance has to be made for this. When the bark is thick, as in the case of the Elm, Poplar, &c., a larger allowance should be made, but when thinner, as with the Larch, Ash, Beech, &c., so much is not

required. The way in which the allowance is made may be left pretty much to the taste of the measurer. With some it is the practice to allow an inch to a foot of quarter girth, and this almost irrespective of what kind of timber, taking one with the other. When this is done the allowance is made of each dimension as the work proceeds, a 12-inch quarter-girth on the bark being set down as 11 inches. Another and perhaps a better plan is to enter down the gross figures as the work proceeds, and then at the close strike off a percentage ranging from 10 to 15 according to the kind of timber and the thickness.

ALLOWANCES FOR DEFECTS.—This is a thing which should be mutually agreed upon between the buyer and the seller as each tree is come to. When timber is sold standing the buyer generally takes the risk of unsound wood. When a defect can be seen an allowance of course is made, but as very frequently a tree will turn out unsound when there is no external appearance of anything of the sort, standing timber is not, as a rule, estimated to the extreme limit. Defects of course occur in a variety of ways, but the most common are shakes and dead knots. When a tree is absolutely hollow it is almost always better to agree with the merchant for a lump sum than to attempt to measure it. When it is unsound for apparently a short distance only, it is usual to take the dimension at or so much shorter length as will allow for the defect. A certain amount of experience is requisite to fix a proper quantity to be allowed. When a tree is unsound at the butt, and there is no indication of unsoundness where the branches have been cut off, or at the top, it may almost be taken for granted that it will again become sound at a foot or so above the distance to which a rule or rod can be inserted; but, if the defect appears where the branch is severed and at the top as well as the butt, it may be taken that there is very little good wood in the tree. In cases of decay which has set in at the top or branches of the tree and it has become hollow, there is always more doubt as to how far the fault goes, and a larger allowance will be necessary to cover the risk the buyer has to run.

QUARTER-GIRTH AND TRUE CONTENTS.—If a little thought is given to the subject it will be seen that the quarter-girth does not give the true contents of a tree, as if it was hewn square the side would theoretically be the same and the contents the same, after all the convex portion of each side had been removed. The difference between the quarter-girth and the true contents is some 25 to 27 per cent., and at first sight this appears like giving an undue advantage to the buyer. In reality it is not so, as it is only sufficient to cover the loss of chips and slabs in cutting up. As a matter of fact, other systems of calculation have been tried, but although theoretically incorrect, the 144 division has stood its ground, and will probably do so for a long time to come, as if another was adopted giving a greater content the prices would be correspondingly lowered, and all the alteration would effect would be to rob Peter to pay Paul. The whole thing, however, is one of the most important in practical forestry, as it is exceedingly easy from an imperfect knowledge of how to measure to lose years of growth in a fall of timber. This must be accepted as my reason for occupying so much space with my remarks upon it. Even now there are many things upon which I have been unable to dwell fully, but I hope I have made the general principles clear. If there is any point which has not been sufficiently explained, I shall be glad to endeavour to make it clearer if desired. D. J. YEO.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

SCENTED-LEAVED ROSES.

ARROSOS of "D. T. F.'s" suggestion to try and raise Roses having fragrant foliage, it may be of interest to look at the Sweet Briars already in existence which would be available for the purpose, for there is no reason for supposing the feat to be impossible, and improved varieties which had the additional attraction of sweet-smelling leaves would undoubtedly be popular. The difficulty of the Sweet Briars being liable to bloom earlier than the majority of the autumnal Roses would have to be considered, but would be easily surmounted; while the employment of *R. rubiginosa* or any of its variations as a seed-parent should ensure abundance of seed, since this Rose and its hybrids are always smothered in autumn with their gay hews, which bedeck the plants afresh in lieu of second bloom. There are several pretty garden varieties besides those mentioned by "D. T. F.," of which the double marbled Sweet Brier is one of the best. This Rose has semi-double flowers, whose petals, though occasionally variable or mottled, are of a charming full fresh pink colour, and the plant, in addition to being very vigorous and free-flowering, is clothed with delicious real Sweet Brier foliage. The so-called red seedling Sweet Brier is also an attractive variety, though surpassed by the double scarlet, which produces an abundance of very double rosette-like flowers of a deep rose colour, and which, though not so vigorous as some kinds, makes a strong bushy plant.

The most beautiful of the hybrid Sweet Briars is called Hebe's Lip, and may perhaps have originated from the crossing of a Sweet Brier with one of the albas. Its flowers are single, but the substance of their large white petals, each of which is coquettishly tipped with purple, renders them less fleeting than many semi-double forms, and in their class their refinement of form and colour is unsurpassed. The double margined hep is another hybrid form, whose pretty little double blush flowers are freely produced. But here the characteristic fragrance of the Sweet Brier foliage has only survived to a slight extent.

The beautiful yellow Sweet Briars, *R. lutea* and its variations, are among the most attractive of all Roses, although seemingly intractable in the matter of hybridisation; for while several of the varieties have double flowers, there are no intermediate forms having any general characteristics different from the type to indicate the successful achievement of intercrossing it with other species—an operation which, nevertheless, is known to have been frequently essayed by means of artificial fertilisation. These Austrian Briars, though very similar in habit to each other, are very distinct from all other Roses; and while it is not very easy when the plants are out of flower, and especially when without leaves, to distinguish the different varieties, there is no difficulty in deciding whether a plant is an Austrian Brier or not. Their dark coffee-coloured stems and distinct foliage give them an individuality which they seem loth to merge in any hybrid form of more general appearance. However, this is no reason for not making further efforts in the direction of inducing *R. lutea* and its varieties to

impart some of their characteristics to other Roses; and if these yellow Sweet Briars do not ripen their seed sufficiently well in this climate, they may at any rate be used as pollen parents to produce hybrids with other species as seed bearers.

Of the double forms, Persian Yellow and Harrisoni are no doubt the best, and are very beautiful; but they do not surpass in beauty the single-flowered species, *lutea*, and its subspecies, *R. punicea*, the misnamed copper Austrian Brier, which is not copper coloured at all, but orange-scarlet, of a brilliant shade. The flowers of this Rose are like the edges of the leaves of certain books—gold when closed, but when open red, though with still a suggestion of gold about the margins. It is worth noting that the Austrian Briars do not generally thrive when budded on Manetti. Brier stocks seem to suit them, but the most satisfactory way to grow them is on their own roots. To do this, suckers or layers must be obtained from an established plant or stool, for it is practically impossible to root them from cuttings.

There is one other member of the group of *rubiginosa* which might prove useful in this connection. This is *R. pulverulenta* (*glutinosa*), a good seed-bearer, whose glandular leaves and red-brown stems come nearer to *R. lutea* than most other species; and if there be really any advantage in hybridising at first allied rather than widely divergent forms, this pretty species would seem to offer a possibility of combining with its own advantages of substantial (though single) flowers and sturdy, branching habit of growth the brilliant colouring of *R. lutea*. As "D. T. F." suggests, it is improbable that efforts made to endow Roses with fragrant foliage should immediately result in the appearance of a race with flowers as perfect as those of *La France* and with the leaves of *Eglantine* to boot, but there is no doubt that in hybridisation a definite object consistently pursued may be ultimately attained. Growers raised seedling Roses by the thousand for many years before General Jacqueminot put in an appearance, yet the result was held to repay the labour; and the fact that hardly any of our exhibition Hybrid Perpetual Roses are much more than thirty years old, while such varieties as *Her Majesty*, *Grace Darling*, and *Mrs. John Laing* are, as it were, the Roses of yesterday, ought to induce a conviction of the possibility of ultimate success, firm enough to stand the shock of a few initial failures which generally form a preliminary to the accomplishment of any similar undertaking.

T. W. G.

A ROCKERY FOR ROSES.

"T. W. G.'s" most instructive article ("Roses for the Rockery," pp. 113-14) has suggested to me the desirability of having rockeries wholly devoted to Roses. Why not? We began building rockeries for Ferns, the majority of which do not grow on rocks; we then advanced and formed rockeries for alpine plants, which perhaps was more appropriate. And it is no uncommon thing to find artificial rockeries furnished with all sorts of native or exotic plants that will endure what is called naturalisation, that is, being broadly interpreted, once fairly prepared for and properly planted, can take care of themselves, and hold their own in any struggle relating to the survival of the fittest to which they may be exposed. Not that the cultivator is to forsake them after planting; far from it; but the less his hand can be seen in the future career of naturalised plants the better. Heath and peat plants have also had rockeries made for them, which have not only aided their culture, but added to their

beauty. If these and other plants have had rockeries devoted to their picturesque setting and special culture, why not Roses?

The family is equally large, varied, and horticulturally more important. Amongst the great Rose family we have almost every possible variety of stature, form, size, and colour, and the widest possible diversities of stiffness and flexibility, spineness and smoothness; giants to clothe the boldest rocks and dwarfs to adorn the tiniest nooks and corners; scentless Roses, to dazzle with their brilliant colours, and others full of fragrance to allure from afar with their matchless sweetness; once, twice, and ever blooming Roses; also Roses with leaves of all sizes and many varying degrees of sweetness, from those of the spineless and odourless Bourbons to the Sweet Brier, so full of its ever welcome fragrance. Double Roses of all sizes and colours, and single ones ranging from something like Poppies to tiny Buttercups and Daisies.

Rocks and Roses have also much more in common than the first letter of their names. No more congruous support could be found than rocks for scrambling Roses, nor more effective backgrounds for their many coloured flowers than rocks of different colours and shapes. "T. W. G." makes a good start with suitable varieties, and his short list might be largely added to and greatly enriched. The shelter of rocks would prove most useful for the protection of tender Roses from cutting winds as well as for the concentration of sunshine in warm nooks and corners for the fostering of the more tender species and varieties. Possibly no better site could be found for the successful growth and free flowering of that most coy-blooming yellow Rose, *sulphurea*, than the southern front of an uprising mass of rock on a sloping bank. By the way, if "T. W. G." will send me his address, I will send some suckers or a plant of the Rose which he inquires about in THE GARDEN (p. 127).

Similar positions would prove admirable sites for the more delicate Teas, while *Maréchal Niel* would be magnificent weeping down or climbing up the warm sides of rockeries. But Rose material is so rich and varied, that it may almost be said to be inexhaustible. Another great charm in growing Roses on rockeries would be that each species and each plant, from the wildling Brier or Scotch Rose to the latest sort among Teas or Perpetuals, would be left practically to ramble or grow, or not grow, according to its character and habit, and thus much special information be obtained concerning the natural character and habit of not a few Roses of which we are at present comparatively ignorant. Groups of different species and classes might also be placed together and selections made to suit the tastes and means of all lovers of Roses. It might also be well to exclude most or all of the very fat or large Hybrid Perpetual Roses from the rockery. The thinner pointed buds and flowers of whatever section would prove more in harmony with their rocky base and more suggestive of Nature than of art.

Doubtless, too, the formation of rocky bases for Roses would give a great impetus to the collection of as many species as could be readily obtained, and also to the raising of single and semi-double varieties of, for example, the *Gloire des Rosomanes* type. The more of these and the more pure whites, brilliant crimson, bright scarlets, glowing pinks, and orange and yellows among them the better; for I quite agree with your correspondent's remarks in condemnation of dingy coloured Roses (p. 114). Fresh foliage, bright coloured, and small rather than large-flowered varieties are those best adapted for the effective clothing of rockeries.

D. T. F.

PLANT NAMES.

MR. BAKER, speaking at the Royal Horticultural Society's dinner the other evening, said: "Regarding plant names, he observed that while botanists were trying to reduce them, horticulturists, and particularly specialists, rushed along in their own way manufacturing names without any systematic classification. If there were twenty Daffodils, for instance, there appeared to be a disposition to magnify them into five hundred, and the same with Primulas. He would like to see the Royal Horticultural Society in the position of interpreter, standing between the gardeners and botanists, yet embracing both, and he trusted the society would have a great and useful future career."

Everyone who has to deal with plant names will re-echo Mr. Baker's remarks, and hope for some help from the Royal Horticultural Society in the matter of plant nomenclature. If we could only agree on any given plan of naming and then all pull together in the practical work of carrying out such a plan, all would be easy.

So far as wild species are concerned, these might best be named, or their names be confirmed by the herbarium authorities at Kew or at the British Museum. It is when we come to deal with seedling forms or garden varieties that the real difficulty begins. Practically, no one will undertake the responsibility of naming garden forms, except the specialists, whom, as Mr. Baker says, do a little too much. Even the Royal Horticultural Society have, or had, a proviso that all exhibits placed before their committees "must be named," and yet, as we have seen, there is no way of this being done unless each exhibitor coins his own names. Thus, the Royal Horticultural Society has itself, to some extent, brought about a state of things against which Mr. Baker very rightly utters a well-timed protest.

But if it were, once for all, understood that all garden plants submitted to the committees of the Royal Horticultural Society would be correctly and authoritatively named and registered by them, I think both amateur and trade growers would gladly avail themselves of the society's aid, and the result would do away with a good deal of confusion in many ways. To make the matter clear, one may put it in this way:—

1. All wild species of plants whatever to be sent to Kew or to the British Museum for naming and registration.

2. All garden seedlings, florists' flowers, fruits and vegetables, &c., to be sent to the committees of the Royal Horticultural Society for naming and registration.

Another, and perhaps, on the whole, a better, plan would be for the Royal Horticultural Society to undertake the naming of all plants exhibited before them. In this way but a very small proportion of the total exhibits would have to be sent to Kew for naming, this proportion mainly consisting of the new wild species or types.

Just now the society has its hands quite full of business so far as its most vital interests are concerned, but this question of nomenclature lies at the very root of horticultural progress, and demands urgent attention. It is pleasant to hear of the worthy president's regret that nothing had been done with regard to the question of Orchid nomenclature, but the question relates to the naming of all garden plants, or varieties generally, and not to any one genus, or natural order, more than to another. F. W. B.

Scarcity of Daphnes.—"North-west Cheshire," in his interesting notes on "Grapes and Flowers Together" (p. 107), refers incidentally to his own

and his neighbour's losses of these fragrant favourites. It seems certain that in not a few districts Daphnes seem to have dropped out of cultivation. It is many years since the writer has seen the yellow Chinese Daphne; and the three varieties of *D. odorata*, that is the common, or pink and white one, the rubra, or red, and variegata, or variegated-leaved variety of *odorata*, are now seldom met with. When one does meet with Daphnes, they are mostly the white and red variety of indica, which are not equal to these older varieties. Your correspondent's remarks on growing plants in vineries specially recall a nice lot of *Daphne odorata* raised from a grand old specimen about 4 feet high and as much through. These were grown on the front shelf of a viney in 6-inch and 8-inch pots, and used to be laden with flowers from May to August. These plants had the peculiarity of the old specimen from which they were raised of having most of their flowers Cockcomb-shaped, which added to their interest, though hardly to their usefulness for cutting. But the plants were in constant use when in bloom, less for mere decoration than for sweetening the whole house. Daphnes require careful mounting for button-holes and go well with scentless Bouvardias, one or two blooms sufficing to perfume a button-hole, and from half a dozen to a dozen a hand or bridal bouquet. If holders of good stocks of fragrant Daphnes will advertise in THE GARDEN, I fancy they would find plenty of good customers. Daphnes have probably disappeared before more showy plants, and not owing to any difficulties of culture or prevailing disease among them.—D. T. F.

NOTES ON RECENT NUMBERS.

USE OF FLOWERS (p. 131).—I am sorry that "W. I. M." has somewhat misunderstood me; I never for a moment intended to urge that gardeners should make "show houses of all their plant-growing structures," which would be contrary to most rules of economy or good gardening. What I wished to point out was that gardeners, when they have grown a houseful of one special thing, ought not to rest content that they had done all that was required of them, but should proceed to devote the same plants to some decorative purpose; in other words, make use of them. No one abominates indiscriminate mixtures more than I do; and here I will pay gardeners as a class the compliment of saying that not a small number of them have often very much better taste than their employers. Those who describe their visits to private gardens no doubt are frequently only "shown over" the houses in which, not the house for which, the plants are grown; hence, we only hear one half of the story. It does not follow that because a gardener can grow plants well he can use them to good advantage, and there is also a difference between making use of them and forming combinations of colours, which "W. I. M." seems to have overlooked in his criticism of my remarks.

SNOWDROPS, SINGLE AND DOUBLE (p. 140).—I can join in Mr. Wilks' wail over the unnecessary modesty of the single Snowdrop, which induces it to efface itself in many localities where the double succeeds, this being one of them. The reason I believe to be that the soil, having no lime in it, is not naturally congenial to Snowdrops; the single sorts go to seed, whereby the bulb is weakened, and the seed is not sufficiently favoured to come to anything; whereas the double sort increases itself only by offsets, which have a better chance of struggling into notice. Perhaps the explanation would be better described by saying that the bulb of the single Snowdrop is naturally short-lived, and that where the conditions are not favourable to the growth of seedlings it soon dies out. I believe that Daffodils, Scillas, and many other of our wild or pseudo-wild bulbous plants reproduce themselves from seed much more than is usually taken to be the

case, at all events in those particular spots where they are growing "of themselves." It is easy to understand that single and double flowering bulbs of the common *Galanthus* might easily be mixed up by the growers and dealers, who cannot be expected to keep them carefully separated at the price they sell them at, and it requires careful observation and testing before one can say with certainty that all, or most, of the individuals of one particular row or clump have earned for themselves the additional surname of "flore-pleno." No doubt the Daffodil "doublers" will keep their eye on the artful little Snowdrop.

Sussex.

C. R. S. D.

WESTONBIRT.

AMONGST the celebrated country seats in the west of England, Westonbirt is conspicuous from a gardening point of view, and in this, as in other respects, it takes rank with such places as Chatsworth and Trentham. It has been the home of the Holfords for some two centuries, and each generation seems to have done something to bring it to what we see it now. 'But the greatest change has come over Westonbirt since the present head of the family has inherited it. He began half a century ago by clothing bare hill-sides with tree-growth, and to-day he has the satisfaction of seeing the full effects which at planting time were in prospect, and, to crown the work of his life, he has built a magnificent mansion in place of a plain old Jacobean house. The present house has been in existence about fifteen years. It is in the Italian style, from designs by Vulliamy, and it is generally admitted to be among his most successful works. It is an imposing building from whatever point one looks at it, but the principal façade—that which is shown in the annexed engraving*—possesses an aspect of grandeur not often seen in domestic architecture. The mansion is built of clean-cut stone of a soft creamy hue, which harmonises beautifully with the surroundings.

Westonbirt is remarkable in several ways. It represents what is unquestionably one of the best examples of garden landscape to be found in this country. In it each branch of gardening is carried out in high class style, and it contains a magnificent collection of hardy exotic trees and shrubs. It is, therefore, alike interesting to the admirer of beautiful landscape gardening and to the practical gardener, while for lovers of trees, particularly Conifers, it teems with instruction.

One can hardly realise the fact that the beauties of Westonbirt are the creation of one lifetime, and strange, indeed, does it appear when Mr. Holford tells one that less than fifty years ago the old house which the present mansion superseded was but sparsely surrounded by tree growth, such as the Elm, Ash, Beech, Oak and Thorn. Now the place is clothed with plantations, and groups embracing an infinite variety of exotic as well as native trees, almost every one of which has been planted since 1839. When one sees towering Scotch Firs that have long since attained that picturesque aspect which they wear only at mature growth, one can scarcely credit that the hand which planted them is still planting the last introduction in the way of foreign trees and shrubs.

The plantations in the park in the vicinity of the house give character to the place. In a general way in parks the rule is to encourage

* From a photograph taken by Miss Antrobus, of Lower Cheam House, Surrey, who sent it to "THE GARDEN Photograph Competition." It was one of a series to which the chief prize was awarded.

only deciduous trees, but evergreen trees have been largely employed here, such as the Scotch, Austrian, and Corsican Pines and the common Spruce, with an undergrowth of Holly and Laurel. These give an air of snugness to the winter landscape. Pines thrive here to perfection, and the Spruce rises above everything else; but such is the character of the soil, that it quickly matures, and if not then cut it is liable to heart-rot. It is an interesting fact that Gilpin himself originally laid down the outlines of these park plantations; they partake somewhat of a triangular shape, and this course was adopted with a view to picturesque effect, as seen from all points. Much planting and thinning have been done since then, but the main ideas of Gilpin have not been disturbed.

PLEASURE GROUNDS.

When the new mansion was built, Mr. Holford set himself the task of making a beautiful garden about it, and that he has succeeded there is ample proof. Nor has he been helped much by Nature, for there was originally no great diversity of surface, no streamlets or lakes, no outcropping of rocks, yet there is now at Westonbirt all these elements of a beautiful home landscape.

The style is so thoroughly unconventional, that one can see at once that it is the result of gradual development; by this is meant that the work must have been carried out by someone continually on the spot, for although Mr. Thomas was consulted and laid down the broad principles upon which the work was to be conducted, every detail has been worked out with an eye to ultimate effect, and not a thing has been done, not a tree has been planted or removed, without due consideration. It is this harmony of detail that makes the grounds of Westonbirt so beautiful and so different from the ordinary run of gardens. Mr. Holford's aim has been to create variety without confusion, informality and picturesqueness without losing sight of that polish in the vicinity of the mansion which must always be regarded as in accordance with correct taste. It is thus steering in the middle course between the styles of a Price and a Repton that Mr. Holford has made his garden what it now is.

The more striking features of the grounds are the vistas, glades, and nooks which meet one at every turn, and it is these, together with the broad expanse of turf, that give to the garden that beauty of light and shade which is the very essence of landscape. The principal vista—that shown in the engraving—radiates from the south front and leads from the terrace down to the water's edge, one continuous gentle slope. It may be noticed too that the outline of the vista is not monotonous; here the shrubbery projects, there it recedes; at one point some favourite tree is made to stand out boldly, as if to emphasise the projection; at another point one may see a group of shrubs which like all the sunshine they can get. By creating this diversity the necessities of every shrub or plant may be provided for. For instance, under the dense shade of a Yew, where one would think nothing would grow, one may see a luxuriant mass of such shrubs as the Japanese Barberries (*Berberis japonica* and *Beali*), which not only revel in the shade, but are grateful for such shelter in such a winter as this. Under the isolated trees are colonies of Snowdrops, now a sheet of white; and these later on will give place to the golden sheen of Daffodils, which are planted everywhere in suitable spots. But in the matter of sorts some discrimination is used, for one could see by the great broad foliage coming out of the turf that the varieties put in such places are of the finest, such as the Emperor and Empress, Horsefieldi, and the

like. Now and then one comes across a projecting rock which would puzzle a geologist to tell if it were the natural outcropping stratum or Pulhamite. In one part close by the lake there is one of the most tasteful bits of rockery I have yet seen done by Mr. Pulham. It must have been wonderfully natural looking when new; but now that it has become weather-stained and over-run with an infinite variety of alpine plants and shrubs, one would hardly take it as the handiwork of man. The way the rockery is planted enhances the effect. You see colonies of Primulas, Gentians and the like climbing the crevices, Saxifrages with a foothold on the face of the boulders, and Heaths defile down narrow miniature ravines.

The margins of the little lake are studded here and there with masses of rock grouped in the same natural way, and over these there is a tracery of such as Ivy and Cotoneaster. In another part by the lake, what was once a horsepond, fed by a spring, in a farmyard, has been embellished by Pulhamite rocks and made to look like a rocky cavern. Indeed, the whole of this part of the grounds has been transformed from what was the centre of the village into a charming garden. Mr. Holford points to where the parish road ran through the place, the spot where the village stocks were fixed, and where once stood the vicarage. But all this has been obliterated, and the road is now skilfully hidden by a Ha-ha and tree groups. The lake itself is small; but by the peculiar outline of it one never sees all the boundaries at one time, and therefore its apparent extent is increased. As this strip of water is seen from the mansion, it enhances the effect of the surroundings.

The lake, the rockeries, and most of the rugged and picturesque features of the garden are on the west side of the mansion. On the eastern side the scenery is of an opposite character, including an Italian garden of a simple geometrical design and other architectural embellishments. It is in the blending of natural and artificial styles that adds so much to the charms of Westonbirt, but there is no sudden transition from one to the other. For instance, the Italian garden is connected with the main front of the house by a long terraced walk, and being hemmed in by balustraded walls it cannot be seen from the principal windows. When lit up in summer time by masses of brilliant colours the effect of the Italian garden must be very fine. The beds are large enough to hold good masses of plants, and being edged by heavy stone kerbing the glow of the bright colours is intensified. Two long borders on either side of the square are set apart for choice hardy perennials, but these not being in character with such a garden they are confined to these two borders. The north side is bounded by a wall, buttressed and recessed, and against it are planted a selection of half-hardy shrubs, the great *Magnolia grandiflora* being the most conspicuous at this season, also a sturdy plant of the *Garrya*, hung with its graceful tassellike catkins. The buttresses are clothed with ornamental Vines and Clematises. Beyond the Italian garden is a sunk Rose garden, which looks so cosy that one can imagine how delightful it looks at midsummer, for it is just the spot that Roses revel in. The excellent plan of grouping masses of one sort is carried out.

There is no planting to interrupt the view in a southerly direction. Here the ground dips a little, and then rises beyond in the park, where some noble old Elms and other park trees rise majestically. At the foot of the broad sweep of lawn which runs from the upper terrace some more shrubberies and lawns are now being made so as to form a middle distance, which will add

much to the appearance of the front. A little to the right of this is the church, a modest building of the early English period, but it is so embowered in shrubbery that but little of it is seen from the grounds.

TREES AND SHRUBS.

The garden, the park, besides widely separated outlying portions of Westonbirt, may be said to form one vast arboretum for trees and shrubs, which have always received the greatest attention, so that now the collection is one of the richest in the kingdom. One sees magnificent specimens in the park of the early introduced exotic trees, while in the pleasure grounds beyond the reach of rabbits you may be pointed out the choicest introductions from Japan, and these new things of course are watched with much interest. Any new introduction in the way of a tree or a shrub at all likely to be hardy finds its way here, and it is interesting to see how varied are the constitutions of the plants. Whether it be in the soil or in the climate, Mr. Holford's experience does not accord with that of others. For instance, Japanese trees and shrubs on the whole flourish admirably, and at few places could one find better specimens of such as the Japanese Maples. On the other, it appears strange that some of the North American natives do not take kindly to the place. The *Clethras* thrive but indifferently; *Halesias* fail; and one does not see the *Ceanothuses* growing in a free way, as in some places. The large-leaved *Magnolias*, such as *tripetala*, *auriculata*, and *macrophylla*, cannot be coaxed into vigour, though their Eastern relatives, the *Yulan*, and others thrive perfectly. It seems odd to meet with *Pterostyrax hispidum*, a most beautiful Japanese shrub, growing as a standard, whereas in other places it refuses to grow against a wall. A host of other examples might be instanced showing the capriciousness of certain shrubs which, about London, cause us no anxiety. The Japanese Maples are the glory of the place from the bursting of the buds till the leaves drop in autumn dyed with the most glowing hues. Here one may see trees as much as 12 feet high, not spindling, but with great bushy heads. This agrees with what Mr. Coleman told us recently about the behaviour of these Maples at Eastnor Castle, which is not many miles distant from Westonbirt. Can it be that the neighbourhood is peculiarly adapted to the growth of Japanese trees? It is now pretty generally known that these beautiful Maples are not suited for every place, and it would be interesting to know to what extent they are influenced by soil and climate, and where the localities are that they succeed best. There is a great variety of these Maples here, besides specimens of other Japanese species of recent introduction, several of which promise to become valuable ornamental trees. The brilliancy of the *palatum* varieties lights up the whole place when in leaf, and so they are placed in positions where their colours are best seen. Sometimes a bush of it terminates a little glade or nestles in a recess; at others a plant stands out boldly on a projecting point where it would catch the eye from all points. In short, there is not one of these Maples planted whose position does not appear to have been studied from all points.

In the disposal of the various tree and shrub groups great care has been taken in order to produce a beautiful winter aspect; the result is that, although not a deciduous tree has yet burst its buds, the grounds have a clothed appearance so different from a place where evergreen trees are but sparsely intermixed with the summer leafing kinds. Good use, too, is made of every deciduous shrub that is in any way remarkable in winter, and particularly those that have

coloured bark. The finest effect in this way is produced by the Siberian Dogwood (*Cornus sibirica* of Loddiges), which has Osier-like branches, with bark almost as bright as red sealing-wax. This shrub is planted in masses in the most conspicuous points in the pleasure grounds, but in the arboretum one sees great breadths of it everywhere. In contrast with the Conifers it produces a most remarkable effect. Another and similar shrub made use of in this way is *Salix vitellina*, the Red-twigged Osier. Both these are cut down about every third year, and the new growths always bear brilliantly coloured bark. Advantage has been taken of the wealth of variety in the Conifer family, and with those alone one could make a beautiful winter garden. In one place the spreading growth of the Hemlock Spruce is made to contrast with columnar trees, such as the Irish Yew and Junipers. In other cases advantage is taken of the golden-hued Conifers for contrasting with the greens of various shades. In short, one sees trees and shrubs, whether remarkable for habit of growth or colour of leafage, arranged with consummate taste, and nowhere can be seen harsh or monotonous lines; the skyline is always broken by columnar trees, and the ground-line around the shrubberies is never continuous. The shrubs are always planted so as to spread out and fall on the turf, and in order to break the outline, here and there a spreading bush, such as a Barberry, Weigela, or Spiræa, is planted out boldly away from the main mass. It is only by thus breaking up the masses in recesses and projecting points that one is able to get the full effect of light and shade so essential to effective garden landscape. In some spots one comes across a group composed wholly of deciduous shrubs, but these are quite select kinds, and generally those are chosen which fall gracefully on the turf. As to the names of the most noteworthy trees and shrubs, that must be left for a future account, as must also the notes on

THE ARBORETUM, which beyond is the feature of Westonbirt. It is one of the most important arboreta in the country, and certainly among the largest, for it is traversed by a road no less than four miles in length. In the comparatively short period of fifty years Mr. Holford has done wonders in clothing bare downs with exotic trees, yet he has not been favoured by specially good soil or situation, yet some of the finest tree collections are in the neighbourhood of the Cotswolds, for besides Westonbirt there are the grand arboreta at Tortworth and Highnam Court, and not very much further north is Eastnor. The Westonbirt arboretum is not planted in accordance with any scientific plan. The trees have been planted in the spots considered at the outset to be most likely to suit them; but even here we see the same taste displayed in the grouping as is carried out in the more polished pleasure grounds about the house. The Conifers and other evergreen tree growth which one sees at every turn renders Westonbirt beautiful even in the depth of winter, but what must it be in the height of summer?

PLANT AND FRUIT HOUSES.

These are on a scale proportionate with the extent of the place, being about thirty in number, and among them one may find as fine examples of skilful culture as is possible to see anywhere. The principal plant houses form a compact block of capacious span-roofed structures, running parallel to each other north and south. From the garden side these are approached from the Italian garden, and are so arranged that visitors may go through most of the houses consecutively without going in the open air. This is a capital arrangement, for suitable access to the plant houses from the mansion is often a point overlooked in garden design.

Another point is that, while the central houses are made to harmonise architecturally with the Italian garden, the main block is hidden from view. The houses, as a rule, are set apart for special classes of plants; for instance, the Orchids have houses to themselves, then winter Pelargoniums, Roses, and so on. One great feature of the place, and for which Westonbirt is justly celebrated, is the collection of Amaryllis, which, without doubt, is by far the largest in any private garden in this country. It comprises no fewer than 5000 bulbs, of which over 3000 are of a flowering size, so one can imagine what there is to be seen here in the months of March, April, and May. The Amaryllis is a favourite plant with Mr. Holford, and fortunately Mr. Chapman, the gardener, is an enthusiast in its culture, and not only does he grow them to perfection, as may be seen now even by the great plump bulbs, but he hybridises and raises large quantities of new sorts. In fact, he has originated quite a distinct race by intercrossing, or rather what is called "working," on a particular strain. Some of the most conspicuous members of the Westonbirt race of Amaryllises may be seen at the great London flower shows in spring, and they hold their own, especially as regards brilliancy of colour, against the finest that have been raised in London. The sight of this magnificent collection of Amaryllises in spring must indeed be very grand—quite worth going all the way from London to Gloucestershire to enjoy.

THE ORCHID COLLECTION, though not large, is select, and contains good specimens of species not commonly met with. Three great plants of the noble *Vanda Batemanni* attracts the attention of orchidists, and so does some fine plants of *Saccolabium guttatum* Holfordianum, which is interesting on account of its having originated here years ago. There is not much in bloom yet, but the houses are already enlivened by such as *Dendrobium Wardianum*, which is grown admirably in hanging pans. There are also suspended pots of *Lycaste Skinneri* more profusely flowered than is usual. As one instance, there is a plant in an 8-inch pot with twenty-four flowers and buds, another in a 6-inch pot with seventeen flowers. *Odontoglossums* are grown uncommonly well, and besides the commoner sorts there is a bloom, the rarely seen *O. cariniferum*, not one of the showiest, but an interesting species. Then among the legion of mule varieties is one named *Holfordianum*, which first flowered here, and described in the "Orchid Grower's Manual" as very fine. There must be something in the place agreeable to the cool Orchids, for they all possess unusual vigour. It is a commendable practice here to intermix the flowering Orchids with ordinary greenhouse plants in flower. The Orchid blooms last longer when thus kept cool, and they add much to the elegance of the house.

In one of the stoves the roof is hung with the lovely blue *Ipomæa rubro-cærulea*, of which a coloured drawing was given some time ago in THE GARDEN. The effect of the hundreds of flowers of such a clear blue hanging in the most exquisitely graceful manner in festoons can better be imagined than described. It was fine at Kew a few months ago, but was nothing compared to this. It is a great favourite here, and it has adorned the roofs of the other stoves till recently. One may imagine the splendour of the myriads of flowers that were produced throughout November and December. Throughout December the average number of blooms which expanded during twenty days was 900, and in four days 5000 were counted, while altogether the plants have yielded this season close upon 12,000 blooms.

Though the *Ipomæa* is the most remarkable plant, there are others of equal interest, because not often seen so fine. For instance, in one of the greenhouses there is a huge plant of *Cantua dependens* in full bloom, and has borne hundreds of flower clusters, and close by its side is the New Zealand *Clematis indivisa*, not the commoner lobata variety, which is said to be the most floriferous. This plant is hung also with bloom, and the elegance of the drooping clusters of starry white flowers is very pleasing. Another great feature of the garden is Fortune's Yellow Rose, which one seldom sees in flower at all. Here it covers large spaces under the greenhouse roof, and the yield of the plants is some 1500 each season. There are hundreds of salmony pink flowers now on the plants, and the crop will continue for a long time. Among other favourite Roses for house culture here are *Niphetos*, *Safrano*, and the new W. A. Richardson, which is considered a gem.

Other houses are taken up with the usual decorative classes of plants. Zonal Pelargoniums for winter bloom are a specialty. They have a house to themselves—the only way really to do them well. The prevailing idea of informality, I noticed, reaches the Azalea house. The bushes are trained certainly, but instead of being tied into monotonous cones and pyramids they are pruned and arranged so as to give variety of flower and foliage at flowering time. The chief fruit houses are in the kitchen garden, some few hundred yards from the plant houses. There is a capital kitchen garden of about four acres, with a long run of high walls for fruit trees, and these are a credit to any gardener. There is also an excellent reserve garden arranged with long rectangular beds, which are stocked with the commoner kinds of flowers, such as Carnations, Pinks, Sweet Williams, annuals, from which the ladies can cut flowers for themselves in summer time. Such a flower plot should be an adjunct to every large garden, but it is an exception and not the rule.

THE CONSERVATORY is a noble structure and joins on to the west wing of the house. The architect has been highly successful in combining a plant house with a dwelling-house, so as to lose nothing in exterior appearance. Often a conservatory adjoining a house looks like an awkward excrescence, but where, as in this case, it is made to combine architecturally with the house, there is nothing incongruous, and at the same time the house is adapted for plant culture. The interior is so arranged as to allow of ample space for walking, with beds for flowering plants on either side of a central path. The lofty back wall is clothed with creepers and Camellias, the latter being just now in full beauty; and among them is the rarely seen *C. reticulata*, with blooms nearly as big as a Savoy and of a charming rose-pink. The roof is festooned with the variegated *Cobæa scandens* and other plants, such as the Trumpet Honeysuckle (*Lonicera sempervirens minor*), a capital winter-flowering climber for a conservatory. W. GOLDRING.

QUESTIONS.

5456.—**Cuttings.**—What is the best way to force cuttings from young succulent wood, to throw out roots in warm climates where bottom heat is not available, and where propagation by cuttings is the only plan which can be adopted? CINCINNA.

5457.—**Ants.**—Having been troubled with ants in an early Peach house, eating the pollen and biting out the pistils of the blooms, I should be glad if any reader of THE GARDEN can tell me how to dislodge them from a covered channel for hot-water pipes where they have taken up their quarters. I have poisoned and trapped thousands of them, but found only temporary relief therefrom, as fresh broods are constantly reappearing. Is there any fumigation other than sulphur which will destroy them in the nest? Being under the floors of the sheds, liquids are not easily applied.—INQUIRER.

FRUIT GARDEN.

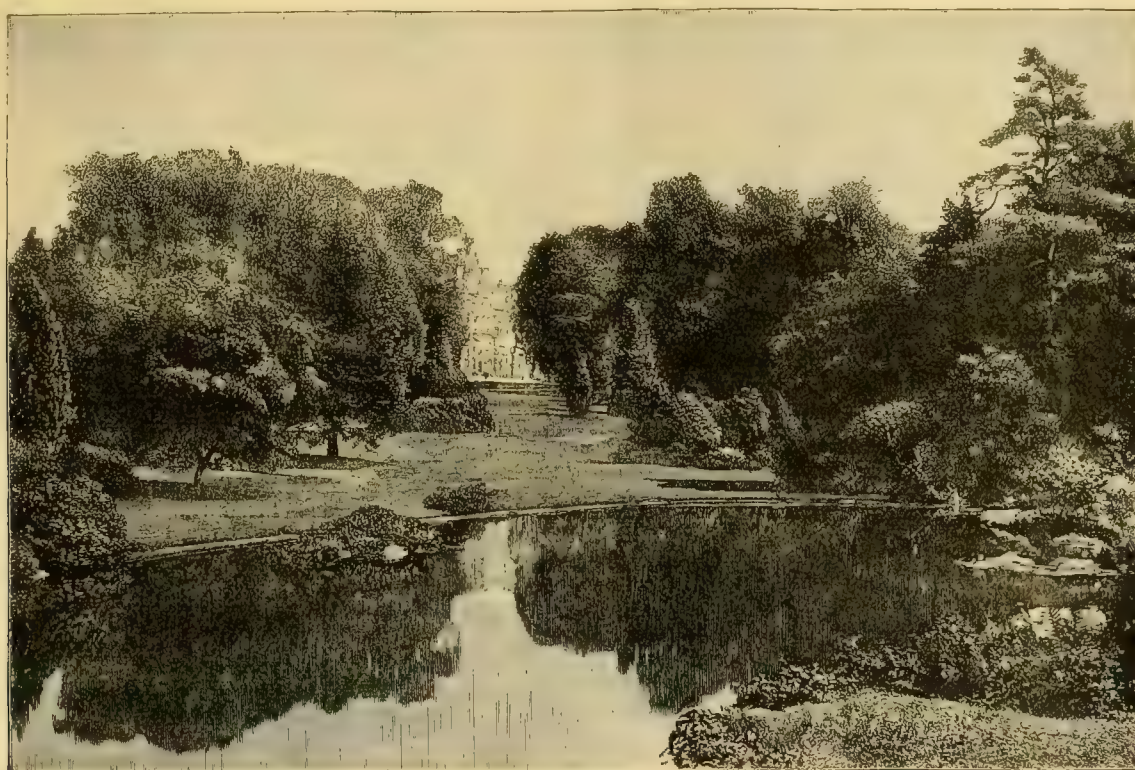
PRUNING TO PROMOTE VIGOUR.

IN Mr. Fish's three columns of generalisations on this subject (p. 135) he commits himself to one definite assertion that I had better pin him to for future use. Admitting the correctness of my tests of vigour as on the whole reasonable, "he contends that Rose and Vine shoots like walking sticks are more certainly produced by severe pruning than by not pruning." He also suggests that I should exhibit my "basket-filling boughs" of Rose bushes, to which I cordially agree, on the very fair condition that he meets me with one of his "severely pruned" examples with rods like walking-sticks, vigour equal to mine, and twenty-two years of age, as mine are at least, and I have plenty like them almost as much as a man could carry singly. If Mr. Fish be "curious to know more" about mine, I am equally curious

extremely likely to be necessary to his success, and I object to this on the ground that in both animals and vegetables long life is one of the surest proofs of vigour and vitality that can be produced, and is particularly applicable in my case, for whereas most of the severely pruned plants of the same age and kind have succumbed during late severe winters, the big bushes have survived, although receiving little or no attention in the way of protection and culture. I do not know how old they may be, but I have had them twenty-two years come November, and they were several years of age when I took charge of them. They have only been transplanted once, perhaps fifteen years ago or more.

Some of the weaker varieties are growing feeble now from old age, but others are rampant, look as if they would live for ever, and are almost big enough to fill a cart. After all this, however, I do not mean to let the defender of the Rose mutilators off with the offer of meeting

nected with exhibiting, what excuse can be pleaded for the annual shearing of every healthy and robust Rose tree down to a mere stump, thereby reducing the number of buds and number of blooms to the fewest possible number? Is it not a miserable result of boasted "scientific" culture that a highly cultivated Rose several years of age can only produce two or three blooms, when with a little freedom of growth it would produce scores scarcely inferior, for it is not at all true that the most neglected of bushes as regards pruning ever degenerate so far as to produce flowers that are not worth gathering or looking at? Who, I wonder, ever saw a large Apple or Hawthorn tree, or a Rhododendron or a flowering Currant, or a wild Brier, that was less ornamental or perfect because they had never been pruned? And why need a Rose be an exception to the general rule? Is it not an absolutely senseless act to hack to nothing almost year after year the fine 3 feet and 4 feet long



View in the garden at Westonbirt.

about his, and, moreover, do not believe that he has the ghost of a chance in the competition. However, the proposal to exhibit is his own, and if he does not fulfil the challenge, readers of THE GARDEN will know what to think. It is so refreshing to find Mr. Fish offering to test anything he writes by practical illustration, that I hail the opportunity with eagerness, and as the growth of the plant will indicate its condition well enough, I can send mine at once if he is also ready. I cannot undertake to dig an immense Rose tree out of the ground when in full bloom and exhibit it fresh at any particular show, or I would willingly do so. Our plants consist of the older varieties—sorts such as Mme. Knorr, General Jacqueminot, Souvenir de la Malmaison, Achille Gonod, and other Hybrid Perpetuals, Bourbons, &c. I, however, decline to be handicapped in the contest by "eliminating long life" from the evidences of vigour, a very shrewd proposal of your correspondent's, and

the non-pruners on equal terms only. Mr. Paul maintains that unpruned trees dwindle and die back, and that pruning is the only way to restore them—a fallacious doctrine. Mr. Fish's doctrine, too, as to "the concentration of force" in pruning is equally unreliable. No one denies that by concentrating the supplies of a dozen or a score of shoots upon one, you can produce a shoot individually stronger and thicker than the score or dozen would have been singly, but collectively the latter would represent a much greater amount of force and energy, just as large, well managed, but unpruned, fruit trees will produce by far the greatest quantity of fruit in a given time compared with a dwarf of the pinched and pruned pattern, and when I speak of crops of fruit as indicating vigour that is what I mean; the more branches the more fruit.

There is, however, another aspect of this question to be considered. Allowing that Roses may be pruned in moderation for special reasons con-

healthy shoots of a Rose in the way in which pruners do? Why, instead of cutting away almost the whole shoot, should the most of it not be left and disbudding resorted to in order to get good blooms, and more of them at the same time? If you can get a stronger shoot by letting it grow than you can by pruning it severely, why not let it alone and get its produce? "But," says Mr. Fish, "pruning concentrates, and so augments force . . . and so lengthens the life of the plant." I deny that he can produce a single living example of this or one argument in its favour from any trustworthy authority on vegetable physiology. Where is the augmented force to come from in a cut-down Vine rod, for example? There is just the same root on the plant that there was before, while the store in the top, representing reciprocal force, has been cut away. Where, then, is the augmentation? Will Mr. Fish answer the question if he can? You may just as well say one augments a human

being's health and strength by removing one lung and reducing the other to a fragment.

I am surprised to see that Mr. Fish is in favour of severe pruning to promote vigour, because I am all but certain, not having the books at hand just now, that in certain treatises of his on fruit culture he both by illustration and words advocates close pruning and pinching in order to reduce vigour. If I am correct, may I ask why he has changed his opinions? I would also advise him to consult the article on the Plum in the revised edition of the "Gardener's Assistant," which is one of the best reasoned productions in that work. The instructions there given are as follow: "Where any shoots give indications of excessive vigour they should be early kept in check. . . . It is frequently the case that shoots in the central part of fan-trained Plum trees are inclined to become excessively vigorous. As they cannot well be much inclined from the upright position without crowding those on the sides, their vigour may be considerably repressed by pinching or cutting out, with a sharp knife, the growing point. In addition to other means tending to diminish excess of vigour, some of the leaves should be clipped across the middle. Every third leaf may be safely clipped in this manner; if that does not prove effectual, every alternate leaf may be so treated; and in obstinate cases we have seen every leaf on a shoot clipped half away with no injurious results. but, on the contrary, with most beneficial effects, inasmuch as wood only of the requisite thickness was obtained instead of a shoot too thick to be retained on that part of the tree." This is correct in every way, and the difference between cutting off leaves to reduce vigour and cutting whole shoots away is only one of degree—both have the same effect in the end. Mr. Fish's assertion that Vines will make the thickest shoots the more severely pruned they are is so opposed to the experience of any Vine grower, as hardly to be worth discussing. It is far too well known to be disputed that Vines that are allowed most scope at the top make the thickest rods and walking-sticks; indeed, I never knew an exception to this rule.

J. S. W.

Temperature of the soil and canker.—"S. W." (p. 134) seems to be sceptical in regard to what I said on this subject. Mr. Reid was gardener at Balcarra more than fifty years ago, and his experiments on earth temperature, as quoted by me, are to be found in Lindley's "Theory and Practice of Horticulture." I quoted them as a case of canker cured by lifting the roots. I have planted Apple trees and found the large branches and main stems of some of them badly cankered after seven or eight years. Those trees have had their roots lifted, and the canker has been arrested—cured, in fact. It does not require a lifetime to perform such an experiment as this. My own work in the matter I can vouch for; that of other people we must take on trust.—JAS. DOUGLAS, *Great Gearies, Ilford.*

Pruning and its effects.—The following, from the pen of "T. B.," appears in last week's GARDEN (p. 137):—

The non-pruners sometimes instance the growth made by ordinary forest trees of branching habit that have had from the first room for their branches to extend, with the intention of making out that the pruning of Apples is wrong. Any comparison of this kind is not admissible, the object in the two cases being totally different. The large-headed trees referred to are more for ornament than use; those who plant forest trees for use plant them close, and in so doing are the hardest of pruners, only that they get Nature to do the work, inasmuch as the branches die through not having room enough given them in which to grow. Extremes are generally best avoided, and those who exclaim against moderate pruning act as inconsistently as those who follow an opposite course.

Suffice it to say that neither in THE GARDEN nor elsewhere has such "instances or arguments as are here adduced been used by the non-pruners. The statement is an entire misrepresentation. Trees and shrubs that bear fruit and flowers in great and

constant abundance without the assistance of the knife have been cited, and among these have been mentioned the wild representatives of cultivated fruits like the Crab, Sloe, and wild Cherry, &c., which, in a natural state, as a rule, surpass the cultivated varieties in the constancy and abundance of their crops, and one would like to know indeed why such examples should not be cited as the most opposite that could be found, instead of indulging in meaningless platitudes that help nobody.—J. S. W.

KNIGHT'S MONARCH IN AMERICA.

I HAD but little doubt that English Pear growers would object to the Monarch being placed in the expurgated list. It is a veritable harlequin. We had read of the excellence of this, the greatest of all Mr. Knight's Pears, and we wonder what can be the matter with it. I have fruited about all his seedlings, and amongst them there was not one worth keeping. I thought so well of the Dunmore, though a very acid Pear, that I commended it as a variety well worthy of culture; but the market killed it, nobody would buy such a green, sour, homely-shaped Pear, and I had to give it up. But the Monarch, the old books and papers said it was such a delicious Pear, that it was introduced, cultivated, exhibited, and tried nearly fifty years ago; but it was such an inferior fruit, we began to think we had not received the true variety, though it corresponded in every particular with the description. I could not believe our English pomologists would call such a Pear worth growing. So in 1840, when I first visited London and all the leading nurseries, I inquired about the Monarch, which did not appear to be generally known, and at last, at the suggestion of my old friend the late Mr. Charlwood, I visited Mr. Chapman, at Vauxhall, who had a fine lot of trees, which he said were the genuine Monarch, and I rather injudiciously purchased 100 trees. Ten of these I planted with especial care, and anxiously awaited the results. It proved to be the same old sort. From that day to this, forty-six years, there never has been seen a Monarch which could be considered worth eating. One year the specimens were so large, that I fancied it was to be something grand, and after peeling off half an inch of its coarse green skin, there was a little left that could be eaten, but poor enough. This is the experience of every cultivator without exception, and although I keep just one tree, I never gather the fruit only as windfalls. *Beurré Rance* is just the same. As to *Beurré d'Amanlis*, it is really a good Pear, but its ugly, chunky form and its dull green skin render it unsaleable when the Bartlett is abundant and so many better Pears of its season. The Seckel is remarkable for its keeping qualities. We have them in the market up to January 1. Mr. Ingram probably does not gather them until ripe on the tree; of course they don't keep, and then he says, "I never ripened Dana's Hovey." If gathered October 10 while quite green and hard and put into boxes or barrels just as store Apples, it will ripen up from December 1st to the 30th, with a rich golden russet hue unlike any other Pear, and possess a lusciousness of flavour unsurpassed, I might truly say, by any other fruit ever grown in our gardens; no Pine-apple or Banana equals it. It has been described by an old fruit grower as a confection or sweetmeat rather than a fruit.

Boston, Mass.

C. M. HOVEY.

SHORT NOTES.—FRUIT.

Desse Tardive Peach.—G. Palmer will find Desse Tardive an excellent Peach. It is a large, round, fine Peach, rather pale in colour, possessing a delicious flavour and succeeding well in a late house; with me, however, it seems rather more tender than Walburton's Admirable out of doors, where it is not so prolific, nor does it ripen later than that excellent variety.—W. C. T.

Pruning the Peach.—In the matter of shortening, cut to a wood bud in a well ripened part of the young branch. Wood buds are easily known from their elongated shape, blossom buds being round and plump. A Peach tree in a healthy condition usually produces an abundance of triplet buds—two blossom buds and a wood bud in the centre in a cluster, and by cutting to one of these a leading shoot for that particular branch is assured. Perhaps one of the greatest evils of Peach culture is training the young shoots too near each other. Crowded growth invariably leads to weakness and insect attacks and badly ripened wood, and often debility and death. If the young branches are trained 6 inches apart there will be plenty of blossoms to ensure a good set of fruit, and on uncrowded wood the blossoms are invariably strong and set well. Overcrowding of wood is often accompanied by overcropping when the seasons are suitable for setting; and then, again, this overcrowding of wood very often leads to nakedness in the centre of the tree and untimely wearing out.—E. HOBDAY.

NEGLECTED APPLES.

WE have in this and the adjoining counties of Worcester and Gloucester two excellent Apples well worthy of greatly extended cultivation throughout the United Kingdom. The first is not mentioned in the fourth edition of the "Fruit Manual," but I believe it found a place, and was favourably noticed at the Apple conference held at Chiswick in 1884. It is known here and in Devonshire as Tom Putt or Izard's Kernel, and I can safely say it is one of the most useful all-round Apples met with in this part of the country. The tree is rather upright in its growth, a good and safe cropper, and the fruit is bright red and very handsome. The fruit from healthy trees is above medium size, beautifully streaked or blotched with red and yellow when first gathered and finishes off a glowing crimson after it has been kept a short time in the store room. It is in season from September till the end of November, and we look upon it as the poor man's friend, as it is one of the best of Apples for cooking; it makes excellent cider, and being brisk, juicy, and tender, it is by no means inferior for eating. Until within the last few years the bulk of the fruit has been used in the localities in which it has been grown, and tons of magnificent fruit have been ground into cider; but, at my request, hand-picked fruits have been sent to large towns in the north, where, two years ago, they realised sixpence per dozen, a price that paid better than grinding them down for cider at threepence per gallon. If growers in the neighbourhood of London and the sunny county of Kent have not already taken this excellent Apple in hand, they should lose no time in doing so, as it has something more than fine colour to recommend it. It is hardy, prolific, an annual bearer, turns a splendid colour when cooked, and being so early, fine, handsome fruit can be placed in the market before the glut of American varieties come in to rush down the prices. The late Dr. Bull in the "Herefordshire Pomona" says, "The fruit is 3 inches wide and 2½ inches high, smooth, shining, almost entirely covered with broken stripes and mottled blotches of bright crimson. Flesh white, very tender, sweet, and with a pleasant acidity. In Herefordshire cottage gardens it is perhaps an equal favourite with the Blenheim Orange, and it certainly bears more regularly." An Apple that equals and precedes the Blenheim Orange, although old, should have a grand future when rescued from Moss, Lichen, and Mistletoe.

The other variety to which I would draw attention is found mentioned in many catalogues, but owing to the second-rate character given to it by the editor of the "Manual"—who, by the

way, says it is a synonym of *Mère de Ménage*, which in another part of his book he describes as "excellent"—planters guided by book-lore are not likely to select it for general culture. The Apple in question, known to us as the Flanders Pippin, in some respects answers to this description; but I grow *Mère de Ménage*, from which our old Flanders Pippin, on the same soil, is quite distinct, as it never lays on so much colour, and the stalk, one of the best tests, is longer and thinner. The tree is a horizontal grower, and the fruit for cooking purposes is certainly unsurpassed, if approached, by any other variety of its season with which I am acquainted. Again, Flanders Pippin of the "Fruit Manual" is described as a medium-sized Apple of second quality, in use during October and November. Ours grows to a very large size, is in season now, and the fruit when cooked turns to a rich reddish brown colour; it never shrinks, but becomes a delicious sweetmeat when made into tarts, two points which give it a very high position with cooks and consumers. On reference to Messrs. Veitch's excellent selection of Apples, I find they recommend it as being also a good sauce Apple. Tom Putt has, of course, many rivals, as it comes in with, or shortly after, the Lord Suffield section; but from them there is nothing to fear, as its colour and quality will carry it through. Then it is closely followed by the world-famed Blenheim Orange; but if I were confined to one variety after the Blenheims are over, I should certainly select the Herefordshire Flanders Pippin. The time having arrived for the vigorous use of the shears, not only in the orchard, but also in our inflated fruit catalogues, it behoves every practical man who can speak from experience to draw attention to neglected fruits possessing sterling merits, as they should neither be expunged nor lost sight of. W. COLEMAN.

Grapes and flowers together—In reading over the notes which appeared in THE GARDEN last week (p. 107) I find that I have been guilty of a great omission by overlooking the plant to which we are indebted more than to any other for winter decoration. I allude to the *Calla aethiopica*, the white Lily of the Nile, the most ornamental to an artistic eye and the most useful for house and church decoration of any of Nature's floral gifts. Not having heat enough for the *Eucharis*, we make up for the deficiency by growing the *Calla*, which is so easy to bloom in the winter that anyone may accomplish it, and if we had room enough we should have a house full of it. The finest floral spectacle I ever beheld was a hothouse belonging to a friend, who grew little beyond *Roses* and the Amazonian *Eucharis* for the decoration of his mansion, and upon one memorable occasion this house was filled with 302 large pots of *Eucharis* in the perfection of bloom. Even a finer artistic effect would result from a large group of *Callas*. From the latter end of November until a month or two hence our eight pots of *Callas* will continue to flower, and as soon as June comes they will be turned out into a trench like *Celery*, and will be kept there in full sunshine, well watered on account of the sandy nature of our soil, until the end of September, and then repotted in 8-inch pots, in peat soil with a little silver sand, to bloom again next winter. It is easy to hasten them by putting them for a short time into the propagating house, if they do not happen to flower just when they are wanted, and they stand a day or two either in the church, in your hall, or in the corners of the drawing-room without injury. My *Callas* have been subjected to this treatment for several years now, and it is impossible to have finer foliage and flowers than have been freely produced this winter. In fact, one result of my experience is that there is hardly a plant or flower grown in greenhouses—I am not, of course, speaking of stove and stove plants—which is not the better and stronger for exposure out of doors in the summer months; but care must be taken to find a spot sheltered from winds and not too much shaded by trees. I may perhaps take the opportunity of adding that I

grew a couple of the dark velvety-leaved *Gesneras* in the warmest end of one of my greenhouses last year, and found them a great ornament and much admired on the dinner-table on account of the colour of the leaves and flowers lighting up so well, and contrasting so admirably with the appointments of the table. If an even temperature is kept up many plants will flourish in less heat, even in our climate, than it is generally supposed necessary to give them.—NORTH-WEST CHESHIRE.

FLOWER GARDEN.

LOASA VOLCANICA.

LOASAS are a class of plants which one seldom finds outside a botanic garden, but there is no reason why the annual species at least should not be grown in the mixed border of every garden. They are perfectly hardy and the flowers singular as well as attractive. *L. volcanica*, or, as it is sometimes called, *L. Wallisi*, represented in the annexed illustration, was first introduced from the Andes of New Granada, by M. André, in about the year 1876. It forms, it is said, a well-branched bush on the banks of the river



Loasa volcanica, flowers white.

Pitaton. This and also others of the genus are covered with sharp, stinging bristles, which even a week after contact remind one of what has happened; therefore, in gathering its seeds, gloves or some other covering must be used for the protection of the hands. *L. volcanica*, which is of annual duration with us, grows from 2 feet to 3 feet in height, and is freely branched about half-way up the stems; the petals, which are in the form of a hood, are pearly-white, each hood holding a bundle of stamens, which after fertilisation coil up into little balls. Each flower has a large golden eye, banded alternately with red and gold rings. The leaves, which are three-parted, are covered on both sides with the unwelcome bristles just alluded to. It flowers in August and September. Another annual species, equally formidable, is *L. prostrata*. This has orange instead of white petals, and its stamens rise in a column from a white and red eye. Its leaves, which are deeply lobed, are also covered with bristles. It flowers at the same time as the other, and is a native of the Southern Cordillera, where it was discovered by Dr. Gillies about 40 years ago. *L. lateritia*, a perennial twining species, has orange-red flowers and numerous

curiously-twisted seed-pods. It is not hardy, but ripens seeds freely, by which means a succession of plants may be kept up. K.

THE INDIAN LOTUS.

SOME of my correspondents have been doubtful about the truth of my statement that a *Nymphaea* was the Lotus of the Nile, and not a *Nelumbium*. I think the passage, in which the seed-pod of a *Nymphaea* is accurately described as like a Poppy pod, clearly shows that a *Nymphaea* was the flower placed in the hand at festivals; and I feel pretty sure I never saw on Egyptian frescoes and hieroglyphic writings any representation of a *Nelumbium*; it is invariably of a *Nymphaea*. At the same time the following extract from Herodotus clearly proves that the *Nelumbium* was once common in Egypt, though I believe no one has seen it there in our own time. General Gordon told me that there were two *Nymphaeas* on the Nile above Khartoum, but fuller details are to be found in Schweinfurth, whose books I have not seen. Where the account says "see woodcut," I must say the woodcut in no way is like a *Nelumbium*; so it probably does not even occur in sculpture. Now we have such an efficient and energetic staff at Kew, all these rare historical plants will become well known generally to gardeners. FRANK MILES.

Sunnyhill, Shirehampton, Bristol.

P.S.—Apropos of Mr. Hovey's letter on Water Lilies, I must thank him for his most interesting account of the odorata rubra Lilies near Cape Cod, which I put in Newfoundland. Not having been to America, it is all New-found-land to me.—F. M.

THE NYMPHAEA AND NELUMBUM OF HERODOTUS (Herod. ii., 92).—"For greater cheapness of living the marsh-men practise certain peculiar customs, such as the following: They gather the blossoms of a certain Water Lilly, which grows in great abundance all over the flat country at the time when the Nile rises and floods the regions about its banks—the Egyptians call it the Lotus*—they gather, I say, the blossoms of this plant and dry them in the sun, after which they extract from the centre of each blossom a substance like the head of a Poppy, which they crush and make into bread. The root of the Lotus is likewise eatable, and has a pleasant sweet taste; it is round and about the size of an Apple. There is also another species of the Lily in Egypt† which grows, like the Lotus, in the river and resembles the Rose.

* This *Nymphaea Lotus* grows in ponds and small channels in the delta during the inundation, which are dry during the rest of the year; but it is not found in the Nile itself. It is nearly the same as our white Water Lily. Its Arabic name is *Nufar*, or *Nilofar*, or *Beshin*; the last being the ancient "Piss-shu" or "Pi-sheen" of the hieroglyphics. There are two varieties—the white and that with a bluish tinge, the *Nymphaea cerulea*. The Buddhists of Tibet and others call it *Neumphar*. Though the favourite flower of Egypt, there is no evidence of its having been sacred; but the god *Nofr-Atmou* bore it on his head; and the name *Nufar* is probably related to *Nofr*, "good," and connected with his title. It was thought to be a flower of *Hades* or *Amenti*; and on it also *Harpoerates* is often seated. He was the Egyptian *Aurora*, or day-spring; not the god of Silence, as the Greeks supposed, but figured with his finger in his mouth, to show one of the habits of childhood, of which he was the emblem. Hence he represented the beginning of day, or the rise and infancy of the sun, which was typically portrayed rising every morning from that flower, or from the water; and this may have given rise to the notion of Proclus that the Lotus flower was typical of the sun. *Eratosthenes* also says this sun of *Isis* was the "god of Day." The Egyptian mode of indicating silence was by "placing the hand on the mouth" (Cp. vol. xxix., 9). The frog was also an emblem "of man as yet in embryo," as the Egyptian monuments show. The Lotus flower was always presented to guests at an Egyptian party, and garlands were put round their heads and necks; the "multaque in fronte corone" (Cp. *Hor.* Od. i., 26 and 28; ii. 7; iii., 10; iv., 11; *Athenem.* xv. &c.). It is evident that the Lotus was not borrowed from India, as it was the favourite plant of Egypt before the Hindoos had established their religion there.

† Perhaps the *Nymphaea Nelumbo*, or *Nelumbium*, which is common in India, but which grows no longer in Egypt. And the care taken in planting it formerly seems to show it was not indigenous in Egypt. *Crocodiles* and the *Nelumbium* are represented, with the Nile god, on the large statue in the Vatican at Rome and in many Roman-Egyptian sculptures (see woodcut); but it is remarkable that no representation of the *Nelumbium* occurs in the sculptures of ancient Egypt, though the common *N. Lotus* occurs so often. Pliny calls it *Colocasia*, as well as *Cyanon* (xxi., 15).

Notes (from G. Rawlinson's "Herodotus") by Sir Gardner Wilkinson.

The fruit springs up side by side with the blossom on a separate stalk and has almost exactly the look of the comb made by wasps. It contains a number of seeds about the size of an Olive stone, which are good to eat, and these are eaten both green and dried."

NOTES ON SNOWDROPS.

"*VERONICA*" is in error when he states that "*Galanthus virescens* has white outer segments, the inner ones being wholly green, except the white margin." Without doubt I have the true kind, as it came direct from M. Max Leichtlin. As described in my notes (p. 74), "the outside petals are green, tipped and edged with white." "*Veronica*" also refers to "the true *G. nivalis* reflexus, as grown by Mr. Harpur Crewe." On reference to *THE GARDEN* (Vol. XI., p. 226), it will be found that when *G. lutescens* was first sent to Mr. Harpur Crewe he thought it must be *G. reflexus*. He there says, "I have long been looking for this plant, and it is with extreme satisfaction that I believe my wishes have at last been realised." He further says, "It had very long, narrow petals with a yellow ovary, and the inner segments tipped with this colour instead of green." Not knowing that I had obtained this variety from Mr. Sanders, Mr. Harpur Crewe in 1881 sent me some bulbs of it, under the name of *G. Sandersi* or *lutescens*. In 1880, Mr. Barr sent me some very shrivelled bulbs which he had received as *G. reflexus*, and about the same time I had some equally ill-conditioned roots from Gusmus. Most of these died, but two or three survived, but have never recovered from their drying up, and I expect I shall lose them altogether. Last season, for the first time, I had one small flower from the strongest root, but, from what I could judge, it was nothing more than a poor form of *G. nivalis*.

G. Melvillei major is a large form of *nivalis*, but to my mind the flower is somewhat rough and coarse. I have two or three seedlings from it which will bloom this season. I believe that with Mr. Melville this kind has never seeded.

M. Max Leichtlin has written to tell me that I am in error in calling the twin-spathed, green-spotted variety *G. Shaylocki*. He says that it was found in a wood in Western Prussia by M. Sharlok, an apothecary of Grandenz, and it was named after the discoverer by M. Caspary, of Königsberg. The correct name, therefore, is *G. nivalis Sharloki* (Caspary). M. Max Leichtlin also informs me that this variety comes true from seed. Mr. Fish's recollections of an October-flowering Snowdrop are very interesting. It is the only instance I have heard of in England. There is an autumnal-flowering kind, named *Regina Olge*, found on Mount Taygetus by, I believe, M. Orphanides, but I cannot learn that it ever passed out of his possession. I know that M. Max Leichtlin tried to purchase some roots of it, but the fabulous price asked by the Greek prevented his buying them. In the *Gardeners' Chronicle*, March 8, 1879, a correspondent signing himself "*Aberia*" says, "There is a fine species of *Galanthus* with very woolly leaves. It is a native of Turkestan, and flowers at the same time as *Crocus Scharojani*, late in the autumn or early winter." Can any of the readers of *THE GARDEN* give further information respecting this species?

Since the above was in type I have heard from M. Max Leichtlin that *G. Regina Olge* appears to be altogether lost. M. Orphanides is confined in a madhouse, and none of his friends know anything of the *Galanthus*, and it cannot be found in his garden. The spot where it was originally discovered has been searched, but no more bulbs of it can be found. Apparently it was a chance bulb. M. Max Leichtlin very much

regrets that he did not pay the price demanded by M. Orphanides for one bulb, which would have saved this fine kind from being entirely lost.

JAMES ALLEN.

Park House, Shepton Mallet.

Garden Daisies.—There is a good deal of pleasure to be got out of raising Daisies from seed. The progeny is so diverse in character, that at first one is taken by surprise. The plants produce flowers of a variety of shades of colour, from crimson to the purest white; and some of those with single flowers are so delicately shaded with pink, that the contrast is greater than one could expect. A fair percentage of double flowers may be the result; but, unfortunately, the pink coloured ones are all single—such, at least, is my experience. —J. C. C.

The times of flowering of Snowdrops.—"Veronica's" note on Snowdrops (p. 144) induced me to turn up some notes which I have been taking annually with regard to the earliness or otherwise of Snowdrops. I have long held the opinion, which has been confirmed by these observations, that whatever climatic differences may have to do with their blooming (and they have no doubt a great deal), they are not the only cause of earliness or lateness. There are many varieties of the ordinary *Galanthus nivalis*, some of which vary as much as three weeks in their times of flowering, a fact noted by me for these last five years. Those that flower first vary of course with the season as to earliness or lateness; the others come in in rotation, with perhaps a lapse of two days between them, the whole amount observed during the whole five years. I may mention that all the varieties are grown in the same border and under exactly the same conditions. The first to flower is a form plentiful enough in the trade, and may be nearly typical *G. nivalis*; then come *æstivalis* and the double kind, the latter a full week behind; then we have the kind with four petals and the variety minus a fortnight behind the first. Lastly, we get the forms represented by Melvillei major, &c., three weeks behind the ordinary form; *G. Elwesi* flowers at about the same time as the early *G. nivalis*.—K.

Snowdrops dying off.—I quite agree with Mr. Wilkes' statement (p. 140) that Snowdrops will not grow everywhere; they will not grow here for any length of time. I have planted thousands of them from time to time, but very few do any good after the first year; they do not live beyond the second or third year. Indeed, the bulbs disappear altogether, and I do not find any old-established clumps in any gardens in this neighbourhood, although flowers of all kinds are largely grown. Whether their failure is owing to close proximity to the sea or not, I cannot say. There may be something in the soil that they dislike, but, be that as it may, certain it is that, while Crocuses, Tulips, Daffodils, and the majority of other bulbs flourish if left in the soil permanently, Snowdrops soon become extinct unless constantly renewed. The soil here is light and stony generally, and in some places stiff and retentive, but I do not find any difference in the behaviour of the bulbs. If lifted at the end of the first season's growth, one can see at a glance that they have deteriorated. Perhaps some of your correspondents who live near the sea can tell us whether or not they get Snowdrops to not only live, but increase. In inland places, on all kinds of soils, I have found the Snowdrop to need nothing more than putting the bulbs into the ground to ensure a fine display. In Kent they increase rapidly; two or three bulbs put into a clump will have increased to a good large mass in three or four years, and the individual bulbs will be found to be larger than the ordinary run of those that are imported. The soil in Kent is, as a rule, stiff and retentive.—J. GROOM, *Gosport.*

Rock Roses and the late frosts.—Singular to say, the late severe frosts have done more damage to old than to young specimens of the *Cistus*, or Rock Rose, tribe. *C. villosus*, or *vulgaris*, and its many varieties, which we have always looked upon as hardy, have suffered severely during the last few months. *C. florentinus*, known in gardens as *hirsutus*, a large plant in a sheltered spot, has suffered slightly, while a smaller plant in the open beds is untouched. The same has happened in the

case of *hirsutus* and *crispus*. *C. lusitanicus*, which I take to be a hybrid probably between *florentinus* and *ladaniferus*, seems to be perfectly hardy, as it does not appear to have been touched. The same may also be said of *formosus* so called, but which is a true *Helianthemum*. *C. laurifolius* is also so far safe, and the same may be said of *Cyprius*, *albiflorus*, and *albidus*, *C. vaginatus* being almost, or quite, killed. A dry, well-exposed situation appears to be the most suitable for these plants, where they may be left during the winter months without protection of any kind; damp, not cold, appears to be their greatest enemy, and damp, it has been proved, is intensified by the old-fashioned way of covering up at the approach of winter.—K.

EARLY CROCUSES.

LOVERS of hardy plants may well feel indebted to those who have taken such a lively interest in this charming family, and who by their exertions have made a reality of what was but a dream a quarter of a century ago, i.e., being able to have a bouquet of half-a-dozen or more colours in the first and second months of the year. To have flowers in plenty cotemporary with the Snowdrop was once thought to be out of the question, as is shown by the following lines on the Snowdrop:—

Like pendent flakes of vegetating snow,
The early herald of the infant year,
Ere yet the adventurous Crocus dares to blow,
Beneath the orchard bough thy buds appear.

The adventurous Crocus has at last dared to blow simultaneously with the Snowdrop, and a lovely picture a few of *C. gargaricus* makes mixed here and there amongst a large bed of *Galanthus nivalis* and *Elwesi*. In Western Bithynia and the Troad, at elevations of from 3000 ft. to 4000 ft., the Crocus appears to flower in April and May, and under cultivation Mr. Maw says the flowers appear in March. Last year it was in full flower with us on the 10th of February, and this year it is only two days later in spite of the severe winter which we have had. The flowers of this fine, deep orange-flowered species are of good substance, and do not seem to be affected by cold in the least. *C. Imperati* is also in flower now, and a very handsome Crocus it is; the outsides of the three outer segments are buff, feathered with deep purple. It appears to be variable in colour. It succeeds fairly well planted in turf. It is found growing naturally south of Naples, and is closely allied to *C. suaveolens*, the flowers of which are just now opening. *C. corsicus*, a new species from Corsica, has lilac or buff flowers, feathered with purple. It grows at from 2000 feet to 6000 feet elevation. We give it a little protection, but only when the flowers are open. It flowered last year on February 8. *C. etruscus*, which opened its flowers on the 12th February last year, is only now just pushing above ground. *C. nevadensis*, white, with greyish to deep purple featherings, has suffered much from damp and fogs, though protected. It seems at present to be more tender than the others and not so likely to become a general favourite. *C. alatavis*, a species from high elevations on the Alatau Mountains of Central Asia, has been in flower more or less for a fortnight past. It is said to be variable, the form which we have being almost all purple on the outside. *C. biflorus estriatus* is the earliest form of this set, half-a-dozen of its flowers having opened a week ago, while many more are coming into flower now. They opened on 12th February last year.

A few more than those enumerated above may almost be said to be in flower, as they are only waiting a sunny day to open. In introducing new Crocuses into one's garden the question of their adaptability to our changing climate will have to be considered, as only those whose flowers are of good

substance, as in the case of *C. gargarius*, will be at all worth growing. Covering or protecting the flowers when open will be out of the question, except by the overhanging branches of neighbouring trees; but this also may be objected to from want of sufficient sunshine during the drying off and ripening season. Something, however, may and ought to be done in this direction, and the first thing to see to is raising a stock of kinds most likely to give satisfaction and await the result. K.

SPOTTED MIMULUSES.

WE have few more beautiful flowers than those of spotted *Mimulus*. Compared with the size of the plants which produce them, they are very large and usually of very fine form. There are many features belonging to this section of the genus *Mimulus* which entitle it to greater attention than it gets. The plants are fairly hardy, easily grown, and they very soon produce blooms. The seed, too, germinates readily. Some of it sown in pans about the middle of January and placed well in the light in an unheated greenhouse has germinated most freely, and the soil in the pans is now literally green with seedlings. During the whole of the hard weather which we have had since sowing, the pans have been exposed to a low temperature, but two or three newspapers were thrown over them at night. The result affords proof that *Mimulus* seed is even more hardy than the plants themselves. It is, therefore, advantageous to raise the plants as hardy as possible, for the *Mimulus* is very impatient of heat, in which it soon becomes drawn and out of character as well as becomes infested with aphides.

THE SEEDLINGS will be ready to dibble out into shallow boxes in a few weeks, and when strong will be transferred with balls of soil into the open ground, but in a place somewhat sheltered from the sun. There in cool, loose soil fairly good they will thrive well and bloom profusely. To secure more perfect accord in the blooming of the plants, it is well to pinch out the leading shoot early, and thus induce side shoots to push out strongly; when some half-dozen of these do so, a bushy plant is the result and a good head of bloom is produced. Those whose experiences of the *Mimulus maculosus* are limited to plants with single stems and in small pots may, however, conclude that *Mimulus* has but a fugitive existence. But planted out in good soil and treated as described very diverse results will be obtained. I have often wondered that amateurs have not taken the *Mimulus* more in hand than they have. Those who like *Auriculas*, *Tulips*, or *Carnations* would find in this annual a flower very much after their own hearts, because it really repays good cultivation and admits of that cultural care which florists love to bestow upon their favourites. In not a few strains there is yet perhaps too much evidence of looseness of habit because everything has been centred in rearing big blooms. Here there is very much room for improvement.

ONE OF THE PRETTIEST though not the most striking of the *Mimulus* family is the dwarf free-blooming *cupreus*. The introduction of this form into the *maculosus* strain has been attended with happy results in the production of good habit, free blooming, and charming flowers in the way of varied hues and markings. The efforts of the grower who strives to improve his strain should be carefully directed to the development of size and form in the blooms, and with these points there should be rich and beautiful variety in colouration, and dwarf, yet robust habit. To that end the cross-fertilisation of but two or three blooms suffices to give seed

enough to raise hundreds of plants. Those who may wish to obtain specially early blooming plants may sow seed in October, and the seedlings should be dibbled out into a frame for the winter, when they will become strong plants for potting in March, and these will bloom finely a month before those from the spring sowing will. A. D.

Corbularia monophylla.—"G. J., West Surrey," has at last attained what we have long been striving for, even in the south of England, *i.e.*, flowering this bulb without protection. To get such a charming little flower in the open without assistance of any kind, except that afforded by a wall, gives us hope that under similar circumstances others may be equally successful. We would now like to hear what "G. J." can do on that dry, sunny Surrey hill with Cape bulbs, which are now receiving special attention. Our bulbs of *C. monophylla* have not been disturbed for at least six years; some of the stronger bulbs flower annually, but never produce more than one flower on each bulb; this, we believe, is owing largely to insufficient sunshine during summer. One hopeful sign, however, and one which we are glad to record, is that the bulbs are slowly, but surely, increasing, even under so unfavourable conditions, and with better attention to their requirements, a more rapid increase with better flowers might be the result.—Q.

Bulbous plants in flower.—For the last fortnight, notwithstanding the severe weather which we have had, the beautiful white flowers of *Merendera caucasica alba* are unscathed. This form is introduced from Continental gardens as *Bulbocodium trigynum*, or *B. Eichleri*, and as such we believe has been figured in the "Gartenflora." The chief difficulty in growing it is the liability of the flowers to be destroyed by cutting winds; otherwise it stands cold, and even fogs, which are very prevalent here, without hurt. *Colchicum neapolitanum* is also still in flower in the open border, where it has been showing not less than half a dozen at a time for the last two months. The flowers, which are lilac-purple, and large and showy, are doubly welcome just now. *Colchicum arenarium* we have also in bloom in a cool frame. The flowers are thinner in texture than those of any of the above, and consequently not so able to stand severe weather. It is a late autumn flowering species, the first flowers not opening with us until the latter end of November. They vary from lilac to white, and, although small, are very attractive. *Brodiaea* (Milla) *Leichtlini* is also in flower in the open border in a western aspect. The flowers, which are as yet not more than half an inch above ground, are white, each segment having a prominent green midrib, thus adding to rather than detracting from its beauty.—K.

IVY A CURE FOR DAMP WALLS.

TWENTY years ago I built a property in a part of Lancashire, the neighbourhood of which is notorious for its rainfall at all seasons of the year. Many houses in the locality were reeking with wet and moisture, the result of driving rains. It had always occurred to me that the old and popular notion that Ivy was objectionable on account of the damp it communicated to the walls of a building was incorrect. I therefore determined to try the experiment of planting Ivy round my house as soon as the building was finished, in order to avert the inconvenience of damp inside walls. Accordingly I planted Ivy roots round the whole of the house, having the soil carefully manured previously. Each root was three years old. It had been grown in pots in readiness for the required purpose. In one year it made astonishing growth, and nearly covered some of the walls of the house, and in about seven years it had grown so rapidly that the whole of the exposed surface was clothed with Ivy. Until it had grown sufficiently high the damp was very conspicuous in various parts of the interior of the house; but as soon as the Ivy had reached these places, the signs of moisture disappeared. The house at the present time being well covered with Ivy foliage, there is no manifestation of moisture any-

where. Now the cause of this is very self-evident. When rain beats against a porous substance, such as brick or some kinds of stone, it is gradually absorbed into it, and it only requires rains of sufficient duration to go completely through the walls to the interior of the house. But where Ivy is planted and grows up, becoming thick enough to cover the walls well, and which it will soon do in good soil, most of the rain beating against its glossy leaves runs off, and the walls are thus protected. In a house which I have in the district of the English lakes, I have had remarkable evidence as to the advantage of an Ivy covering. Parts of the walls and all the openings are built with red sandstone, and at times, when storms come from the south and south-west, beating against the parts exposed, the walls inside were not only damp, but the water literally soaked through them and ran down as long as the storm lasted. The growth of Ivy was at once encouraged to cover these places, and where it has reached them, the moisture from the interior has been entirely removed. Four years ago the wind blew the Ivy down from the exposed parts referred to, and when the next rains came, the moisture made its appearance in full force, nor could it be arrested until the outer wall had again received its Ivy covering. There can be no doubt as to its great value in this respect, and, in my opinion, it is the only pleasant remedy for the purposes alluded to. There is a grain of truth as to Ivy imparting moisture to the surface on which it clings, but this is of little account compared with the very great advantages it is to buildings in the manner pointed out, and when planted round a dwelling much exposed to the south-west wind and rains.—W. J. MUCKLEY, *Loveswater, Cumberland, in Field.*

INDOOR GARDEN.

LILY OF THE VALLEY.

I QUITE agree with Mr. Elphinstone that foreign crowns are better than those of English growth, having regard to the condition in which the latter are generally met with. It rarely happens that the plants are treated in English gardens in a way that admits of their equalling those of foreign growth. The ability of the plant to live under neglected conditions is so well known that in this country it is seldom managed in a way that gives it a chance of competing with foreign roots. But where that attention is bestowed on it which the German and Dutch growers give, English roots are equal to any produced elsewhere in all respects but one, that is that they can rarely be depended on to do so well for the earliest forcing, say, to come in at Christmas, or a little before, as the German roots, through the obvious reason of the latter being grown where the summers are hotter, growth being matured earlier, and consequently they will force so as to produce flowers earlier. But there is no question that sometimes imported roots—usually clumps, not separated crowns—come to hand in a condition that defies all that can be done to induce either flowers or leaves to move, although thick and plump in bud and to all appearance right. This I have seen with some of the best of the growers for Covent Garden Market, including the late Mr. John Standish, of the Ascot Nurseries, whose then foreman, Mr. Johnson, was one of the most successful with this Lily. I have been served the same way with roots that were faultless in appearance, but which no amount of coaxing would induce to move. A few years back I saw one of the market growers in this fix with a quantity of foreign roots put in heat at Christmas, but which were as immovable as if they were dead, although both the root fibres and the crowns were right, to look at. I had a dozen of these clumps that had been for a month in strong heat without the slightest movement, and planted them out-of-doors, with the result that they grew and flowered beautifully, but a little later than others which had not been disturbed. The fact

of imported roots sometimes behaving in this way is so well understood amongst those who have grown them extensively, that I had supposed it was generally known.

If asked to hazard an opinion as to the cause, I should say that, through the rush which the Continental growers are in to be first here with their roots, they are taken up before the growth is fully matured, or that they are allowed to get too dry after being taken out of the ground. Sea-water having got to them has been assigned as a reason for their failure, yet nothing conclusive seems to have been arrived at. The opinion given by "S. W." (p. 134) in respect to this plant when forced early is an instance of the mistakes people fall into when, as shown by their words, they are not practically acquainted with the subject they speak of. "S. W." says, "The difficulty with most growers, he has always understood, is not to produce leaves, but flowers, and that if the best samples of imported roots are potted and started in a too high temperature, they will, he is sure, produce leaves, and little else besides." Allow me to inform "S. W." that what he says is exactly the reverse of that which occurs. Experienced growers who can command a temperature of from 80° to 90° find no difficulty with good crowns in getting them to flower by the end of the year, but to a score of spikes there is seldom more than a solitary leaf or two. Hence the reason to secure the requisite foliage, of their also forcing the thin, sharp-pointed crowns that have no flowers in them, and which push up their leaves readily.

The treatment given by Mr. Henderson (p. 88) is the right way to grow this *Convallaria*, so as to avoid disappointment either when it is to be forced or let to bloom where it is grown; but if he would allow it a little more room, and give good soakings with water in dry weather during the growing season, he would get still larger spikes. The plant likes plenty of manure and abundance of water. A bed I have that has been planted half-a-dozen years gives quantities of spikes with from eighteen to twenty-two flowers on a spike; it gets a heavy dressing of Clay's manure each spring, and plenty of water in dry weather. There are few things in a garden that better deserve being well treated than this lovely old British plant; yet it often happens that there are none which are more neglected.—T. B.

—In accordance with a promise made by me a fortnight ago (p. 108), I herewith give my treatment of Valley Lilies. On receiving them in November, I lose no time in getting them all potted in 5-inch pots, well drained, using any open soil, compost not being of the slightest importance, as no roots are made in it. I distribute the pips regularly over the surface; we then give them a good watering with a rosette can to settle the soil about them, and afterwards plunge them or bury them in cinder ashes a foot deep, in order to keep out frost; from this position we draft them into the propagating house for forcing as required; we there plunge them in cocoa fibre refuse up to the rim of the pot in a bottom heat ranging from 90° to 110°. Each pot is covered over with an inverted pot of the same size as that in which the pips are potted; these pots must therefore be removed each morning before they can be watered. This periodical watering is a very important matter; first, it must never be omitted; and secondly, care must always be taken that water at about the same temperature as the bottom heat is applied. The pots used for covering are not permanently removed until the pips have made a start and have grown, say, 2 inches high. I would recommend intending purchasers in the forthcoming autumn to get their supplies as early as they can in November, for I am convinced that more failures arise from the crowns getting over-heated in their packing cases,

and from the other equally fatal extreme of getting parched through exposure, than from all other causes put together.—W. ELPHINSTONE, *Shipley Hall, Derby.*

OLD-FASHIONED PILLAR PLANTS.

"T. B." does well to direct attention (p. 107) to *Hovea Celsi*, which is one of the most chaste and beautiful of all the Pea-formed flowering plants. It is not so very long ago since this *Hovea* was seen in almost every collection, either as a specimen bush-headed plant, on a trellis, or running up a pillar, or clothing a low arch or wall in a conservatory. Two other Pea-flowering plants were equally common for similar purposes and positions; these were the bluish purple *Hardenbergias*, or *Kennedias*, monophylla and the larger flowered variety of the same, *m. longiracemosa*. These, though less choice than the *Hovea*, were far superior to not a few of the coarser creepers or climbers now so often employed for the furnishing of small spaces near the eye.

Kennedya Marryatæ is altogether a different plant, with scarlet flowers, still occasionally met with on conservatory pillars and arches. *Zichyas* are closely related to these, and were much used for similar purposes, the most common being *Z. heterophylla*, tricolor, inophylla, and coccinea. Another class of Pea-flowering plants often associated with these and much used for specimens, &c., in olden times were the *Chorozemas*; they are neither exactly climbers nor creepers, but they do well trained up dwarf walls, rafters, pillars, &c. The most commonly grown were *C. cordatum*, *Henchmanni*, *Lawrenceanum*, spectabile, and *varium grandiflorum*. These, being all red, orange-scarlet, or yellow, contrasted well with the blue or purple *Hoveas* and *Hardenbergias*. Other old-fashioned blue climbers, though not Pea-flowering, were much used about the time all these were popular, and contrasted admirably with the *Chorozemas* and the red *Kennedias*. These were the *Sollyas*, of which there were several varieties, such as *heterophylla*, *linearis*, *salicifolia*, and *angustifolia*. Of these, only one (*S. linearis*) is now very rarely seen, though *heterophylla* used to be well grown and bloomed in almost every garden. In fact none of these old-fashioned flowers named by me are nearly so difficult to grow as the *Hovea Celsi*, the culture of which has been given by "T. B." It was always considered a proof of considerable ability to do the *Hovea* well, whilst almost every novice could grow the other plants here named creditably. Next to the *Hoveas* the *Chorozemas* were the most difficult to grow into perfect specimens, and such as "T. B." and others used to exhibit were triumphs of good culture; but little skill was needed to grow *Chorozema varium* against pillars or walls.

The whole of the plants here named had this in common with *Hovea Celsi*: they could be raised from seeds. All, however, had not the same immunity from insect pests, as most of them were more or less subject to white scale; but this taken in time was easily kept in check, and comparatively few of our more modern plants will yield a richer or more pleasing harvest of beauty and variety in smaller areas than those old and almost forgotten plants here named.

D. T. F.

Rhododendron argenteum.—For furnishing a large conservatory few plants are better than some of the Himalayan *Rhododendrons*; their blooms are strikingly effective, and they are almost hardy. The more vigorous growing species require to reach a good size before their full beauty is developed; indeed, some of the largest are of quite tree-like growth. To this class belongs *R. argenteum*, a kind especially valuable from its being the first of this race to expand its blossoms. It is altogether a noble *Rhododendron*, the leaves of which are large and of silvery whiteness underneath, and the blooms are borne in huge trusses. The individual flowers are, when first expanded, suffused with pink, but afterwards they become almost white, except a few claret-coloured blotches at the base of the throat. Both the colour of the blooms and the whiteness of the undersides of the leaves vary to some extent in different individuals, and though some are superior to others in

ornamental qualities, yet even the worst form is handsome as a specimen.—H. P.

CHINESE NERINES.

THE question is asked (p. 127), "What is *Nerine aurea*, and where can it be obtained?" and similar enquiries have been made with regard to the plant now being distributed under the name of *N. japonica*. So far as regards the identity of these two plants, the answer is easy to give, but we do not know where the bulbs are to be procured, except, perhaps, the second, for which enquirers may be referred to any of the leading bulb-dealers. *Nerine aurea* was so named and figured by Mrs. E. Bury in her "Selection of Hexandrian Plants"—a very large folio work, something like Mr. Elwes' book on Lilies. Mrs. Bury's book was published about fifty-five years ago, and she states under the figure of the *Nerine* that the plant was then in cultivation in England. In the *Botanical Magazine* (t. 409) the same plant is figured as *Amaryllis aurea*, and it was grown as a stove plant at Kew before 1807. Dean Herbert placed it, along with another species, under the name of *Lycoris*, and Mr. Bentham has adopted this name for it in the "Genera Plantarum." We have, therefore, now in this genus *Lycoris* the two so-called *Nerines* and a third plant, found in Turkestan by Dr. Regel, and named by him L. Sewerzowi, the two former being natives of China. Possibly the difference between these three plants and the Cape *Nerines* is chiefly a geographical one, but about such a point we need not trouble ourselves here. The following is a brief description of the three species of *Lycoris*:—

L. AUREA (syns., *Nerine aurea*, *Amaryllis aurea*).—Bulb like that of the *Jacobaea Lily*, dark brown; leaves a foot long, 1½ inches wide, keeled, margins curled under. Flower-scape stout, 1½ feet to 2 feet high, slightly compressed; flowers about six in an umbel, golden yellow, the segments regular, 3 inches long, narrow, curling; stamens longer than segments and curved upwards. Flowers in autumn (August and September) before the leaves appear. It is said to be common in Shanghai, and is often planted near ancestral tombs.

L. RADIATA (syns., *Amaryllis radiata*, *Nerine japonica*).—Leaves about a foot long and less than an inch wide, green, with a grey band down the middle, which is channelled. The flowers appear along with the leaves, and are very similar both in habit and colour to the *Guernsey Lily*. There are from four to six flowers on each scape, packed closely together, their segments curving suddenly backwards and upwards, whilst the stamens, which are at least 4 inches long, point downwards, except near the end, where they are suddenly curved. It will be seen that there is in these characters a very close resemblance to the undulata section of true *Nerines*. This species also comes from China, and is said to be a favourite plant with the villagers. It flowers at the same time as *L. aurea*.

L. SEWERZOWI.—Bulb long and pear shaped, leaves short, pale green. Flower-scape appearing with the leaves, erect, less than a foot long, bearing an umbel of regular rose-red flowers, nearly 2 inches long, and in form like the flowers of the common *Agapanthus*. This plant was collected in Turkestan by Dr. Regel in 1877, and we have also seen a specimen of it which had been found in China by Fortune. We do not know of it in English gardens.

For their cultivation it is probable that these plants will require the treatment given to *Nerines*, except that they must be encouraged to make their growth during summer. There are several plants of *L. radiata* just pushing into healthy leafage in the bulb house at Kew. B.

SHORT NOTES.—INDOOR.

The best Palm for a cold house is *Phoenix sylvestris*. Then follow *Sedfordia australis*, *Latania borbonica*, and *Corypha australis*.—S. C.

Asparagus plumosus nanus.—Undoubtedly one of the most graceful of plants and likely to hold its position, for, considered either as a decorative plant or for supplying cut sprays, I know of nothing so satisfactory. I have had cut sprays of it in use for two or three weeks, and then they were in fair condition.—STEPHEN CASTLE, *West Lynn.*

EPIPHYLLUM TRUNCATUM AS A CLIMBER.

THIS section of Epiphyllums is well known to contain some remarkably attractive flowering plants that rank amongst the most desirable of winter bloomers; the bright colours of the flowers, their distinct formation, and the freedom with which they are produced render these Epiphyllums general favourites. Yet their natural, close, bushy habit of growth is such as to make them unlikely subjects for growing as climbers. They are often grown in low bush form on their own roots, but more commonly in the shape of standards on short legs, grafted on *Pereskia* stocks, which latter plant usually forms the stem. The natural drooping character of these Epiphyllums is such as to adapt them for this shape. When to be used for training up a rafter it is necessary to grow the *Pereskia* on until it has attained length enough to fill the place it is intended to occupy. Like most of the *Cactus* family to which it belongs, the *Pereskia* is more than usually tenacious of life so far as being able to bear without injury a drier condition of the roots than some things. On the other hand, it, in common with other allied species, does not like the soil being kept so wet at any time of the year, in winter especially, as most plants would do with. In addition to this, the *Pereskia* does not make nearly so many roots as the generality of plants; consequently smaller pots must be given it than would be required for many other things that need heat to grow them.

There are positions in which the Epiphyllums in question can be used as climbers with advantage, the growth they make being so far limited that even after the lapse of many years they will not materially interfere with the light that is necessary to reach the plants growing in the body of the house beneath them—such, for instance, as in an Orchid house. Orchids, needless to say, are too costly and slow of growth to admit of anything being grown above them that would to any appreciable extent curtail the light indispensable to their healthy existence, consequent upon which ordinary roof-climbers that make much growth are wholly unsuitable; on this account the roofs of structures devoted to these plants are often objectionably bare in appearance, whereas if things of spare growth, such as the plants under notice, were used, scarcely any light would be intercepted more than the bare rafters exclude.

The temperature of a house in which East Indian Orchids are grown requires to be kept too hot continuously for Epiphyllums to succeed, but the warmth which the intermediate section want answers for them. The *Pereskia* strikes freely from cuttings made of the points of the shoots, put in small pots drained and filled with a mixture of half peat and half sand, or half loam and sand, placing them in ordinary stove heat. The succulent nature of the plant is such that it is better not to confine the cuttings so close as most things require to be; stand them on any moisture-holding material, and protect from the direct force of the sun. In common with others of the *Cactus* tribe, they must not be kept so wet as cuttings of many plants, otherwise they are liable to rot. When well rooted move them into 3-inch pots, now using less sand in the soil; grow on in a brisk stove temperature, for though the plants will succeed in an intermediate heat, still, where the means exist for pushing them on, there will be less waiting for their arriving at a flowering state. If the pots get full of roots before the end of summer it will be better to move them into others an inch larger, now adding some broken crocks to the soil with a view to keeping it in a thoroughly porous condition, for the roots will not live if the

material is in the least sour or adhesive, and there should be no attempt in after years at shaking out with the intention of renewal, as this would be likely to cause the destruction of the plants. Hence the necessity for taking means from the first that will secure enduring porosity, as if all goes well the plants should not only live, but keep improving for many years.

As the object is to grow the stocks on with a single stem until they have attained the length of the rafter they are to occupy, obviously there must not be any stopping practised, and should side growths break, these must be removed as soon as they appear, securing the shoot to a stick inserted in each pot. Through the winter keep the plants in the stove, giving less water proportionate to the reduction in growth. In spring, if the balls are filled with roots, move into pots 2 inches larger, using soil similar to that in which they were last potted. Treat through the summer as before. This *Pereskia* is a free grower, but it may probably take a third season before the requisite height of stem is secured, in which case again winter the plants in the stove, giving a moderate increase of pot room the following spring; but care must be taken not to overdo them with root space, as the roots do not like too large a body of soil.

As soon as the desired length of stem has been reached, the plants may be grafted anytime during the spring or in the summer, when the season is not too far advanced to admit of a union being properly effected before the growing time is over. The scions ought to be points of the shoots about three joints in length; these should be inserted about 5 inches or 6 inches apart all the length of the stock from the bottom to the top of the rafter. The grafting may be effected by making downward clefts about three-quarters of an inch long in the stem, inserting a scion in each, previously paring them down so as to fit the incision in such a way that the bark of stock and scion meet, afterwards binding them together. Another way of proceeding is to chip the bark with a little of the wood off the side of the stock at each point where a scion is to be attached, paring the scion down so as to make it fit, and binding to hold it secure, as in the previous method. The grafts usually take freely in five or six weeks, during which time the plants should be kept in a close growing atmosphere and shaded from the sun. The stems expand slowly; consequently there will be no necessity to take the ties off for some time. When they require moving it will be well to simply slacken them, for until the union has become solidified, it is safer to give a little support. The after management will consist in giving larger pots from time to time as required, in all cases using soil of a lasting nature. The plants will bloom after having made a season's growth subsequent to their being grafted. But it is in after years, when the stems have got well furnished, that their effective character will be fully realised, as then during the blooming time the whole stems from top to bottom will be complete wreaths of brightly coloured flowers.

The following sorts will give variety in colour: *E. truncatum albo-violaceum*, *E. truncatum salmonium*, *E. truncatum violaceum grandiflorum*.
T. B.

Ivy-leaved Pelargoniums.—These are invaluable for hanging baskets; their trailing habit eminently suits them for any elevated position, but there is yet another purpose for which I find them specially well adapted, and that is for supplying cut flowers. They have long stalks, and their colours are soft and pleasing; many of the newer double and semi-double kinds are really beautiful. The way in which we

find them to answer best is to pot a good quantity of them in autumn in 6-inch or 7-inch pots, and set them on shelves in a light house. There let them grow gently on during the winter, and in spring they should be either tied up to stakes or utilised for covering walls. For this purpose some wire netting should be first fixed to the wall, and the shoots should then be tied regularly over it. If kept well supplied with water, and if a little stimulating manure is given them from time to time they will keep on flowering during the entire season. Those who have hitherto only grown the Ivy-leaved section as bedding plants can form but little idea of their beauty under glass; the bloom, when fully exposed, soon gets spoiled. I find that old plants are more floriferous than young ones, and as they are very brittle, it is advisable to keep the shoots from getting matted together by tying them out before that occurs. The following are all good kinds, viz.: *Gloire de Orleans*, *M. Dubois*, *Rossini*, *Sarah Bernhardt*, *Vesta*, *Robert Fortune*, *Lucinda*, *Madame A. Barrett*, *König Albert*, *Urbanie*, *Madame Crousse*, *Madame E. Galli*.—*J. G., Hants.*

NOTES.

THE TIME OF PRIMROSES.—For those who have the luxury of a greenhouse it is pleasant to know that there are at least two species of *Primula* which may be relied on most implicitly to flower all the year round. These two are *P. poculiformis*, an introduction of Messrs. Veitch from the Tchang Valley, in China, and the other is *P. floribunda*, raised in Edinburgh, I believe, from Himalayan seeds. The first has pale rosy lilac flowers and *Cineraria*-like leaves, the second has golden yellow flowers borne in whorls on its numerous stems, each individual flower reminding one of *Jasminum nudiflorum* in form and colour. By sowing seed, or taking cuttings or offsets at different times, it is quite possible to have *P. sinensis* in flower every month of the year, if so desired; but, as a rule, one tires of it so soon as the outdoor species and varieties come fully into flower. Different forms of coloured *Primrose* and *Polyanthus* are now pushing up in sunny corners, and the lilac heads of *P. cashmeriana* are also appearing here and there; while in sheltered spots the bronzy crowns of *P. rosea* are bursting, and there is just the faintest gleam of a garnet-like bud glinting here and there. So, too, one admires the great mealy crowns on the *Auriculas*, knowing of the beauty, rich, soft, and velvet-like, enshrined within.

CLEMATIS INDIVISA.—This plant and its variety with lobate foliage are just now among the most beautiful of all climbing plants in a warm conservatory. The white, starry flowers, each with eight rays and a cluster of purple anthers in the centre, are very useful for cutting, and arranged in vase or bowl they form pretty effects indoors. There is a great variety and beauty in this one genus, and where anything like a complete collection of *Clematis* is grown, someone or other would be in bloom all the year round. The drawback to universal *Clematis* culture is barred by some little difficulty in their propagation. Cuttings of *Clematis*, unfortunately, do not strike root as freely as *Fuchsias*, or our gardens would soon be filled with the graceful habited and showy kinds. *C. cirrhosa*, outside, and *C. indivisa*, under glass, bridge over the season after *C. Jackmanni* leaves us in November until *C. montana* and *C. alpina* flower in the spring. Now is a good time to plant the hardy sub-fruticose kinds, such as the *Virgin's Bower*, *C. Flamula*, *C. erecta*, and the hybrids of *C. lanuginosa* and *C. Jackmanni* types.

OLD-FASHIONED TULIPS.—It seems a pity that the tall-growing old cottage garden Tulips are not more generally grown as hardy border flowers. There is an exquisite grace about their twisting leafage and elegant buds as borne up on their

slender, wavy stems. The wealth and variety of colour is most satisfying, and where large bowls or vases have to be often replenished, a few of these flowers go a long way. Given an armful of these fine old Tulips and an old pot of graceful shape, and you have before you a living picture, just such a one as Van Huysum or Baptiste best loved to copy. I rarely pass the London National Gallery without turning in to get a peep at the dewy sheen on Huysum's Tulips, and when the red jar in which they are arranged tires one's eyes, it is pleasant to cool them in the mysterious depths of Velasquez's sombre colouring. Beautiful and perfect as are the finest of florist's Tulips, they require careful culture to keep them up to their best. On the other hand, the mixed seedlings of the late-blooming race give very little trouble on light, dry soils, coming up year after year quite vigorously. The large crimson *T. gesneriana* itself is a fine border flower, as brilliant as a Poppy, and perfectly hardy on most soils. A few hundreds of Dutch "rogues" or mixed late Tulips add greatly to the flowers of May, and for effect a few Parrot Tulips, as also those of the *T. cornuta* race, should be added. On warm sandy soils all the above endure for years if once well planted.

A GARDENER'S HOLIDAY.—Mrs. Ewing, in her "Story of a Short Life," gives an account of a gravedigger who only once took a holiday in seven years, and the way he spent it was in going to a cemetery some distance off to see how they managed matters there! Some readers might doubt the truth of this, but I know that many good gardeners spend their holidays in precisely the same fashion! Perhaps, after all, we are never really happy when outside our own garden walls, unless it be when inside the walls of some one else's garden. The attraction of a friend's garden is magnetic. It may contain the same plants, or similar ones, to those we ourselves cultivate, and yet possess that subtle charm of variety which can scarcely be expressed in words. The plants may be the same, but their moods and phases of growth and blossoming are different—so different as to afford us some of the sensations of absolute novelty in colour or in form. A visit now and then to other gardens even in the same locality is a wonderful refreshment to the spirits of a true lover of plants, and if such a series of visits could be now and then extended to other lands, so much the more would they prove instructive and enjoyable. I have often wished that excursions to France and Belgium, or to the Dutch bulb farms, could be organised, especially for gardeners, who would be benefited in all ways by travels of this kind.

FLOWERS OF SPRING.—There was a sharp race this year among the Daffodils in the open air. Hitherto *N. maximus*, *N. nanus*, and *N. obvallaris* have been the earliest to bloom here outside, but this year *N. pallidus præcox* and *N. minimus* opened together on Monday, 8th inst. On Tuesday morning a letter from Herefordshire informed me of 18° of frost, and Tuesday was one of the foggiest days of your London season. Here, however, it was bright and sunny, and the Snowdrops, Snowflakes, Aconites, Hellebores and Narcissi had an inch of pale yellow tinting at the ground line, which means a sudden rush of growth daring mild weather. *Iris reticulata* Krelagei is lovely near a tuft of *I. stylosa*, the grassy leaves of which harmonise beautifully with its rich claret-purple flowers, and at the same time shelter them from wind and rain. How very often do we find this combination of use and beauty in the garden. That is to say how often it is true that what looks best in floral arrangements really is best in other ways. Mild sunny days and now a

good soaking rain means an uprising of many beautiful spring flowers. The Snowdrop lines are whitening, and there is here and there a golden bud or two among the tufts of *Crocus* leaves, and Primroses are blooming everywhere among the warm brown dead leaves.

FROST IN FLORIDA.—Every now and then a cold wave invades even these Orange groves of the sunny south. The last serious lowering of the temperature was as far back as 1835, and again this winter a depression has taken place, and with the thermometer standing as low as 20° (i.e., 12° of frost) the Oranges and, worse still, the Lemons have been frozen on the trees. According to a correspondent, "it was a sad sight to see the fresh and fruitful trees of one day wilted and drooping the next, with the glossy leaves yellow or blackened by the bright sunny mornings which succeed the frosty nights." It seems all the more sad this devastation in the modern Hesperides, because the frost came suddenly and is gone again; but, alas! the "cold snap" had done its work, and no warmth of sunshine can make frost-bitten fruit and leaves remain on the half dead trees. It is hard to believe that the American home of the Orange and the Banana should be liable to a visitation from "Jack Frost," but so it is, and the thought may be a little consoling to gardeners of a colder clime.

EARLY CROCUS.—It is as bright and sunny a spring-day as one may expect to see in February, and the leafless branches throw chequered shadows on the freshest of green turf; a dappled thrush sings matins and vespers in an old Thorn tree, and last, but by no means least, "Golden Crocus crowns the green." The Crocus, ephemeral as are its fully-expanded blossoms, is ever a welcome visitor—a sort of lovely *avant courier* for "Queen Daffodil." *C. chrysanthus* (gold), *C. Sieberi* (lilac-purple), *C. vernus*, and *C. aureus* are now all ablow; *C. Imperati* is yet showy, and the fiery yellow buds of *C. Olivieri* are glowing beside *Iris reticulata* and its claret-purple variety *Krelagei*, each blossoming from its own tuft of glaucous leaves. The rare Crocus *Korolkowi* has refused to flower this year, but *C. alatavicus* has been even more generous than usual, and some little Greek kinds, specially collected for us, have at last rewarded our patience after a year or two of weary waiting. On a bright warm day like this one cannot deny the subtle tokens of spring time. Crows are busily inspecting old nests, fighting robins are as numerous as the frogs, the lark rivals the thrush as a *prima donna*, and a warmer sun puts new life into every bud and flower.

DAFFODIL NAMES.—Now that there is a Daffodil committee belonging to the Royal Horticultural Society, there should be no difficulty in obtaining the correct and best authenticated name for any variety submitted to that committee in bloom. It follows, as a matter of course, that the specimens sent for naming should be from the open ground, and at least one perfect and complete plant, bulb and all, should be sent. Since forced or cut flowers are alike deceptive, I am led to make these remarks, because unless some system is adopted, and due deference paid to the Daffodil committee, the confusion of Daffodil names will soon be insurmountable. Mr. Baker very rightly observes that there is too great a tendency towards a mere multiplication of names. As an example, let us take the Big Irish spurius, or Ard-Righ (Irish King) of Hartland. This is Barr's Yellow King, Mr. Engleheart's spurius major, and Ware's Golden Queen. One need say no more to show how confusion is becoming more confounded, and the committee will have to adopt one of these names—that is, if

the variety is sufficiently distinct—and cancel all the others! Mr. Hartland believes this to be a native Irish variety. It has, however, yet to be proved that any species or variety of *Narcissus* is really indigenous to either England or Ireland. Their habit of growing near old buildings or old sites of buildings long ago departed is at least a very suggestive fact. VERONICA.

GARDEN FLORA.

PLATE 532.

SALPIGLOSSIS SINUATA.*

THE accompanying coloured illustration will support my assertion that this is one of the most attractive of all annuals, though indeed it does not represent many of the finest colours that are produced from a packet of mixed seed. The venation in some of the forms is most interesting, a feature which did not escape the late Dr. Darwin on the occasion of one of his visits to the Cambridge Botanic Garden. There are lovely orange and yellow self-coloured forms as well as numbers of others not depicted in the plate, especially some of the veined ones just alluded to. From twenty-five to forty-four forms are separately offered by seedsmen, and are distributed in sets indicated by the terms "grandiflora," "nana" and "pumila," which are understood to express their character. I prefer the large-flowered section which comprises kinds that are useful late in the summer and



Salpiglossis sinuata, showing habit of growth.

autumn, though under certain methods of treatment they might be had in flower earlier. The *Salpiglossis* is hardier, perhaps, than is generally supposed, for in Sweet's "Flower Garden" we find the following statement concerning *S. picta*: A plant sent to us by Mr. Tate, of the Sloane Street Nursery, last autumn we planted in a border of our garden; this we covered when frosty by placing a flower-pot over it, and left it exposed when there was no frost; it succeeded very well, and is now growing strongly, and is covered with flower buds." From this a hint may be taken to sow in autumn for early flowering, giving protection in winter. Our beds of *Salpiglossis* have been so attractive in the Cambridge Botanic Garden, that prizes are now offered by one, if not more, of our local societies for the finest flowers belonging to our different varieties of this genus.

THE TREATMENT which I adopt is as follows: The seeds are sown about the middle of March in sandy, but rather loamy, soil, and are raised in a warm greenhouse. As soon as the seedlings are large enough to handle they are pricked out

* Our plate was drawn in Mr. G. F. Wilson's garden, Oakwood, Wisley, by Mrs. Duffield.



A GROUP OF SALPIGLOSSIS

into boxes about $2\frac{1}{2}$ inches apart. When strong enough, after protection for a time in a quite cool frame, they are planted out. For this they should be ready by the end of May, or even a little earlier, and for a few days, if the sun is bright, a little shading is of great advantage to them. It may be stated that if the seeds are sown too early under this method of treatment, the plants grow weakly and even try to flower, when, in either case, they are of but little use. Their preparation is not at all difficult, but some care is necessary, as the roots are somewhat delicate, and if the seedlings are pricked out too closely they are sure to suffer by division. Of course, it is necessary to keep the plants always as near the glass as possible. I prefer to have a bed entirely or nearly devoted to *Salpiglossis*, because it is so easy then to compare and seek out the various colours. One year I had *Salpiglossis* and *Paris Daisy* mixed in a bed, and I think this was the most effective combination I have tried. Groups of seedlings may also be planted in mixed borders, and in sub-tropical mixed beds I have found a few plants here and there to be very effective. A good loamy and rich soil without stiffness is that which the plants like best. If the soil is too light and dry they are liable to die off in summer. Watering in dry weather is important with us, though in other soils it may not be so necessary. The support of sticks is sometimes, though not always, required. Cuttings planted under a hand-glass will grow, but this means of propagation is perhaps unnecessary. I have sometimes had a few good specimens in pots, but I do not think there is any special need for this form of culture.

THE *SALPIGLOSSIS* forms one of the links that connect *Solanaceæ* and *Scrophularinææ*. In the "Genera Plantarum" it comes between *Schizanthus* and *Browallia* in the former Order, while in De Candolle's "Prodromus" it is placed next *Schizanthus* in *Scrophularinææ*. The genus now under consideration is closely allied to *Petunia*, several species of which have been described under it. Several forms have been figured and described as distinct species and varieties under the names *S. atro-purpurea* (*Botanical Magazine*, t. 2811), *S. Barclayana* (Sweet's "Flower Garden," ii., 112), *S. picta* (Sweet, t. 258), *S. straminea* (*Botanical Magazine*, t. 3365), *S. sinuata* (Ruiz and Pavon) is the inclusive name for all. I may add that the various forms are annual, or, under certain conditions, perhaps biennial; they grow from 1 foot to 2 feet high, and the lower leaves, which are sinuate or pinnatifid, diminish upwards into the linear sessile bracts of the paniculate inflorescence. *S. picta*, the kind first introduced, made its appearance in 1820. All the forms, now so much improved by cultivation, originate from Chili.

R. IRWIN LYNCH.

The magnificent collection of Tree Ferns and others now being got ready at Chiswick for the coming colonial exhibition affords a grand opportunity for the construction, either at South Kensington or Kew, of a gigantic fernery with rockeries, cascades, grottoes, &c., such as would be unknown elsewhere, and which, if well done, would be a lasting monument to the zeal of those who have been instrumental in sending from all parts of our colonial possessions this truly wonderful collection. After the exhibition is over, no doubt these Ferns will be at the disposal of the managers, and it would be a matter for regret if some effort was not made to keep the whole of them for some such purpose as is here suggested. Perhaps arrangements could be made at Kew for the reception of these Ferns; and for our part we should prefer seeing them in the national collection; but if anything of this kind is intended, it is to be hoped that a large glass structure will be specially prepared for

them. We have at Kew a noble house set apart for Palms and similar plants, another for a mixed collection of temperate trees and Ferns, but no house for the giant Tree Ferns of the Tropics. An immense tropical fernery, with all the natural arrangements possible would be a noble feature at Kew or elsewhere, and, as has been pointed out, the opportunity for such is at hand in the shape of a grand collection of specimen Ferns, which after a few months' service at the exhibition will be without a home.—B.

KITCHEN GARDEN.

THE BEST VEGETABLES.

OUR garden is situated in a fairly warm locality, but much exposed to easterly winds, and the soil is naturally heavy and cold. As a consequence, vegetables weakly in constitution do not thrive, and that may partially account for my testimony regarding them being in some cases conflicting, not merely with that contained in catalogues, as that is not at all surprising, but even with that of some who have written on vegetables.

PEAS.—It is about these that the greatest divergence in opinion exists; nor is this surprising, seeing how many new sorts are annually introduced. American Wonder has maintained its reputation as being a valuable and very dwarf early sort, excellent alike for pots, frames, or sheltered borders, while in quality it is also one of the best. Chelsea Gem evidently is a sport that I have frequently observed among dwarf Peas, notably Minimum and American Wonder. It possesses a strong constitution and is a heavy cropper, the pods filling well with Peas only moderately sweet. It will succeed where American Wonder refuses to thrive. Alaska, an American introduction, proved to be the earliest of the medium height round-seeded early sorts by about five days, and is fairly profitable. It is, however, too much like Sangster's No. 1 and its various synonyms, and I shall be surprised if it is long on the lists. Rural New Yorker much resembles Harbinger, and I do not recommend either. The best that can be said of Dillistone's Early and such synonyms as Extra Early, First Crop, Ringleader, Alaska, and various others with local appendages is that they are the earliest amongst medium-height sorts, but they are of poor appearance and quality when cooked, and the same remarks apply to Sangster's, Taber's Perfection, First and Best, Earliest of All, and Daniel O'Rourke. William I. is scarcely a week behind the earliest of them, and is usually very prolific and good in quality, and a fairly good succession to either American Wonder or Chelsea Gem. Neither Day's Sunrise, Alpha, nor Advancer are robust enough for us, nor are Dickson's Favourite, Essex Rival, Fillbasket, Laxton's Supreme, and Hundredfold sorts that I can recommend for second early crops. A second sowing of William the First in the open is closely followed by Telegraph, of which Telegraph is merely a more green companion, and to follow these we still prefer Criterion and Huntingdonian. For those who have no room or stakes for tall Peas I can strongly recommend Stratagem and Pride of the Market in lieu of Telephone and Telegraph, and Wordsley Wonder is a very profitable and good second early sort. These are followed by such medium-height sorts as Kinver Marrow, a really good variety, Gladiator, and the good old Hair's Dwarf Mammoth, this being also still one of the best for very late crops. Good tall main-crop sorts are Webb's Triumph, Ne Plus Ultra, Reading Giant, Magnum Bonum, Williams' Emperor of the Marrows, and British Queen, all of these, with the exception of the first named, being also most suitable for late crops,

Ne Plus Ultra is the most reliable main and late crop variety in cultivation, and in quality unsurpassed. Culverwell's Giant and Duke of Albany, though much eulogised, I do not admire. The latter was to have been very branching, but neither this nor some other good qualities which it was said to possess were very apparent here. Alongside of Ne Plus Ultra and a very heavy cropping and good variety received from Drumlanrig it was simply "nowhere," its large pods being its only recommendation. Of medium height, late and main crop Peas the best are Electric Light, Veitch's Perfection, Latest of All, Sturdy, and Evolution. I do not recommend anyone to purchase all the sorts named in each section, but any two of them will, if successional sowings are made, give satisfaction.

BEANS.—Of Broad Beans, I consider Veitch's Improved Long-pod a decided improvement on the old Early Long-pod. It is very heavy cropping and early. Seville Long-pod is rather later and produces longer pods, but they are much fewer in number; while if a good exhibition second early variety is desired, Leviathan may well be given a trial. Improved Broad Windsor is suitable for late sowings, but is inferior in point of quality to Broad Green Windsor. When I first grew Cooling's Ne Plus Ultra Kidney Bean, or what was sent as the true variety, I formed but a very poor opinion of its merits; but next season I received seed from two other sources, and have been obliged to modify my impressions regarding it. There is evidently much resemblance in the seeds of dwarf Beans, and some seem to know how to turn this to good account. Ne Plus Ultra is a very profitable variety for either forcing or warm borders, and will replace Osborn's Forcing, which, though very early and good in quality, is not continuous bearing enough. Canadian Wonder is the only other sort that need be grown, though Webb's Victoria, Carter's Longsword, and Negro Long-podded are all very prolific and good in every respect. The former being white-seeded and heavy croppers should be grown where Haricot Beans are in demand. Of Runner Beans the best are Girtford Giant and the Champion Scarlet; while Sutton's Giant White produces an abundance of long handsome pods, good alike for exhibition or the table.

BROCCOLI.—Webb's New Autumn White was tried for the first time, and proved to be the earliest sort here, being, though sown in April, fit for use before Cauliflowers were over. It is dwarf in habit, and on the whole may be described as a good and useful addition. Veitch's Autumn Protecting also forms a good succession to the Cauliflowers, and with a little trouble in the way of lifting and protecting we still have a few for use, this being a good proof that it is available from the early part of November till February; in fact, by sowing in autumn, and otherwise treating this batch similarly to Cauliflowers, it can be had as early as August. No other Broccoli is half so useful. Snow's Winter White I have always held to be overrated; with us it is either not ready or not fit for the table before February. Veitch's Spring White succeeds Snow's. The heads of this sort are of good colour and quality, but it is tall growing and not so hardy as some others. Leamington is a very serviceable sort, a good breadth of it yielding a long succession; and to follow these we have Model, Late Queen, and Ledsham's Latest of All, all in every way excellent.

BRUSSELS SPROUTS.—This season we have tried several fresh varieties, and have arrived at the conclusion that two of the so-called novelties are synonymous. These are Ne Plus Ultra and Northaw Prize, both being serviceable and good

in quality with no perceptible difference between them. Aigburth is still the best cropper, but the sprouts are too large and strongly flavoured to be acceptable. Paragon is of dwarf habit, and produces a good crop of neat, close sprouts which are good in quality. Webb's Matchless proves to be of great merit, producing abundance of medium-sized, close sprouts, and the Reading Exhibition is equally as good. Borecole or Kale we find very serviceable this winter, and of this we have several fresh sorts on trial. Webb's Extra Fine Curled Scotch is the most ornamental of the various green sorts and is of good quality, and the green curled from other seedsmen is good, while Read's New Hearting again proves superior to all other Scotch Kales. Buda or Asparagus is the hardiest and latest of all, and a few rows yield during March, April, and May numerous succulent dishes.

CABBAGE.—Ellam's Early Dwarf is usually of excellent quality, but with us is more liable to bolt than other sorts, and I prefer Veitch's Matchless, this being hardy, early, and good in quality. Webb's Emperor and Reading All Heart are about the most profitable and good, and the true Wheeler's Imperial is hard to surpass. For Coleworts we prefer the London Rosette, and Shilling's Queen is also useful early in the winter. Chou de Burghley is harder than anticipated, and when not too large and well cooked may be said to be of fairly good quality. It is rather coarse growing, but it comes into use opportunely.

W. IGGULDEN.

Somerset.

Forcing French Beans in frames.—When the days lengthen, and the red spider is looking about for something to devour, there is always a certain amount of risk in growing French Beans in the same house as Vines or Peaches. But French Beans are always useful, and there is often a considerable gap between the last forced crop and the first in the open ground. This interval may easily and economically be closed up by adopting a system of slight hotbeds, commencing about the end of February. In making arrangements, it should be borne in mind that later in the season—say in May and June—when the plants can be freely exposed, the Beans will come on in succession if none are left to get too old. The first bed should be made up in a substantial manner in a pit, or with a frame placed on it. The later beds may be of a very temporary character, and can be easily extemporised with a few boards and some old lights, or some other protectors. The Newington Wonder is a very good variety; it turns in quickly and is very prolific, and if gathered often the plants will bear for a long time. I like it because its growth is so dwarf and compact. But any of the small early kinds will do. Plant in rows across the pit or frame 18 inches apart, the Beans to be planted separately 6 inches apart. Keep close till the Beans are up, and then ventilate freely. Give liquid manure as soon as the plants begin to bear. About 8 inches of soil will be enough.—E. HOBDAV.

SHORT NOTES.—KITCHEN.

Walker's Exhibition Onion.—This is said by Mr. Muir to be too much like the Rousham; but when I state that my Onion was distributed and in cultivation at least ten years before the Rousham, surely in common fairness Mr. Muir should have said Rousham Park Hero was too much like Walker's Exhibition.—JOHN WALKER.

The long shallow boxes about 1 foot deep in which eggs are imported make capital soil receptacles for crops of various kinds, such as Tomatoes and Cucumbers. They provide ample drainage and abundant surface for root run. When such boxes are once employed it is surprising how many uses can be found for them.—J. G. H.

Potato grafting.—If Mr. Kevan will look at my notes again he will see that I made it impossible for the stock to produce plants by carefully and deeply removing every eye before the plug grafts were inserted. The plug grafts grew, and in process of growth wholly absorbed the substance of the stock. It is curious that some of Mr. Kevan's hybrids (like some of mine) were flaked and patched with rosy smears.—W. G. S.

American Potatoes.—It is instructive to note that almost the only American Potato which remains popular in this country is Beauty of Hebron, and so held in esteem because it is early, and in cropping and quality displaces the older Early Rose. Hardly any other kind is quoted in the market returns at any season that is of American introduction. We have plenty of kinds as early as Beauty of Hebron, but none which give so large a crop early; hence its value, especially in the market, where its bulk more than compensates for the price obtained, which is seldom high. Of course, the demand for it is not of long duration, and as soon as other good English kinds are in the American becomes a drug. Having regard to the great number of kinds introduced here from America from time to time, it is surprising to note how few have found with us a permanent position. One of the very best of recent introductions is Charter Oak, a heavy cropping white round, tinted with pink, and handsome, which also seems to make no way. It is one of the last and best certificated at Chiswick, and it is remarkable that it has not been pushed high and low under some other appellation. I had several assumed new American kinds sent me last year to grow for trial—Garfield, American Giant, Wall's Orange, and others, but they in no case exhibited evidence of superiority over the best of our home kinds. I think home raisers have so thoroughly skimmed the cream from the American sorts in utilising them for the production of fertilised seed, that America has no chance whatever with us now, and may as well, in Potatoes, shut up shop. It is worthy of notice that American raisers do not seem to have made anything like such striking advance in Potato production as home raisers have. Beyond producing some bigger samples at times, we see in the novelties from the United States almost the same form and character found in kinds that were esteemed here ten years since. No doubt transatlantic tastes in Potatoes differ from those at home, for it would seem that our best kinds have equally failed to secure prominence in America. In spite of all this, however, we owe much to America for her productions, because their introduction here lent a powerful stimulus to home growers and raisers. Very much that is not correct is written from time to time as to the inferiority of modern sorts compared with older ones. None are so blind as those who will not see. We never had finer cropping or better Potatoes than we have at this moment, and almost every season tends to the production of higher quality.—A. D.

WORK DONE IN WEEK ENDING FEB. 16.

FEBRUARY 10.

ANOTHER sharp frost in the early morning, followed by a day of fog, as remarkable for its density as for the cold accompanying it. The frost rendered the work we had in hand—trenching and digging—impossible, and once again we had to fall back on the work of trimming straggling Rhododendrons that are planted under timber trees along the margins of carriage drives; carting manure, throwing it together to rot, and mixing some of it with leaves for Pine pits and hotbeds on which to raise seeds; striking cuttings, sowing Carrots, Lettuce, and planting more Potatoes. Shifted to a cool house—latest Peach house—the following that have been raised in heat, namely, Brussels Sprouts, Cauliflowers, Coleworts, Lettuce, Celery, and Gold Feather Pyrethrum; all but the last-named will be ready for pricking out a week hence, and frames will be at once got ready for them. Any open spot does to stand the frames; ours are stood on the hard gravel, and about 4 inches depth of light soil is then put in the frames and the plants pricked out at a distance of 3 inches or 4 inches from each other. The lights are kept on till the plants have got hold of the soil, but afterwards they are aired as freely as weather permits. Watered early inside Peach border; tepid water only is used, and the border is kept constantly mulched with long litter. Did a little more disbudding and picked off a few of the smallest fruit that had set in clusters. Sometimes a portion of the fruit turns yellow when it gets about the size of large Peas, and till that size has been attained we thin very charily, but the moment there are indications of the fruit swelling

kindly thinning is done with a free hand. Second Peaches are now in flower, and the heat is now kept up to from 50° to 55° by night, and from 8° to 10° more by day, and atmospheric moisture is reduced to the lowest point. Syringing of trees is never done, and floors and walls only are syringed when the outside air is dry, which has not been the case of late. A shave of the trellis is generally sufficient, by way of artificial aid to fertilisation, but those who prefer to use a camel's hair pencil to make doubly sure should use it gently, and not too frequently—once a day is ample. Planted out another lot of Melons; thinned out shoots, and trained old plants of Tomatoes to back wall of intermediate vinery. They have given us a little fruit all through the winter, and being full of flower, I think they will fruit much earlier than the young plants that have to-day been potted into 6-inch pots.

FEBRUARY 11.

As regards weather, to-day has been near akin to yesterday—sharp frost and fog—and we have continued the same kind of work, and, in addition, have pulled up some old Muscat Vines, got out the old soil of inside border preparatory to making an entirely new one. Rubbed off a few of the weakest shoots of early Muscat Vines. The “shows” are not yet very prominent, and till it can be seen which are really the best no other disbudding will be done; 60° to 65° will now be our lowest night temperature, except the weather should be unusually severe, in which case the temperature will be proportionately lowered. Plunged Vine eyes in leaf bed in a spare Pine pit. Soon as roots are well formed the plants will be taken out of bottom heat, as the most enduring root growth is made without it; indeed, we should not have given them bottom heat at all, were it not that the Vines are required for planting out early in the approaching spring. Cleared Strawberry house of flowering plants, and filled it with Strawberry plants in three or four differing stages of growth. The plants swelling and ripening off fruit are still left on shelves in Pine and Melon houses, plenty of heat being a necessity to obtain size of fruit in this cold, leaden-sky weather. Put in the first batch of Alternanthera cuttings; this earliest lot we have inserted in the Melon house propagating bed; but after this all will be struck in manure frames and left on the beds as struck till required for planting out. The old plants from which the cuttings have been taken are so stunted, that they are doomed to be destroyed, should the cuttings now inserted strike successfully. Potted off a few more Chrysanthemums, and a few of the earliest have been shifted into 5-inch pots. All are now arranged in a cold pit, that can, if occasion require, have a little heat turned on it. We prefer to cover up thickly with mats to applying fire-heat, but rather than risk injury from frost, on the sharpest nights a little is turned on.

FEBRUARY 12.

Thaw, with a drizzling rain all day long; and once again there has been no outside work accomplished. Opened and relaid drain of inside Vine border and replaced rubble—brickbats—over the drain to a depth of from 9 inches to 12 inches, and it is now ready for the soil soon as the weather is favourable to allow of its being got in. To prevent the soil from choking up the drainage we always put newly-cut turves, turned grass side downwards, over the rubble before any soil is put in, and this turf will be cut from the common the first fine day. Root stores and fruit rooms have had their usual wet weather cleansing. Apples and late Pears are keeping first-rate, and give but little trouble, as so few decay. Bergamotte Esperen and Ne Plus Meuris are our two best Pears at the present time, and Bœurré Rance and Catillac the best culinary kinds. Apples: Wellington, Beaufin, Hanwell Souring, and Deux Ans are the best culinary; and our best dessert are Ribston Pippin, Court Pendu Plat, King of Pippins, and Omar Pasha. Shred-cutting, in readiness for nailing in of Peach trees. Label making and pointing sticks are other odd jobs done to-day. Work in the houses has mainly been the propagation of bedding plants—single Dahlias, Tropæolum, Ageratum, and Lobelias. Also made other sowings of Ricinus and Chamepeuce. Salvia argentea—one of the best large white-foliaged plants for planting under tall growing subtropical plants—we have sown

in quantity. The Night-smelling Tobacco (*Nicotiana affinis*) and the variegated large-foliaged variety, *wigandoides*, we have also sown and placed in heat. Peas, sown in pots some time ago, are quite ready for planting out, but as the weather is so severe, planting will be deferred, and meanwhile we have found space for them in a cold frame.

FEBRUARY 13.

A fine day at last, mild and sunny; all hands trenching and digging in kitchen garden; dug up all roots in old Asparagus plot, put them in shed and covered them up with mats till wanted for forcing. The ground they have occupied for some eight years past has been heavily manured every year, that nothing but trenching will be needed to put it in good order for Brussels Sprouts and Kales, the crops we have arranged for that plot of ground. Training and nailing Peaches on south wall; we take a reasonable amount of pains to make them look neat, but never quarrel with the trainer if the branches deviate an inch or two as to distance from each other, or if they should be a little crooked. I am more concerned about having the wall covered, and of obtaining a crop of fruit than of having handsome trees. There is no time now-a-days for "plumb-line-and-rule" training of fruit trees. Watered Pines—all fruiters require more bottom heat—but till the weather is more settled and milder, to allow of the lights being taken off and the plants lifted out whilst the beds are renewed, this cannot be given, so meanwhile we shall excite growth as little as possible by keeping the temperature of the house low—say about 65°, and even lower than that in severe weather. The first successions that now need shifting into fruiting pots have been well watered, to make sure of the soil being moistened throughout before they are potted. From some few plants that were expected to show fruit ere this water is being entirely withheld, as such a check seldom fails of having the desired effect. Put in heat a few more forcing shrubs and Roses; thinned out blossoms of Strawberries and surplus fruit from such as had set too freely, another shelf in plant stove being given up to those thinned, plenty of heat at this stage being indispensable if fine fruit be desired. Gave all houses a thorough clean up.

FEBRUARY 15.

Frost, fog, and rain (one must soon add), as usual. Did a little trenching and digging and turning over of fermenting material for Pine pits, but at length the rain gained the mastery, and indoor work has been of the usual description, and will soon be nil, for never in my recollection had we so much lost time owing to bad weather. I suppose the end will come, though one begins to despair, and to have visions of jobs in arrear at a season when it is sufficiently difficult to keep pace with the ordinary daily work. Stopped a few of the strongest shoots that were taking the lead on early Vines, and pulled off a few more shoots. Had another turn at disbudbing of early Peaches; well watered with tepid water the inside border of an intermediate vinery; put on fresh mulching, and closed the house to start the Vines into growth. They will be well syringed at 9 a.m. and 2 p.m. till the buds are ready to burst, after which stage we never syringe overhead. Thoroughly washed Gardenias, and afterwards syringed them with a solution of paraffin oil—half a pint of oil to three gallons of water; soft scale is the only parasite that bothers us with these plants, and this we find to be a safe—does not injure the foliage—and an effective remedy. Began to pot off bedding Pelargoniums; the tender kinds we pot singly in 3-inch pots, others two and three in the same sized pot, and free growing hardier kinds we put in boxes, using a good proportion of roughish leaf soil with the compost, as this adheres well to the roots so that they transpire without feeling the check.

FEBRUARY 16.

Fine, but dull, a great improvement though on the weather of yesterday, and we have been able to make a way with work in kitchen garden; digging, trenching, and taking up bad parts of Box edgings, preparing the ground for relaying the same. Sowing will be deferred till the soil gets drier. Snips, Onions, and other sowings of Peas and Broad Beans we are desirous of getting in at the

earliest moment, as also of planting a good breadth of early Ashleaf Potatoes, nailing in Peaches, pruning Gooseberries, potting and boxing Pelargoniums. Put in cuttings of a few of the kinds of which the stock is short; three cuttings planted round the sides of a 3-inch pot, and stood in any warm place, not over damp, are sure to strike successfully and early. Potted for forcing a few more plants of *Hoteia japonica*, hybrid seedling Primroses, and *Myosotis*, and put in heat the last lot of Hyacinths and Narcissi.

HANTS.

FRUITS UNDER GLASS.

STRAWBERRIES.

THE long-wished-for change from dark, foggy days and frosty nights to bright, sunny weather, so essential to successful forcing, is still looming in the future, and we are, for the present, obliged to draw on our almost exhausted stock of patience. We, in this part of the country, must not, however, complain, as the ground is now clear of snow, and with the barometer higher than it has been for many months brighter days may surely soon be expected. Meantime, the successful gardener's virtue, patience, must prevail, as a fresh, air-loving plant, like the Strawberry, must not be hurried through the early stages of its growth. Constant fire-heat being absolutely necessary, daily attention to watering must on no account be neglected, for once allowed to become dry at the root, or the balls to part from the sides of the pots, no after-management can compensate for the fatal check, which will most likely end in sterility, accompanied by a plentiful stock of red spider. Let watering, then, receive the most careful attention. Syringe all plants not actually in flower on all favourable occasions, damp the surface of the bed and the walls, and ventilate as freely as may be consistent with safety. Do not aim at a high night temperature, but rather let the house or pit descend to 40° or 45° through the hours of darkness, with a chink of air to prevent condensation of moisture and make up for time apparently lost by closing the lights for a few hours whenever the sun breaks through this dense sheet of vapour. As plants come into flower, draw them together, but not too close, as crowded foliage impedes the circulation of air, but press the latter down with the hand to set the flower-scapes free; pinch off the weakest flowers before they open, and carefully fertilise those intended to produce the crop with the camel's-hair pencil. When sufficient plants have set their fruit and are ready for removal, syringe well with pure water, make the final thinning, and tie up the stalks to prevent them from hanging over the sides of the pots during the time the fruit is swelling and ripening. To many who force a great number of plants this thinning and tying may be thought unnecessary or impracticable, but where fine quality and neatness are first considerations this work should not be neglected. When the first batch of plants has been removed to the forcing-house, follow up former directions by cleansing the shelves as a preliminary to a general move forward. Then, after discarding all that are weak or blind, place another set of the strongest in the most favourable position for fertilisation. By adopting this plan, several batches of plants of various kinds, or in different stages of growth, can always be kept together under proper treatment, while the constant change of position exposes every leaf to the free action of the syringe, and prevents the stalks from becoming elongated. Where a cold or semi-cold pit is kept as a reserve for drawing from, plants from the open air can always be kept steadily progressing; checks of all kinds, often so detrimental, are avoided; and, although some may not be good sharp forcers, the gradual excitement results in the majority proving fruitful.

Late batches.—In order to keep up a steady family supply until early fruit begins to ripen on the open quarters, it is always necessary to have a good reserve of suitable varieties either in the open air or plunged in cold pits, where a large percentage, say every alternate row, can be left to ripen without the aid of fire heat. If well ripened and well managed these plants generally give heavy crops of fine fruit, and although commercially not so valuable, they form

a connecting link for the London season at a time when good Strawberries in quantity are indispensable. Where such plants have been kept plunged in dry leaves or old tan in shallow pits, with a little dry Bracken cast over the crowns in severe weather, advantage should now be taken of the first favourable opportunity for giving them a good supply of water. The balls may not be particularly dry, but a thorough soaking will make the roots safe without saturating the plunging material, an evil which cannot always be avoided when the lights are thrown off in wet weather.

PLUMS.

If not already in flower, the earliest batch of trees in pots will now be approaching that stage when more air and less moisture will favour the setting of the fruit. As Plums in the open air often set freely in a low temperature, provided it is not absolutely frosty, the safest course indoors for the present will be moderation in the application of fire heat, by night especially. Should bright days succeed the frosty nights which still prevail, turn on a little fire-heat every morning, syringe the house freely when the temperature begins to rise, and admit sufficient air to keep it stationary at or about 50°. As the sun wanes, gradually reduce the fire and air and finally shut off both, if through the night the house without it can be kept at or a few degrees above 40°. As days increase in length and nights become milder a minimum of 50° can often be maintained without difficulty; but the external atmosphere being generally damp in proportion to its mildness, gentle fire-heat with air will be found preferable to keeping the house up to the proper degree with closed ventilators without it. If the blossom buds, now prominent, are very numerous, it is not yet too late to thin out the spurs with a pair of strong scissors or a sharp penknife, as one-tenth of the flowers which a tree produces is ample for an abundant set of fruit, while the process of thinning tends to vigorous development, followed, as a matter of course, by bold flowers and perfect fertilisation. Keep the house free from stagnant moisture by turning on heat and opening the ventilators during the time the trees are in flower, otherwise the petals will damp and the pollen will become pasty and unfit for its office. Fertilise the flowers on fine days and resume syringing as soon as the young fruits begin to push out of the decaying capsules; also keep the roots well supplied with tepid water and admit more moisture into the atmosphere. If well fumigated before the trees come into flower, fly will not put in an appearance until after the fruit is set; but so rapid is its progress and so quickly is the foliage checked and ruined, that, notwithstanding apparent freedom from the pest, this operation should always be repeated as soon as the swelling of the fruit indicates immunity from danger.

If not already under glass, lose no time in getting late sorts into position. As yet the buds have made but little progress; but birds are numerous, food is not over-plentiful, and they may now at any time be tempted to attack what to them is evidently a dainty morsel. If stock is likely to run short, pyramids and bushes may still be taken up and potted. As it is now getting late, they cannot be expected to produce fruit this year; consequently, they need not be placed under glass. Neither is it necessary, as they will fill the pots with roots and set an abundance of flower-buds if plunged, mulched, and well attended with water in a bright, airy corner in the open air. Plums being now very numerous, none but the best sorts should be selected for culture under glass. The following six varieties may safely be selected by the amateur, and they may be duplicated to any extent by large growers: 1, Greengage; 2, Huling's Superb; 3, Jefferson; 4, Transparent Gage; 5, Kirke's; 6, Coe's Golden Drop.

CHERRIES.

like Plums, are so easily and inexpensively forced into magnificent sheets of deliciously fragrant bloom, that one often wonders why the choice edible varieties are not more frequently grown for the decoration of the greenhouse first and the dessert table afterwards. When grown in pots or trained under trellises, like Peaches, their principal requirements are a low temperature, produced by a profusion of fresh air com-

bined, however, with just sufficient fire heat to keep it in motion and to prevent it from falling below 40°. Would-be forcers of this delicious fruit, who cannot devote one compartment to Cherries and another to Plums, may grow the two together until the fruit is set, when, in order to do each of the occupants justice, they should if possible be separated. Cherries started with the Plums will now be coming into flower, and, like all other impatient stone fruits that resent coddling, will stand a little more fire-heat, provided it is accompanied by an extra supply of fresh air, more or less, according to the state of the external temperature. If dark, wet, and cold, the temperature may range from 40° to 45° at night, 50° to 55° by day, with a reduced supply of atmospheric moisture. If, on the other hand, bright, balmy weather prevails, 5° higher may be given, and the syringe may be applied to the stems and walls, if not to the blossoms. Some growers set their Peaches, Plums, and Cherries with the syringe, not as we should lay on for the destruction of spider, as that would be contrary to reason; but charged with clean tepid water they discharge it over the flowers in fine spray, and when we consider the delicate nature of the organs and petals, it is easy to imagine the advantage of soft, refreshing moisture over a dry, exhausting atmosphere. In my own management I do not often use the syringe, owing to local surroundings, but on dry, warm soils in elevated gardens a refreshing shower is by no means objectionable. Many look upon syringing the flowers as a modern introduction, and men now in the heyday of life and practice claim the credit of having brought out a new wrinkle; but such is not really the fact, as syringing and washing the flowers with the engine were practised more than half a century ago, and anything that took place before that date is ancient history. Cherries, like Plums, owing to the treatment to which they are made amenable, soon get overcrowded with spurs, and make but little wood; consequently, there is sometimes a dearth of foliage. To prevent waste of stored-up sap, which will by-and-by be wanted, and to favour a free "set," it is a good plan to thin out the flowers before they open. It is now perhaps rather late to commence on the very early varieties, but any that have not yet burst into bloom may be so treated with advantage. When sufficient for the crop have set and begin to swell, the syringe must be plied vigorously every fine day, and pot trees must be top-dressed and fed precisely as we now top-dress and water orchard house trees under similar conditions. Trees that are planted out in confined or raised borders, if old and thoroughly set to their work, may also be mulched and liberally treated, while young ones that have recently been introduced will be kept on the safe side by the withholding of animal manure until after the fruit is thinned and stoned.

FIGS.

Early pot Figs, from which two full crops of fruit are expected, should now be sufficiently advanced to admit of the first being thinned. Many people, when Figs were less frequently forced, did not trouble about thinning out the fruit, their generally admitted theory being the retention of all the fruit which a tree might show to allow for dropping. As well might a Graper grower leave all his bunches unthinned to compensate for shanking. This, however, is never done, as it is a well-known fact that trees of all kinds are capable of carrying a given weight of fruit to maturity, and anything left over and above that weight not only detracts from the good quality when ripe, but actually jeopardises the finest shows, which might safely be depended upon were timely thinning boldly carried out. The Fig, it is true, has got a bad name, but the fault lies with the grower, not with the tree, for in nine cases out of ten the tendency to cast its fruit may either be traced to overcropping or irregular feeding. Let all forced trees, then, be well thinned before they feel the strain of the crop, or the growth of the wood is checked; for so long as a Fig tree keeps growing, so long will it keep on showing young fruit, which will in due course make the tree, what it ought to be, a perpetual bearer, by ripening up fine Figs in succession throughout the season. Early Figs being all-important, a few of the finest and best placed fruits for succession should be retained on each shoot; but, unless they are wanted for market, all need not

be of the same size, as a steady supply of an extremely perishable fruit like the Fig is at all times preferable to a glut. When divested of all ill-formed and badly-placed fruit, pyramids and bushes should have the points pinched out of the strongest shoots at the fifth or sixth leaf, to favour the rapid development of those left as well as to maintain the proper balance of the sap and the symmetry of the trees. If likely to become crowded, the side shoots must also be tied out to let in sunlight and air, for without the unchecked aid of these elements colour and flavour can hardly be expected in the month of April.

Top-dressing and feeding may now be supplied with a liberal hand, and on no account must good syringing be neglected, for if once allowed to become infested with spider the trees will be a source of worry throughout the season. Pay particular attention to the plunging bed, as checks are often produced by want of heat as well as want of water, and make additions from the reserve as soon as the bottom heat shows signs of descending below 70°. Little and often is the best maxim, as the gradual introduction

have been kept dry, this precautionary measure has, no doubt, been the means of saving the points of many free-growing trees from injury. W. COLEMAN.

Eastnor Castle, Ledbury.

TREES AND SHRUBS.

TRUE AND WILD SERVICE TREES.

THE similarity of the popular names of these trees has often led to some confusion in their identity. On this account we consider it desirable to describe and illustrate the two together, so that their differences may be made clear. They differ so widely that when once their distinctive characters are known there is little likelihood that they will be afterwards confounded. The species to which the names of Service trees have been applied are both natives of Europe known to Linnæus, and botanically described by him;



Pyrus torminalis. Flowering, leafless, and fruiting branches; detached flowers and fruit (natural size).

of fresh, well-worked leaves means a steady supply of fresh food and the constant presence of warmth and stimulating moisture. As brighter and better weather may now surely be expected, gradually raise the night heat to 65°, with a chink of air, run up to 75° by day, with increased ventilation, syringe, and shut up in time for sun heat to raise the pit to 80°.

Succession houses now breaking may be well syringed twice a day, the first time when the temperature begins to rise, the second when it begins to decline from the maximum, as the trees will then become dry before nightfall. If planted out in raised borders that cannot easily be over-watered, give the roots moderate supplies of pure water at a temperature of 80°, and let the strength and age of the trees be the guide in the application of mulching and stimulants. Large trees that have been severely root pruned should be well mulched with rotten manure before they are started. Young ones which make strong growth will not require feeding until the fruit is well advanced.

Keep late houses freely ventilated until the buds begin to swell, then be guided by the period at which ripe fruit is wanted in the application of fire heat. If only one crop is wanted and pinching is not resorted to, the young shoots should have plenty of room to extend on the long rod principle, and growth should be secured from closed-in sun heat, when fires will only be needed in wet cold weather or to keep out frost.

Last of all we have the cold or unheated glazed case, a structure in which the finest fruit can be ripened off in ordinary seasons, always provided the trees are kept secure from severe frost through the winter. I advised letting down and sheltering the branches with dry Fern or some other non-conducting material some time ago, well knowing that the temperature in these narrow, fluctuating structures often descends to a very low figure. Since that time we have had very severe frost, and although the trees

but who first called them Service trees is not so certain. They were alluded to by Gerard and other early writers on plants, and probably the name Service is a corruption of some name given by the ancients, as both trees are commonest in the middle and south of Europe. It is evident that both belong naturally to a warmer climate than ours.

THE TRUE SERVICE (PYRUS SORBUS).

The True Service is now quite excluded from the list of indigenous species, though till late years British botanists had considered the solitary tree in the Wyre Forest, on the borders of Worcestershire, to be a native, and earlier botanists have even recorded the species as inhabiting Cornwall and other localities. In alluding to the Wyre Forest tree, Loudon states in his "Arboretum" (1838) that "the tree is of very great age, and is now in a state of decay." The Whitty Pear tree, as it is there called, is 45 feet high; the diameter of its trunk, at 1 foot from the ground, is 1 foot 9 inches, and that of the head 26 feet.

Miller, in 1731, says, "The manured Service was formerly said to be growing wild in England; but this I believe to be a mistake, for several curious persons have strictly searched those places where it was mentioned to grow, and could not find it; nor could they learn from the inhabitants of those countries that any such tree had ever grown there." Miller adds that, though abundant in Italy, where a great variety of sorts are cultivated, yet it is very scarce in England, "for," he continues, "I have not seen more than one large tree, which was lately growing in the

gardens formerly belonging to John Tradescant; this tree was near 40 feet high, and did produce a great quantity of fruit annually." In 1752 Miller observes, "There are great numbers of large trees of the True Service growing wild about Aubigné, in France; whence the late Duke of Richmond (who was also Duc d'Aubigné, and a great lover of plants) brought a great quantity of the fruit, and from the seeds raised a number of young plants at Goodwood." The True Service is not found in abundance in any part of the world. There are, perhaps, more trees of it in the middle region of France and the Alps of Italy than in all other countries put together; but it is also found in the south of Germany, in some parts of the north of Africa, and in Western Asia. It strictly belongs to the region of the Vine, and beyond the northern boundary of the Vine region it gradually ceases to flourish. The tree is tender when young, even in France, and it is exceedingly difficult to raise in the gardens there. There are but a few specimens of it in England, and these are chiefly in the neighbourhood of London.

PROPERTIES AND USES OF THE WOOD.—The True Service is the hardest and the heaviest of all the indigenous woods of Europe. It weighs, when dry, no less than 72 lb. 2 oz. per cubic foot. It has a compact fine grain, a reddish tinge, and takes a very high polish; but it must not be employed until it is thoroughly seasoned, as otherwise it is apt to twist and split. It is much sought after, in France, by millwrights, for making cogs to wheels, rollers, cylinders, blocks and pulleys, spindles and axles, and for all those parts of machines which are subject to much

astrigent, and it is used in a state of powder, in wine, to stop fluxes of blood. In Britain the tree is chiefly to be recommended on account of its ornamental properties and rarity; for, though its fruit is, perhaps, not much inferior in taste to that of the Medlar, yet it is found to be much more difficult of digestion.

SOIL AND SITUATION.—A good, free, deep, dry soil and a sheltered situation are essential wherever it is attempted to grow this tree in Britain. From the specimens in the neighbourhood of London it does not appear to suffer from the climate after it has been five or six years planted; but it is rather difficult to establish young plants.

PROPAGATION.—Seeds may be procured in abundance from France, and from them stocks may be raised on which the best fruit-bearing varieties may be grafted. The True Service may also be grafted on the Pear, the Mountain Ash, the Hawthorn, and other allied species. The graft should be made close to the ground, or even under it, on the root; and care should be taken to retard the scion previously to grafting it, in order that the stock may be somewhat in advance of it. On the whole, the operation requires to be performed with the greatest care, because this is one of the most difficult of all non-resinous trees to graft successfully. Generally the attempts made to raise it from layers, or by inarching, are attended with little or no success. In raising the True Service from seed, the French writers direct the plants to be kept in pots for one or two years, and to be put in frames during winter and not to be planted in their final situation till

and full of cracks, and its colour is a dark brown. This tree is readily known from the Mountain Ash in winter by its buds, which are smooth and green, instead of being downy and black; in the beginning of summer by its leaflets being broader, downy above, and also beneath; and in autumn by its Pear or Apple-shaped fruit, which is four or five times the size of that of *P. Aucuparia*, and of a dull greenish brown colour. It is said to be thirty years before it comes into a bearing state when it is raised from the seed; but, when scions from fruit-bearing trees are grafted on seedling plants, or on the Mountain Ash, they come into bearing in a few years, as in the case of other fruit trees. In France this tree attains the height of 50 feet or 60 feet; it requires two centuries before it reaches its full size, and lives to so great an age, that some specimens of it are believed to be upwards of 1000 years old.

IDENTIFICATION.—As in the case of many other European plants, *Pyrus Sorbus* has received numerous names. Linnæus described it as *Sorbus domestica*. *Sorbus* was with him a distinct genus, but, according to the latest revision in the "Genera Plantarum," this name is applied as a sub-genus. Smith, the English botanist, named it *Pyrus domestica*, but as an earlier authority, Gertner, had previously described it as *Pyrus Sorbus*, the latter has precedence. The Linnean name of *Sorbus domestica* is still recognised by Continental botanists, Nyman and Koch among others. Among its other synonyms are the following—*Mespilus domestica*, *Malus Sorbus*, *Pirenia Sorbus*, *Sorbus sativa*, and *Cormus domestica*, of Spach. Spach's name is still adhered to on the Continent, particularly in France, where the popular name of the tree is Cormier, evidently in close relationship to the botanical name. The French call the Apple-shaped variety *La Corne Pommès*, and the Pear-shaped *La Corne Poire*. Gerard evidently confounds the True Service with *P. torminalis*; as does Phillips, in his "Pomarium Britannicum," when he says that the tree is to be met with in the hedgerows of Kent and the Weald of Sussex, as also in other parts of England and in Wales. A coloured illustration of this tree occurs in "Sowerby's English Botany" under the name of *Pyrus domestica*.

VARIETIES.—There are several distinct sorts of the True Service, distinguished chiefly by the shape of their fruits. Three of these, the Pear-shaped (*pyriformis*), the Apple-shaped (*maliformis*), and the Egg-shaped (*oviformis*), have been known since the days of Pliny. In France, where probably more attention is paid to the tree than elsewhere, there are eight varieties. These Du Breuil describes as the Pink Pear-shaped, Red Round, Grey Oblong, the Large Pink Pear-shaped, Large Red Round, Large Grey Oblong, the White, and the Brown. Out of these the Large Red Round is most highly esteemed.

THE WILD SERVICE TREE (*PYRUS TORMINALIS*).

This tree is a true native, though it occurs sparingly except in a few localities. It is found in woods and hedges in the middle and south of England, but not in Scotland or in Ireland. It generally grows in strong clayey soils. Miller, in 1752, says that "it was formerly very abundant in Cane Wood, near Hampstead." It is therefore a more familiar tree than the True Service. It is a native of various parts of Europe, from Germany to the Mediterranean, and of the south of Russia, and Western Asia, and seems to flourish in colder regions than its congener, *P. Sorbus*. The tree, it is believed, was known to the Greeks, and is the one mentioned by Pliny as *Sorbus torminalis*, though this name may possibly have been applied by him to the True



Pyrus Sorbus. Flowering branch, leafless twig, and fruiting branch; detached flower, seed, and section of fruit (natural size).

friction, and require great strength and durability. In France it is preferred to all other kinds of wood for making the screws to wine-presses. It is employed for a variety of other purposes in countries where it can be procured. In Britain the wood is almost unknown, though if it were to be imported it might probably be used as a substitute for Box.

THE FRUIT when beginning to decay is edible, but is more frequently eaten by the poor than by the rich. That it is not much esteemed by the peasants in the parts of France where the tree abounds is evident from the expressions of "Ils ne mangent que des cormes" being used to designate persons in the last state of destitution and misery. A very good cider, or rather perry, is made from the fruit of the True Service, particularly in Brittany, which, however, has a most unpleasant smell. Medicinally, the fruit is very

they are three or four years old. If this is a necessary precaution in France it must be still more so in England. When the seeds are sown in the autumn they come up the following spring. The first year they do not grow above 3 inches in height, and at the end of four years they will not have attained a greater height than 1 foot; but in eight or ten years they will probably, if they have been carefully treated, be 8 feet or 10 feet high.

DESCRIPTION.—The tree, in foliage and general appearance, closely resembles the Mountain Ash, but attains a larger size and bears much larger fruit. It grows with an erect trunk, which terminates in a large pyramidal head. The bark of the trunk is smooth and grey, like that of the Mountain Ash, in young trees, and that of the smaller branches is slightly reddish, but the bark of the trunk in old trees is rough, scaly

Service (*Sorbus domestica*). It is figured by Gerard, who, however, says very little of the tree.

PROPERTIES AND USES.—The wood resembles that of *P. Aria*, but is without its peculiarly strong smell. It weighs, when newly cut, 65 lb. to the cubic foot, and when dried 48 lb. 8 oz. It is employed for all the different purposes to which that of *P. Aria* is applicable, and is considered rather preferable as fuel and for charcoal. For fuel, its value, when compared with that of the Beech, is as 1'038 to 1'540, and for charcoal, as 1'062 to 1'600. The fruit is brought to market both in England and France, and, when in a state of incipient decay, its taste is somewhat like that of the Medlar. As an ornamental tree, its large green buds strongly recommend it in the winter time, as its fine large-lobed leaves do in the summer, and its large and numerous clusters of rich brown fruit do in autumn.

SOIL AND SITUATION.—It will grow in a soil not poorer, but more tenacious and moist, than what is suitable for *P. Aria*, and it requires a sheltered situation. It seems more liable to the attacks of insects than that species, and does not thrive so well in the neighbourhood of London. It is propagated exactly in the same manner as *P. Aria*. There being no varieties, it does not require to be continued by grafting.

DESCRIPTION.—This species is more likely to be confounded with the common White Beam Tree (*Pyrus Aria*) and its allies than with the True Service, inasmuch as the leaves closely resemble those of the *Aria* section. It grows to the height of 40 feet or 50 feet, with a large trunk, spreading at the top into many branches, and forming a large head. The young branches are covered with a purplish bark, marked with white spots. The leaves, which are on long foot-stalks, are cut into many acute angles, like those of some species of Maple. They are nearly 4 inches long and 3 inches broad in the middle, bright green above, and slightly woolly underneath. The flowers are produced in large bunches at the end of the branches; and they are succeeded by roundish compressed fruit, not unlike common Haws, but larger, and of a brown colour when ripe. The tree is of slow growth, and in this respect, and most others, it resembles *P. Aria*, but it is less hairy.

IDENTIFICATION.—The synonymy of this species is even more intricate than that of *P. Sorbus*. The Linnean name is *Crataegus terminalis*. Crantz named it *Sorbus terminalis*, a name still adhered to in the recent works of such eminent botanists as Boissier and Nyman. *Pyrus terminalis* was the name given by Ehrhart, and this is now generally adopted. This species was the type of the genus *Terminalia*, but as this is not now recognised, all the species originally placed in it are now referred to the sub-genus *Sorbus*. Among the other principal synonyms under which this species may be found in gardens, books, and catalogues are *Azardus terminalis*, *Terminalia vulgaris*, *T. Clusi*, *Mespilus terminalis*, *Pirenia terminalis*, *Sorbus Tommasini*, and *S. glaberrima*. A coloured illustration of it may be found in Sowerby's "English Botany" under the name of *Pyrus terminalis*. The only variety described of this species is *pinnatifida*, described in Boissier's "Flora Orientalis," but is not in cultivation. This variety has the lobes of the leaves more acute, and its fruits are oval-oblong in shape. Lavallée mentions a variety *pubescens* in his catalogue, but gives no authority for the name.

The Swiss Stone Pine (*Pinus Cembra*).—One of the most ornamental Conifers during its earlier stages of growth—that is to say, when from 2 feet to 20 feet high—is the Swiss Stone Pine, and, from the

limited spread of its branches and slow growth, it is eminently fitted for planting where a subject that will not soon outgrow its bounds is desired. This Fir, when young, assumes the shape of an elongated pyramid, while from the number of its branches and persistent character of the foliage it is very dense and somewhat formal in habit. The foliage is of a rather light glaucous green, valuable as a contrast from some of the deeper hued Coniferæ. Though the timber is said to be very valuable, it is of too slow a growth to be planted to any extent for this purpose; but as an ornamental tree it takes high rank, and possesses the great merit of thriving well in cold and exposed positions where many of the more delicate kinds would perish. There is a dwarf variety of the above, but it is mostly of a stunted character and more curious than handsome. The Swiss Stone Pine belongs to the five-leaved section; that is, with the leaves in clusters of five, and in the same class are included the huge coned, but tender, *P. ayacahuite*, the Bhotan *P. excelsa* (from its large irregularly spreading branches contrasting markedly with *P. Cembra*), and the Weymouth Pine, or the white Pine of the United States (*P. Strobus*), which is so much valued for its timber, and is also highly ornamental. *P. koraiensis*, *monticola*, *flexilis*, and *Lambertiana* all belong to this section, as well as several of the tender Mexican species.—ALPHA.

CONIFERS IN RELATION TO THE ECONOMICAL KEEPING OF GARDENS.

"E. B.'s" ingenious argument on this subject carries us a little too far. In planting, few or none would stop to inquire what trees would cost the least to keep clean or tidy beneath them, but rather which would yield the largest and quickest returns in timber, beauty, shelter, or landscape effect. In these days of general depression, while the luxury of gardening is among the first to be curtailed, new, and perhaps sounder, ideas of keeping are likely to be forced upon those responsible for the maintenance of the order and cleanliness of gardens. It may hardly be too much to expect that the incessant raids made upon dead leaves will be less frequent, if they do not altogether cease; they are altogether different from weeds in beds or Moss on walks. There is nothing dirty or absolutely objectionable in dead and dying leaves. Children in their walks will, if permitted, forsake the clean-swept walks and lawns and scamper with a new delight through the crisp, crackling layers of leaves. Why should not their elders do likewise, more or less, from October to December? There is much beauty of tint in the leaves and pleasure in running through or walking over them. Neither is there any cultural objection to their presence, but the contrary, unless where they lie too thickly on the Grass lawn, in which case, if left too long, they will weaken or kill the Grass. But there is no reason why they should be left too long. Once a week or so the bulk might be raked up, and where pleasure grounds are extensive, a general and thorough sweep up may be given at the close of the season of falling leaves.

During the long period of rural prosperity, when capital was abundant and labour plentiful, one of the most grievous losses of both, to little good purpose, was that seen every day in many large gardens throughout the country. One, two, ten, a dozen or a score of men with brooms and barrows scoured walks and lawns every morning to clean up every leaf that had fallen. Often before the occupants or visitors had time to visit the grounds the Grass and walks were almost as thickly strewn with leaves as before. What was a venial fault of management then becomes a vital one now. Practical horticulture is now, through lack of capital and increase of labour in horticultural milnery, too severely handicapped, without rendering it altogether impossible to indulge in a daily crusade after dead leaves,

which is far worse than a wild goose chase. In the name of common sense, why not let them lie for a week or a month and concentrate our all too scanty forces on the more important matters of profitable production and improved methods of cultivation? It is high time to write and speak out plainly on these matters when a writer in THE GARDEN goes the length of condemning deciduous trees because of the litter of their falling leaves. Almost as well recommend the abolition of wheat growing because of the chaff surrounding the grain.

No; let us decide the relative merits of deciduous and coniferous trees on such grounds as I have already stated without any reference to the labour that may be expended in clearing them of their own litter. Even the labour is not all on the side of the deciduous trees, for some of the Pines, and such an Evergreen as the Oak, make almost as much or even more litter at far less convenient seasons than that of the deciduous trees. I quite agree with your correspondents who condemn the excessive use of Conifers. Not a few of our good gardens have been compared to cemeteries through the use of these; and as for avenues, scarcely any of our Conifers seem capable of forming effective ones. Probably some of the finest examples may be seen in the beautiful grounds of the Earl of Stair at Castle Kennedy, in Scotland, and at Elvaston Castle. At the latter place, Mr. Barron, of the Borrowash Nurseries, devoted many of the best years of his life to the development of the landscape capabilities of Conifers; and at Castle Kennedy Mr. Fowler has done likewise. Strikingly novel and beautiful as are the results at both places, probably both these able men will allow that each of these magnificent places would have been none the worse with a few more deciduous trees.

Whereas the majority of plantations of them throughout the country may be defined as mostly failures, possibly the Cedar of Lebanon and some of the finer Spruces, such as *Abies Douglasi* and the Silver Fir, would make grand avenues. But I have not seen any; whereas the various attempts at avenueising *Wellingtonias* and *Araucarias* are unhappy-looking abortions. Coniferous trees, however stately and tall, lack the knack of forming any sort of arch, either pointed or otherwise. Cedars of Lebanon may interlace their limbs and form grand covered ways of imposing timber and umbrageous grandeur, but the pointed forms of most coniferous trees forbid the bands between them and the formation of effective avenues.

Striking lines of sombre or gay grandeur diverging into mere points in the far distance can readily be formed with not a few of our Conifers, but these must ever present violent contrasts to our magnificent avenues of Plane, Lime, Beech, Oak, Sweet or Horse Chestnut, or other deciduous trees. Among the latter and for avenues of small dimensions there are few trees better adapted than the White or Paper Birch, though it is seldom used for this purpose, and some of the Poplars.

Deciduous trees, too, are not only more beautiful, but more profitable, if we except the Scotch Pine and the Larch, where these two do well. In judging of the beauty and profit of trees, two points must have special attention. As a rule, I would be prepared to contend that deciduous trees are more beautiful than Coniferæ in virtue of their complete leaf shedding. There is an endless variety of colour and form and play of light and shade in the landscape formed chiefly of deciduous trees that is almost wholly lacking in those in which Conifers chiefly prevail. In winter, when most light is needed, Conifers are

in their densest form, and throw the deepest shadows where none are needed. On the contrary, the bare boughs of deciduous trees, which artists not seldom consider more beautiful than when clothed with foliage, offer scarcely any obstruction to our scanty supplies of light in winter.

Those conversant with the timber trade know well the difference in price between deciduous and the majority of our coniferous trees. And after all, this, and not the difference in the trouble and expense of removing the falling leaves, which may as well be left where they fall, should be the main consideration with intending planters. But as one more interested in preserving the cheerful character of our English landscapes than in making the most money out of the timber grown to form the same, I would utter a final protest against converting our English gardens and pleasure grounds into miniature Black Forests, as absurd as they are profitless, by the indiscriminate and wholesale planting of Conifers.

D. T. F.

NOTES ON SUMACHS.

ONE prominent feature of the Sumachs (*Rhus*) is the rich hue the foliage attains in autumn, although that does not constitute their only beauty, for the large pinnate leaves of some and their striking inflorescence stamp them as well worthy the attention of planters. Added to this, they do better than many subjects on hot sandy soils, though they prefer a good, deep, well drained loam.

R. COINUS, the Venetian Sumach, is a loose-growing shrub with simple leaves, that are retained till late in the season, and then die off a rich reddish yellow colour. Its most attractive stage is when the plant is crowned with its dense, wig-like masses of inflorescence, so unlike any other shrub, and borne, too, at a time when most shrubs are over, for it is in that stage during the latter part of the summer. This *Rhus* is an old inhabitant of our gardens, having been introduced more than two centuries ago, and fine specimens may be occasionally met with in old-fashioned places.

R. TYPHINA (the Stag's-horn Sumach) is totally different in character from the last, forming, as it does, quite a tree in habit, though the dimensions are only that of a good sized shrub. It is generally seen with a clear stem and a head of branches few in number, but furnished with large, pinnate leaves, that bear a very distinct sub-tropical appearance. It flowers during the summer months, and is then very attractive, for the blossoms are borne in the shape of dense, crowded velvety-like spikes of a crimson colour, and being produced on the points of the shoots, stand out conspicuous from the clusters of large, pinnate leaves. The male blossoms are not nearly so showy as the female, being more of a greenish tint. The autumn tints of the *Rhus* are very bright.

R. GLABRA is less in size than the last, but forms a handsome bush on low tree, especially striking from a foliage point of view, by reason of the bright shining green of its large pinnate leaves. The flowers are less crowded than in the preceding kind, but, like it, the female blossoms, which are borne on separate plants, are more showy than the male, these latter being of a greenish tint, while the females are bright crimson in colour. The cut-leaved variety of this *Rhus*, known as *R. glabra laciniata*, in which the leaflets are again divided, is of recent origin, and has become very popular within the last few years. It is seen to the greatest advantage when about 2 feet high and confined to a single stem, in which condition it will vie for grace and elegance with many of the tropical fine-foliaged plants.

R. VENENATA, the Poison Sumach of the United States, is in no ways so ornamental as any of the preceding, except in the autumn when the leaves die off a bright scarlet in colour. This species has the reputation of being extremely poisonous in common with a climbing kind, also North American (*R.*

radicans), whose most prominent feature is also its autumnal display.

R. SUCCEDANEA, a species from Japan, should become a popular shrub when better known, for I presume it is hardy, though the last three winters (which it has stood outside) have not put the question of hardiness to any severe test. It appears to be a smallish-growing kind, of an upright, sparsely branching habit, with pinnate leaves that die off a brilliant scarlet colour, and remain in this stage a considerable time. It is well worth growing for the decoration of the greenhouse or conservatory, as with the amount of protection therein the leaves will remain on nearly throughout the winter, and at a little distance the vivid hue of the leaves is fully as conspicuous as a mass of bright coloured blossoms.

All the kinds of *Rhus* lend themselves readily to increase by means of root cuttings; indeed, it is the method generally followed for their propagation. All that is necessary is to cut up the roots into pieces from 3 inches to 5 inches long, and dibble them into pots of light sandy soil, keeping the upper part of the cutting just below the surface of the soil. If in quantity, a bed may be prepared in a frame for their reception, as they require a certain amount of protection; indeed, if put in during the winter a little heat in spring is advantageous. The soil will need to be kept somewhat moist, but care must be taken that it does not get too damp, as, till growth commences, an excess of moisture, even slight, will cause the cuttings to rot.

A.

THE CHINESE FIR.

(*CUNNINGHAMIA SINENSIS*.)

ALTHOUGH of too tender a constitution for the climate of Britain generally, still in certain favoured localities, more particularly within the influence of the sea, this tree does fairly well and forms a handsome specimen, which, for distinct appearance and beauty of foliage, has certainly few equals amongst hardy Conifers. It is a medium-sized evergreen tree of from 30 feet to 50 feet in height in its native country, with rather tortuous, horizontally-arranged branches, both these and the stems being covered with rather smooth, dark brown bark, as in a young *Sequoia*. The leaves are various in colour, the oldest being brownish green, while those produced during the past four or five years are of all shades, from dark green to the lightest and freshest of pea green, with two distinct silvery lines above, and two rather indistinct lighter coloured bands on each side of the prominent midrib beneath. They are $1\frac{1}{2}$ inches long, lance-shaped, and almost imperceptibly serrated on the edges. The cones, which are produced abundantly at Penrhyn, are terminal, sub-erect, $1\frac{1}{4}$ inches to $1\frac{1}{2}$ inches in length, and usually borne singly, or about three on each branchlet. They are formed of about thirty-six imbricated, persistent scales, with three seeds beneath each, the whole cone thus containing fully 100 seeds. A peculiarity of the cones of this tree, and which Sir Joseph Hooker tells me is not uncommon in Spruces, is that, after being fully formed, the axis continues to elongate, and produces leaves which are in no way different from the ordinary foliage. Stranger still, but this has not been noticed in any other Conifer, at least that I am aware of, the elongated portion throws out buds and produces twigs in the usual manner, the cone gradually disappearing when, after the third year, no trace of it can be detected and the branch has lengthened to perhaps 6 inches or 8 inches. A somewhat similar elongation of the axis in the cones of *Cryptomeria japonica* has frequently come under my notice, but in all cases the abnormal growth dies off during the same or following season. All the cones in *Cunninghamia* do not behave as above described, but the majority do. As an ornamental tree of very distinct appearance the *Cunninghamia* should

find a well-chosen spot in every collection throughout the country, for although somewhat tender in a few unfavourable districts, more particularly where soil and situation have not been attended to at time of planting, yet in many places it has stood unharmed through our most severe winters, and that when even some of our so-called hardy Conifers were badly cut up and seered. In the south of England it does well in several collections, while in Ireland I have seen some fine healthy trees, notably on an estate near the shores of Lough Neagh, in Ulster, and where it attained to a goodly size with the brightest and most luxuriant of foliage, one specimen in particular growing in an old disused churchyard, and which was well sheltered by surrounding trees, looking the very picture of health and happiness. The soil was light, but rich, and had been well prepared and thoroughly loosened previous to the tree's insertion—not, as is too often the case now and to which many failures with choice subjects may be attributed, a hole dug and the plant inserted, as if at random, either to live or die. Here, at Penrhyn Castle, a noble specimen ornaments the north-western corner of the flower garden, and which, owing to the extra attention it has received from the gardener, with whom it is a particular favourite, has developed into a large, well-branched tree of fully 45 feet in height (this is the average height it attains to in China), with a clear, straight bole, measuring, at 3 feet and 5 feet from the ground, 4 feet and 3 feet 10 inches respectively, with a spread of branches covering a diameter of 24 feet. (Six years ago this tree was 3 feet 7 inches, at a yard up, with a spread of 18 feet). Unfortunately for the tree's appearance, the too pressing attentions of a large *Sycamore* beyond the garden wall had considerably marred one side of the tree's top, but it has been removed, and the scar is year by year becoming less and less visible. The soil in which this tree is growing is a fair quality of loam, that has oft-times been enriched by timely top-dressings, the ground beneath it being planted with the Torch Lily (*Fritoma Uvaria*), and which, when in flower, offers a peculiar, but pleasing, contrast to the undulating branches of sea-green of the *Cunninghamia*. Cones are produced plentifully by the tree in question, but, owing to the absence of male flowers, the seeds are valueless for propagating purposes.

The stem is clean and fluted and quite destitute of pins, as are also the branches, excepting the last four or five years' growths, these latter being thickly beset with the sharp-pointed leaves. As is the case in *Sequoia sempervirens*, and one or two other Conifers, suckers are thrown up from the base of the stem, which, however, it is well to remove, as they are both unsightly and injurious to the tree. Being, in this country, usually propagated from cuttings, some little care and attention is necessary to make it form a leading shoot and assume the habit of a tree, but the usual remedies practised in all nurseries for such will be found quite equal to the occasion. In no other Conifer with which I am acquainted is there so diverse an appearance of foliage, the pleasant light green of the younger trees offering such a wide and rich contrast to that of the older foliage.

The *Cunninghamia* to appear in perfection must have ample room allowed it for the perfect development of its foliage, crowding or confining in any way being prejudicial to its welfare. Neighbouring trees, if at a respectable distance, are, however, rather beneficial than otherwise, more particularly in cold, exposed situations. As regards aspect, a northern or north-eastern is, perhaps, preferable to any other; at least, in such situations it has generally been found to do best

in this country. Sandy loam, neither too dry nor too wet, with a free admixture of decayed vegetable matter, will suit it as regards soil, but as regards choice of this it is not so particular as generally considered, for I have seen it thriving well on that of a peaty texture, on gravel, and stiff rather clayey loam.

The timber produced here is clean and firm, of a desirable mahogany colour, and takes a good polish; but as the specimens were rather immature these qualities would, no doubt, be much enhanced in full-grown and well-ripened wood. A. D. W.

Taxus adpressa.—"G. G. M." does good work, and certainly deserves the thanks of all arboriculturists for bringing to light the origin of this very distinct as well as interesting member of the Yew family, and if the information he gives be correct and substantiated by Messrs. Dickson, of the Newton Nurseries, the name *brevifolia*, bestowed by that firm, should in future be the standard one, and that of *adpressa*, given by the pirate, at once discarded. Unfortunately, however, there is a *brevifolia* said to have been introduced by Mr. Lobb in 1854 (but discovered nearly thirty years before that time by Douglas), but here again Messrs. Dickson have priority of right of name, for their plant was in circulation under the same name (*brevifolia*) nearly twenty years before Messrs. Veitch's introduction was offered for sale in this country. This latter firm also tell us that a "degree of probability is attached to the supposition of its having originated in a once famous nursery in North-east London," but how it got there is not stated, and was, in all probability, not known to them when publishing "A Manual of Coniferae." Now, however, that Messrs. Dickson's rights have been asserted and the origin of the plant established beyond doubt, subsequent writers on Coniferae would do well to make a note of the article of "G. G. M." for correction of nomenclature. As to whether *T. adpressa stricta* (not *striata*, as rendered by a printer's error) be a seedling or sport fixed by grafting will, in all probability, never be known, unless some of the employés of the late Mr. Standish, in whose nursery it originated, care to give us its history, which must be well known to more than one individual. The chances are it was a graft. It is well also that "G. G. M." has corrected the mistake into which Gordon in his "Pinetum" and subsequent writers have fallen of describing *T. adpressa* as a mere bush, for I can quite substantiate, by specimens here, the size it is stated to attain in the Newton Nurseries. Cases of confused nomenclature are, unfortunately, but too common in the Coniferae line, which, as well as altering standard names, requires, in the first instance, correction, and in the second the practice to be publicly denounced.—A. D. WEESTER, *Penrhyn Castle, North Wales.*

ORCHIDS.

THE MOCASSON FLOWER.

(*CYPRIPEDIUM SPECTABILE*.)

It is a difficult matter in some gardens to find suitable spots for this and similar plants that need treatment different from that of the ordinary run of hardy flowers. On the other hand, there are gardens in which one may grow such things as the hardy *Cypripeds*, the *Trilliums*, *Mertensias*, and others in any position, in sun or shade, and on high and low ground. It is a question of soil and locality, and one can only find out by experience what hardy plants are peculiarly adapted for certain gardens. The annexed engraving represents a tuft of the Mocasson flower perched upon what appears to be a high rocky bank, just such a spot as one would suppose this plant would not grow in. But could a finer example be found to prove the error of such a supposition? In this case there must be something in the soil or locality which is favourable for the growth of hardy *Cypripediums*. The plant represented was photographed last season by Mr. Bashford

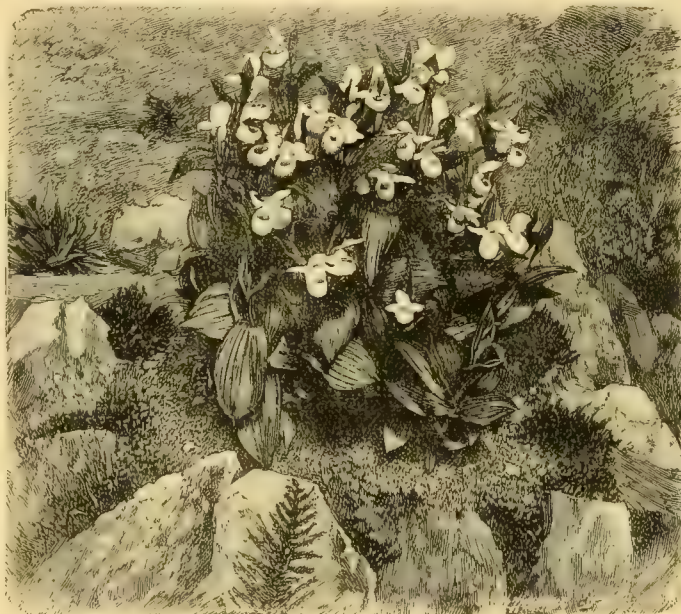
kept tolerably moist by the stones, and under these the roots will travel for dampness and coolness. Now that *Cypripedium spectabile* is being largely imported and sold cheaply, these hints may be useful. W. G.

ZYGOPETALUMS AND THEIR CULTURE.

THE late Dr. Mackay, of Dublin, is said to have been the first to flower the *Zygopetalum* after it had been imported from Brazil. It flowered in February, 1827, and Dr. Mackay sent the spike to Dr. Hooker, who was at that time professor of botany in the University of Glasgow. It was named by Dr. Hooker *Z. Mackayi*, and was figured in the *Botanical Magazine*, t. 2748. This species is easily grown, and is really a handsome plant, and valuable for decorative purposes, flowering as it does during the winter months. It requires plenty of pot room and grows best in a pot planted in turfy peat, with plenty of drainage. It requires repotting once a year, and may be placed in an ordinary stove. I have seen it in good condition at some of the Chrysanthemum exhibitions in November. This genus of Orchids is one of the easiest to hybridise. Mr. Cookson, Wylam-on-Tyne, told me that he had seedling *Zygopetalums* growing freely self-sown in the clinkers with which the stages in one of his houses are covered. He pricks them out in boxes, in which they grow as freely as *Verbena* cuttings. They ought to be pricked out in sandy peat well drained. I like some broken potsherds and bits of charcoal to be mixed with the potting soil.

The next species to flower in England was *Z. rostratum*, a very distinct species sent from Demerara to the Liverpool Botanic Garden, where it flowered in October, 1827. It is figured in the *Botanical Magazine*, t. 2819. Mr. B. S. Williams states that it is well adapted for exhibition purposes when well grown, but we seldom see it exhibited now, although it is a striking plant. Its flowers measure 6 inches across from the tip of the sepals to the front of the lip. They are produced two together, and come along with the young growths. The most striking

part of the flower is the pure white lip; the dingy green sepals and petals are not striking. It grows well in a pot in peat and Sphagnum at the warm end of the Cattleya house. *Z. maxillare* (the Tree Fern *Zygopetalum*) is as well known as it is beautiful. This was discovered also growing on the stems of Tree Ferns in the Organ Mountains by Mr. Gardner, who sent it to the Glasgow Botanic Garden, where it flowered in a stove in June, 1838. It will grow freely on a piece of Tree Fern stem, with its base placed amongst crocks in a pot. It is also grown on rafts. Another very handsome winter-flowering species is *Z. cernitum*, described with others by Lindley in the *Botanical Register* for 1844. It had also been described by Count Hoffmannseg as *Z. pubescens*. Even at that time several distinct varieties were described with pink-blue and almost colourless veins on the lip. *Z. intermedium* is also a very desirable species to grow; it was considered by Lindley to be the finest of the genus, and was also described by Hoffmannseg as *Z. velutinum*. It is allied to *Z. Mackayi*, and requires the same cultural treatment.



The Mocasson flower (*Cypripedium spectabile*) in a rock garden.

in Mr. Charles Jenner's garden at Portobello, and no doubt this cool breezy spot on the east coast of Scotland favours the growth of the plant. The common recipe given for growing the hardy *Cypripeds* is "a moist, peaty soil or bog in a sheltered and shady situation." The present instance illustrates an exception to the rule, for, judging by the picture, the spot must be the reverse of boggy. As we said before, there can be no hard and fast line in dealing with open-air plants, whether they be herbaceous or trees, and it is by bringing before our readers such examples as these that we hope to induce people to get out of the groove of following implicitly what should only be regarded as a general rule to be disregarded under peculiar circumstances. In the northern parts of the country, no doubt peat and moisture-loving plants may be grown well in rock gardens in high positions, but in the south, where we are apt to suffer so much from a protracted season of drought, a low, moist spot for these plants is essential. It should be remembered, too, that when you put it on a bank and surround it by good sized stones the spot is

SHORT NOTES.—TREES AND SHRUBS.

Viburnum Sieboldi.—This evergreen shrub has large glossy leaves about 8 inches long. I saw it growing in one of the propagating houses at the Pilrig Park Nursery, Edinburgh; but very likely it may be hardy in warmer parts of the country. If so, it would no doubt be well worth growing.—C. M. O.

Copper Beeches and aphides.—In reply to "D. T. F." (p. 105) allow me to say that during the two years I had charge of the gardens at Ashwellthorpe Hall the Copper Beech hedge there was perfectly free from aphides, and from its healthy appearance I should think that aphides never attacked it. We have some very fine Copper Beeches in the pleasure grounds here and in the park, and in spring they have a grand appearance, and are never troubled with aphides.—T. B. FIELD, *Stanley Hall, Bridgnorth.*

Z. Gautieri is a much more recent introduction, and is a very beautiful species. It is well figured in the "Orchid Album" (pl. 28, vol. i.). *Zygopetalums* are easily produced from seeds, and as the seedlings vary considerably, specific names ought not to be multiplied without careful consideration. This species does not vary much from *Z. maxillare*. Of this anyone can satisfy themselves by comparing the plate of *Z. maxillare* in *Botanical Magazine*, t. 3686, with *Z. Gautieri*. The flowers are produced along with the young growths. It grows freely under pot culture in the Cattleya house. There are two English-raised hybrids which well deserve attention, viz., *Z. Clayi*, so named in honour of its raiser, Col. Clay, of Birkenhead, who flowered it for the first time in 1877, and obtained a certificate of the second class for it in May of that year from the Royal Horticultural Society. It is a cross between *Z. crinitum* and *Z. maxillare*, and as usual partakes of the character of both parents. The varieties are not all alike, and when well grown the flowers have a striking appearance. The lip is rich purplish blue; the sepals and petals greenish, but nearly covered with large brown blotches. *Z. Seleni*, the result of crossing *Z. maxillare* with *Z. Mackayi*, is the second hybrid, and the floral committee awarded it a first-class certificate, and it also obtained a similar mark of distinction from the Royal Botanic Society. Its lip is of a rich full blue colour, and it is of vigorous habit and free flowering. This, like most other *Zygopetalums*, is best grown in peat, Sphagnum, and potsherds. In raising Orchids from seeds beginners are recommended to practise first on *Zygopetalums*.
J. DOUGLAS.

Odontoglossum Jenningsianum.—This belongs to what may be called the Andersonianum group of hybrid varieties, among which it is one of the most remarkable. The sepals and petals are broader than usual, and are long and pointed and slightly twisted; they are white and heavily blotched and spotted with chestnut-red. The lip is longer than in typical Andersonianum, and is also deeply blotched. It is difficult to intelligibly describe the differences between these hybrids—they must be seen. *O. Jenningsianum* is now flowering beautifully in Mr. Vanner's collection at Camden Wood, Chislehurst.

Oncidium Brunleesianum.—This rare and beautiful species which, when shown last year at South Kensington, captivated everyone by its distinctness, is again in full flower in Mr. E. B. Lemon's garden, Moat Lodge, Avenue Road, Beckenham. It is one of the small flowered group, having a spreading branched spike of blossoms of a deep yellow with dark centres. It flowered last October, so that it appears to have no definite annual flowering season. There are so many yellow-flowered kinds of *Oncidium* that an amateur may be doubtful about this one, it is so different from the rest that it should be got whenever an opportunity offers.

Coloured Primroses.—These now in flower under glass are exceedingly beautiful and interesting, reminding one of spring. They are of all shades of colour, and as they can be had in bloom as early as January with very little trouble, they well repay accommodation under glass. Dean's strain is the one which we like best; the plants are dwarf and compact in habit, and bloom profusely. In spring beds out of doors too, on the margins of shrubberies, and on the rockery they are most useful planted here and there in patches of say a dozen together. In order to have them in bloom in January under glass it is necessary to sow seeds of them early in June in a cold frame under a north wall. In such a position the seeds germinate freely, and when the young plants are large enough to handle, prick them out in sandy soil liberally enriched with leaf mould; keep the frame over them until they begin to grow freely, when the lights may be dispensed with. In hot weather water them freely, and when sufficiently large, pot

them into whatever sized pots may seem necessary— $\frac{1}{2}$ -inch ones answer well; return them to the frame till established, and winter them in a cool greenhouse.
—E. MOLYNEUX.

GARDEN IN THE HOUSE.

HARDY FLOWERS FOR CUTTING.

For the production of cut flowers hardy plants occupy a prominent, if not a chief, place, and with an average collection there is no season of the year when flowers cannot be gathered. To begin with, in January there are the remains of the Christmas Roses and *Sternbergia lutea*; the last named lasts a long time in water, and the flowers look bright and cheerful nestling amid Fern fronds or any other feathery-green leaves. The winter Aconite is not without its merits for cutting when flowers are scarce. Place the stalks in damp Moss, thinly, and then drop in a frond or two of the hardy Maiden-hair Fern, *Adiantum Capillus-veneris*. The Primrose family yields an immense supply of beautiful flowers from January to April. The large-flowered Daisies are rather pretty clustering among bright green leaves in small glasses either for the drawing-room or the dinner table. The Violets are ever present with us in some of their numerous varieties from early autumn till late in spring. All the varieties of the hardy Russian species will flower all winter in the open air in open weather if properly prepared and transplanted annually. The varieties of *Anemone coronaria*, though lacking perfume, are among the most beautiful of winter flowers for the room, and they can be had in much variety from seeds; and seeds sown on a well prepared bed in spring will make flowering plants next winter. Sow in March, cover very lightly, rub the seeds in sand to separate them before sowing. Sow thinly, and then they will not need transplanting. The alpine Auriculas are very sweet for small vases; they are also easily raised from seeds. They look well in small pots, as do also all the Primrose family. They all love shade in summer. When grown in large 3-inch pots, a group of them packed in Moss, with the plants full of their sweet May-coloured flowers, is a very attractive feature in the drawing-room. The plants may be turned out of the pots and packed in Moss in a flat dish or tray. The Snowdrops are a host in themselves, and then come the very large family of Narcissus, or Daffodils. If we are looking back among the pleasant scenes of the past, which are hidden away in the memory, it is not the grand conservatory we think of, or the magnificent Orchids that the mind loves to linger over. No; it is that old orchard full of Daffodils, clustering under the Apple trees and in the hedges, or that old-fashioned garden so full of Snowdrops, and where the scent of Violets, white Pinks, Musk, and Mignonette fills the air in their respective seasons.

With the summer came many things suitable for cutting—the Columbines, all the Dianthus family, the Carnation, Picotee, Pink, and Sweet William, the Canterbury Bells, Delphiniums, Pyrethrums, single and double, and Roses in endless variety. In special situations Pæonies and Poppies are useful; where show rather than sweetness is demanded, they are excellent. For large vases in the corridor or hall they are valuable. All the Iris family are excellent for cutting; they are not so lasting as many things, but fresh flowers are opening daily, and the effect is gorgeous. Everlasting Peas, though not so nice as Sweet Peas, yet they are very showy. How beautiful the old white *Lilium candidum* is in very large, tall glasses or vases. All the Spiræas and the perennial Sunflowers are good for cutting. The

Phloxes are bright and showy, but do not last so long as a good cutting flower should. The same may be said of the Pentstemons and Veronicas, but the Rudbeckias and the Asters or Starworts are very valuable in autumn. The Japanese Anemones, though good for cutting, are hardly lasting enough. Foxgloves, though not generally used in a cut state, associate well with the Poppies and other things for large bold groups.

In looking back over what I have written I find I have only just touched the fringe or border of the subject. There are vast numbers of plants among the hardy border flowers suitable for filling a vase or working into a bouquet. And then in the summer and autumn the hardy annuals alone will yield an immense supply more beautiful and elegant than the majority of the hothouse flowers. But one of the great advantages of hardy flowers for cutting is their length of stalk. The summer flowering exotics are for the most part dumpy and dwarf if we except the Dahlia, but from the hardy things, or at least many of them, large spikes and racemes may be cut without the feeling that we may be inflicting injury on the plants. The Grasses are indispensable in any arrangement of cut flowers; they impart a lightness and grace that cannot be obtained from any other plants. The annual Grasses are some of them, such as *Agrostis nebulosa*, *Briza compacta*, *Bromus brizæformis*, *Eragrostis elegans*, *Lagurus ovatus*, *Pennisetum longistylum*, and *Hordeum jubatum*, very useful and easily cultivated.

E. HOBDAY.

Endurance of cut flowers.—At the end of an interesting paper on this subject in last week's GARDEN Mr. Docker kindly calls attention (and he must accept my thanks for doing so) to an error committed by me a week or two back. In reply to Mr. Woodall and "Lex," I wrote intending to speak of a plan for freshening up "Lenten Roses." I carelessly wrote "Lent Lilies." Now, few plants are better able to hold up their heads than Daffodils, and the suggestion of any special treatment was a work of supererogation; but Hellebores, all except the nigres, which are of exceptionally tough texture and sturdy habit, are very liable to droop in water—in fact they faint—and I treat them as I should a fainting person, laying them flat, but applying the water to the feet instead of to the head. Has Mr. Docker ever tried Allium Moly? He will find it to remain fresh and inoffensive for weeks, even without water, and for water treatment what can surpass the wild Forget-me-not, or sprays of the pretty little wild *Convolvulus arvensis*, which opens its flower buds day by day in succession.—T. H. ARCHER-HIND, South Devon.

PERPETUAL OR TREE CARNATIONS.

In the *Revue Horticole* of 1st February there appeared a very remarkable article on the present state of perpetual Carnations and the progress obtained in regard to them. But what must have astonished many is the question put by the writer, "Where and how commenced their culture? Who was the first horticulturist who undertook it?" This induces me to give again their history, which I related ten years ago in the journal of our horticultural society. The perpetual Carnations originated at Lyons. It was M. Dalmals, gardener to M. Lacène, a celebrated horticulturist, and the founder of our first horticultural society, who raised, forty-six years ago, the first really perpetual blooming Carnation. He sent it out in 1844 under the name of *Atim*; it resulted from crossing *Éillet de Mahon* or *de St. Martin*, chosen because it usually bloomed about the middle of November, and *Éillet Bichon*. This first gain he fertilised with the Flemish Carnation, and by about 1846 he had obtained a great number of varieties of perpetual Carnations of various colours. M. Schmitt, another distinguished horticulturist of Lyons, followed his example, and obtained several fine varieties, like

Arce en Ciel and Etoile Polaire, cultivated a few years ago, but now lost, having been superseded by finer sorts. About 1850 a disease destroyed M. Schmitt's collection, which discouraged him so much, that he gave up their culture. M. Alphonse Aléatière, however, undertook it, and in a short time obtained great success, principally by raising through continual crossings kinds with stiff flower-stems which are now prevalent. He also upset the idea that the propagation of Carnation from cuttings is difficult, or that it was necessary to have recourse to layering. M. Aléatière's system is as follows: About January or February cuttings are put in in fine sand, on a bench in a span-roofed house, without bell-glasses. The sand is heated from under the bench to about 15° or 20° centigrade, or from 60° to 70° Fahr. They root in from three to five weeks, and about April they may be planted out in an open situation, where they make fine plants by about September. Those furnished with plenty of flower buds are then potted and carried indoors before frost sets in. Thus treated, they will bloom freely in a room for more than a month.

JEAN SISLEY.

Monplaisir, Lyons.

FERNS.

HARDINESS OF FERNS.

My Vines having been cleared of Grapes at Christmas, my Ferns grown in the same house have had to take their chance, as I allow the Vines to have all the rest possible. No fire heat is therefore used until I am really compelled to employ it. On several mornings I have found the water in pails and cans standing on the pipes frozen. One morning a bunch of Adiantum fronds which had been put in overnight was set fast in ice and, as I supposed, killed; not so, however, and to my surprise during the day when thawed I found them to be good. I kept them a few days and then sold them. Three times since Christmas I have lit the fire after a sharp night and allowed it to burn out. We are always taught that a dry plant stands frost best—I mean root-dry. I have found, however, to my cost, that this is not so, and I have called the attention of several people to the following fact, viz., that a plant of *Pteris tremula* was killed to the ground, whilst its companion is in perfect condition, simply because one was wet and the other dry. In the case of *Ficus elastica*, in the same house side by side, one was killed while another is healthy. These are not hasty thoughts, but the results of patient observation. As to varieties, let us begin with the old *Adiantum cuneatum*, the most useful of all. *A. gracillimum* has stood the weather well, though, strange to say, for purposes of cutting it is not appreciated like the common Maiden-hair. For the hardy *A. Capillus-veneris* you may be sure I find a place. *A. concinnum lætum* also does well, and its fronds being large are preferred for wreath-making. One of the best for all-round purposes is *A. mundulum*, a very dwarf kind, with dark green fronds, much sought after for button-hole bouquets. *A. Pacotti* is another favourite. *A. fulvum*, though quite different in style, is good for decorative purposes. I have two plants of *Dicksonia antarctica* in a very flourishing condition. *Asplenium Hookerianum* is one of the best of Ferns for baskets, and it is also a useful pot plant. *A. Nidus*, the Bird's-nest Fern, stands well. *Pteris cretica* and its variegated form are both good, and so is *P. serrulata*. *P. tremula* still holds its own, especially when not over-potted, and it should be given plenty of water. A useful plant, though not common, is *Lastrea cristata variegata*, and the same may be said of *Polystichum polyblepharum*. All the Ferns which I have just named are what is called "grown hardy," or they would not stand even the

2° of frost to which they have been subjected. If grown in stove-heat, it would be folly to think of their succeeding under the treatment which I give them. The only drawback, as I do not force my vines, is the lateness of their spring growths.

West Lynn.

STEPHEN CASTLE.

NOTES OF THE WEEK.

Colchicum luteum.—A curious little Crocus-like flower, and not at all a bad companion plant for *Bulbocodium vernum*, both having just popped up their bloom buds together on a sunny border.—F. W. B.

Galanthus latifolius.—Redouté's little Snowdrop is showing its pearly buds among its broad, glossy, green leaves, and is, as I think, a little gem. It takes some time and patience to establish it, but it now flowers freely every year.—F. W. B.

The Royal Horticultural Society, at the invitation of the mayor and corporation of Liverpool, will, we understand, hold a grand exhibition devoted to all branches of horticulture, including implements and appliances connected therewith, in the Botanic Gardens, Liverpool, from June 29 to July 5, inclusive.

Single Camellias.—Mr. Scrase-Dickins seems to have set the ball rolling in the matter of single Camellias, for an interest has evidently cropped up regarding them. We have received during the past week a beautiful gathering of various sorts from Bodlondeb, Conway, from Mr. Wood's garden. Although these lack the fine form characteristic of the Coolhurst seedlings, they are nevertheless very good. A large salmon-red is particularly striking, and so is a pure white, and another with striped flowers. Some of the others, too, are remarkable for large size, breadth, and texture of petal.

Late Chrysanthemums.—I send you a few Chrysanthemum flowers cut from plants that were nipped with the frost. I cut about a foot off them; then I placed them in a cold vinery, where they soon began to make a second growth. They have just come into bloom when the others are past; although the flowers are not so good as they would have been had the plants not been frosted, still I think they are good specimens for this time of the year. I have had a regular supply of Chrysanthemum flowers since the first of October.—J. SMITH, Worrock, Kinross-shire.

** The sorts sent are *La Belle Blonde* (blush-white), *Queen of England*, *White Globe*, and *Empress of India*, all good flowers considering that we are now well through February.—ED.

Irish Daffodils.—I send you two sorts of Daffodils cut in the bud, viz., imported *pallidus præcox* and *Irish King*. They are neck and neck. The weather was very cold during last week—frost and rain every second night alternately. The *Irish King* is smaller than what I sent you from under glass five weeks ago but when the days get warm I will send it to you, larger than *Emperor*. All my Daffodils will bloom this month.—W. B. H., Cork.

** The *Irish King Daffodil* is certainly a very fine sort, but it appears to be identical with one called *N. spurius Yellow King*, put before the Daffodil committee in 1885, and rejected as unworthy of notice, the name having been previously agreed to by Rev. W. Dod and Mr. Barr. Mr. Barr has had this Daffodil several years in his collection.—ED.

Camellias and the frost.—At the last meeting of the scientific committee at South Kensington, the Hon. and Rev. J. T. Boscawen exhibited sprays of plants grown in the open, and which had been subjected to 10° or more of frost, from which the second and third years' leaves were browned, but last year's were perfectly green and untouched. The same fact had been noticed before at Lamorran, and at Pentillie—a much milder locality than the former. The cause was presumed to be the relatively lessened vitality of the older leaves, though normally they remain on from three to four years. Dr. Lowe alluded to an instance of a plant (a single-flowered kind) which had been much injured in transit, and was planted early in the summer. It threw out foliage which has stood all the frost of the present winter. Dr. Masters alluded to the fact that some young Lime trees transplanted last autumn, and which had shed their leaves, threw out fresh ones, which likewise had withstood the frost. Both these facts, therefore, would seem to

corroborate the view that the vitality of the young foliage was so strong as to resist the effects of the late frost, to which the older leaves of two years had succumbed.

Hellebore sports.—I send you a variety of *Hellebore* originated here some four years ago as a sport from *H. purpurascens*. As it is distinct from any other variety then grown here, we should certainly have set it down as being a seedling hybrid but for the fact that *Hellebores* so rarely ripen seed here. Since then the same variety has occurred on other two occasions on *H. purpurascens*. The specimen sent shows both kinds still growing together. The sport differs from *purpurascens* in size and colour of flower, and, above all, in earliness of flowering. Next to *H. altifolius* it is the earliest; so much so, that pollen from this variety has been used to fertilise *H. altifolius*, and *vice versa*, but as yet without success. It appears to be similar to *H. torquatus*. Can you say what is the origin of that variety?—R. LINDSAY, Royal Botanic Garden, Edinburgh.

** The specimen is certainly much like *H. purpurascens*, but it seems to be an intermediate form between that species and *atrorubens*. We think that Mr. Archer-Hind can explain the origin of *H. torquatus*.—ED.

Inga pulcherrima.—If one wanted to get an idea of the great diversity in flower-characters that belongs to the great *Pea* family, he could not do better than compare four of its most striking members now flowering in the Palm house at Kew; we allude to the gigantic *Brownea grandiceps*, with massive flower-heads like the trusses of a *Rhododendron*; the twin-leaved *Bauhinia variegata*, the flowers of which are exact imitations of a "show" *Pelargonium* bloom; the *Ixora*-like flowers of the tree, *Jonesia Asoca*; and lastly, the remarkable flower-heads of *Inga pulcherrima*. In this plant we have combined some of the most charming qualities, viz., a compact shrubby habit, with graceful wand-like branches clothed with *Acacia*-like foliage (we mean *A. pubescens*) and axillary bunches of long stamens, which form the conspicuous and attractive part of the flowers. We can think of nothing nearer than the flower-head of a *Callistemon* (Bottle-brush) to compare with the flowers of this *Inga*, but instead of the bottle-brush arrangement common to the *Callistemons*, these are placed on the end of a thin stalk in the form of a ball, the flowers being packed closely together in a little drum-head cluster till they burst their envelopes and push forth in bunches numerous hair-like stamens, 2 inches long and coloured a rich cardinal, each head measuring 2½ inches across. The Kew plant is about 2½ feet high, and will shortly bear a great number of these glowing balls of filaments. To us, this *Inga* appeals as one of the most beautiful of stove-flowering plants.

LATE NOTES.

Yellow Provence Rose.—We still grow this old favourite Rose at Burghley. I have it in the form of standards, and I also raise it from layers.—W. GILBERT.

Mildew on Roses.—The quotation given by "D. T. F." (p. 114) respecting the use of fumes of sulphur for destroying mildew was an extract from the "Rosarian's Year Book," and, therefore, I am not responsible for the statement.—J. C. C.

Prizes for Chrysanthemums.—Will you kindly allow me to make the following corrections to the announcement made in the report of the meeting of the National Chrysanthemum Society of the promise made by M. Simon Délaux of a silver cup and medal for competition in 1887? These will be the gift of M. Simon Délaux fils aîné, the sole representative and proprietor of the old-established and celebrated firm of Délaux & Son, which was founded by him, and is now carried on in his name only, Simon Délaux fils aîné. As there is another firm bearing the name of Délaux, there might arise some confusion. The value of the prizes will be silver cup, value £24, for a group of plants in pots, and a silver medal, value £4, for cut blooms. M. Simon Délaux wishes the members of the National Chrysanthemum Society and Chrysanthemum amateurs to know that he would most willingly have presented these prizes for competition in the current year but for the sad bereavement he has experienced in the deaths, within a few days of each other, of his mother and brother.—WILLIAM CLARK, Ferne Park Road N., Hornsey.

Names of plants.—*J. Tigueli*.—A variety of *Narcissus moschatius*.—*E. M. G.*—Next week.—*R. S. 1*, *Dendrobium luteolum*; 2, *D. moniliforme*; 3, *D. nobile* (very pale variety).—*South Devon*.—A form of *Hellebore colchicus*, nothing more.—*G. T. W.*—*Saxifraga cordifolia*.

WOODS & FORESTS.

WOOD PAVED ROADS AND PATHS.

WHEN there is a sawmill on a place there are often opportunities of cutting up what would be otherwise waste material and turning it to good account, and, as one thing in this direction, I believe much more could be done than is now the case in sawing up blocks for paving. The suitability of wood for such purposes has, I take it, been now fully demonstrated, and there can be no doubt that much of our home-grown wood would last equally as long as what is commonly employed in our public thoroughfares. At any rate there is ample reason why the experiment of paving with wood many of the places where other material is now used should be tried. I refer more particularly to the yards, roads, paths, &c., in the immediate neighbourhood of the house. Stone and brick and similar substances may be the best materials in certain positions, but there are very many places where wood at least has an equal claim, and in some cases it would answer infinitely better than almost anything else. In the latter category I include such surfaces as are frequently walked upon, as the greater elasticity to the foot, and consequent ease of wood over stone or brick, is a most important factor. When, however, wood is used, judgment is required in its preparation, and in the way in which it is laid. With respect to our home-grown woods, consideration must be given to the selection of the most proper kinds. In the matter of durability, amongst the hard woods the Oak stands in the highest place, and almost as a natural consequence with regard to elasticity the lowest. If, however, Oak blocks could be cut up with a relative degree of cheapness, they would without doubt have much to recommend them. The Elm, perhaps, amongst hard woods taken from every point of view would be the most suitable, as, combined with cheapness, it has a fair amount of durability and elasticity. Amongst the Firs, the Scotch Fir would probably come first, as the Larch, in consideration of its great usefulness, even in small dimensions, could scarcely be legitimately pressed into service. The claim of the Spruce would be in the lowness of its price in the market, and for this reason, notwithstanding its apparent non-suitability to damp positions, is worthy of a trial. Whether these or other woods were selected would, however, depend much upon what was available, as with a little foresight it would be rarely necessary to cut up timber of large dimensions for these purposes. The exact shape and size must in any case depend upon the use to which the surface to be lined was put. In the public streets, to which reference has been made, the blocks employed are vertical sections of 3-inch deals, generally about 11 inches in width. For yards or paths these dimensions could, of course, be materially modified, and for the latter, I take it, that a block more nearly approaching a cube would be a better shape.

In any case a level concrete, or other non-yielding foundation, would have to be provided, and the blocks laid vertically, *i.e.*, for the wear to come upon the end of the fibres. Where the traffic was of a light nature, as in the case of garden paths, for which, in some instances, I should advocate the use of wood, the depth, or vertical thickness, may be less and the size of the blocks larger. For yards, or in situations where the traffic would be generally heavy, the depth of the wood-paving would be greater, and the section of each block smaller, approximating, perhaps, what is now in general use for public thoroughfares. Whether the system has ever been tried for garden paths I do not know, but I

well know that these paths are often the cause of much labour and, at certain times, of much discomfort, and it is my belief that in many cases the labour could be lessened, and the discomfort of damp and muddy paths materially alleviated by the introduction of wood block paving. When carefully laid, there could be no objection on the score of appearance, as it would certainly equal in this respect material which is generally more or less a disfigurement.

It is not, however, for any one especial purpose that I would dwell upon the use of wood blocks, but to draw attention to their value in many places where they are not recognised. Where timber is abundant there is always a considerable amount of what will eventually find its way to the fire, if there is no purpose found for the small dimensions, and timber too which is in every respect sound. Where there is no sawmill this cannot be avoided, but when one is on the spot the waste need be but very little. A properly constructed and worked circular saw-bench with a very small power will turn out with uniformity a large amount of blocks, the mode of operation being to run through the rough logs, regardless of lengths so long as they are manageable, parallel cuts, so as to reduce them to planks of the thickness of one side of the block, and then turn them down and saw them to the dimensions of the other side, the cross-cutting being the final operation. For example, if it was determined to fix a block pavement which should be 6 inches in vertical depth, and the blocks to be 4 inches by 8 inches, in preparing from the rough the log would first be reduced by means of the parallel cut to a single plank of 8 inches in thickness, and this in turn squared to two blocks of 4 inches in width, as many 6-inch lengths being subsequently made as the log would allow. From this it will be seen that there need be no difficulty in preparing blocks by the most ordinary estate hand; and in respect to laying them, providing a firm and level foundation be obtained, the same is true. To such as doubt the fitness of wood as a material for this kind of work I would earnestly recommend a study of what has already been accomplished by its means. In addition to the cushion-like tread which has been spoken of, there is its comparative noiselessness and the firm foothold it gives to animals to be weighed against any assumed disadvantages in the point of durability. Even in this it is doubtful whether wood does not hold its own, as its abrasion is not so great as with the harder substances which generally form pavings. At any rate, as the cost of the wood to the estate owner is practically nil, and the expenses of sawing and laying are not necessarily heavy, it would be both interesting and profitable if the experiment were fairly tried. So far as my personal belief goes, even the home-grown Spruce, which has been placed in the lowest grade, would not compare unfavourably with its foreign competitor, which is now so largely used, and the Scotch Fir should certainly hold a strong position. For the hard woods there is generally a market at something like a fair price; but the case of these two Firs is somewhat different. If their adaptability to paving could be established, a much-needed outlet may, perhaps, be found. WILTS.

Home v. foreign timber.—Where in my last letter does Mr. J. B. Webster "gather" that the timber I spoke of growing above the pits here "is not" suitable for colliery purposes? What he was told, in effect, was that the price of the foreign timber delivered sawn and cut up cut the English timber out, but which is otherwise suitable enough and is used in some pits. Your correspondent landed himself in a host of suppositions in his first communication, which showed he was unfamiliar with the subject, and he

assumes that our timber is of the wrong sort to get out of his difficulty. Does Mr. J. B. Webster know for what purposes the colliers use the different kinds of timber? I fear he does not. By the way, he mixes up Larch, Scotch Fir, and Spruce. Scotch Fir and Spruce are used up to any size almost, Oak the same, and Larch for props from about 5½ inches up to 7 inches diameter. The foreign timber is delivered in square logs and planks of convenient size and the props cut ready for use.—YORKSHIREMAN.

TREES IN STRATHS AND RAVINES.

IN writing on this subject I briefly stated that as a general rule straths and ravines have a deeper and richer texture of soil than ground in the vicinity at a higher elevation, and that this, as well as the shelter afforded by hills in the vicinity, has a beneficial effect in promoting the growth of trees in such situations. I have come to this conclusion from practical experience and observation, notwithstanding which "S." (p. 106) tells us: "The soil, as a matter of fact, has nothing to do with it. Trees at the bottoms of ravines are taller than those at the sides and tops, because they are drawn up exactly like plants in a seed bed, or where the light has access to their top only. . . . We set out a fall of Ash and Oak lately in a deep ravine, where the trees in the bottom are the tallest and straightest on the estate, although comparatively young and in poorer soil than those growing on the level ground at the top, once pasture and good and rich soil." Everyone knows that trees and plants cramped for want of space get drawn up, and the shelter afforded by hills in the vicinity, as broadly referred to by me in my brief remarks, covers all that is necessary to say upon that point; but "S." goes further, and makes the startling statement that soil has nothing to do with it, and although the geological features of his ground, if correctly given, are an exception, and quite the reverse of what is to be found in alpine districts of the country generally, his remarks would have been more useful had he kept within the bounds of ascertained facts.

Straths and ravines are generally penetrated by a river or running stream, the soil in the immediate vicinity of which generally consists of alluvial deposit. As plants and trees in such positions are well supplied with food and moisture and sheltered by the hills in the vicinity, and the air rendered warm and genial by the reflection of the rays of the sun between the hills and rugged crags, hence the cause of the rapid growth of trees in such situations. I have, however, had to deal with ravines where there is no running stream of water at the bottom, and where the soil consists principally of gravel, fragments of rock, and boulder stones all mixed up. Such soil would give very poor pasture; but it is of a loose, open texture and watered by the percolation of moisture from the higher to the lower ground, it produces excellent timber (Larch, Scotch Fir, Oak, Beech, &c.) much better than land in the vicinity capable of being used for tillage; and if "S." would give such facts his impartial consideration and compare results, he might find cause to alter his opinion as regards soil having nothing to do with the growth of trees in such situations. On slightly hollow ground or exposed places along the flanks and slopes of hills, as well as the salient corries and recesses at the top, where alluvial deposit covers the original soil, the superior growth of trees upon such places is of so marked a character, that it can be easily distinguished at the distance of a couple of miles from the plantation. "S." seems to make no allowance for the elevation of his good soil at the top. On this subject De Candolle calculates that in France every

540 feet of vertical elevation is equivalent to receding one degree from the equator; while Humboldt estimates every rise of 396 feet to be equal to the same advance to the north in tropical countries. These are all points of importance in making comparisons.

J. B. WEBSTER.

Staking trees.—In forestry, my advice to planters would be never to plant a tree that needed staking or staying. The practice might be excusable in the case of some ancient cripple or tree that it was desired to preserve, but under few other circumstances. Some foresters have gone great lengths in planting trees of large size to produce effect quickly, and the severe gales we have experienced during the last ten years have shown the foolishness of the practice. Tall trees when transplanted will not stand without staying and mooring to their anchorage, and the more staying they get the more they require, and they can never be trusted to stand alone. Putting aside the expense and trouble of looking after such subjects, they look anything but well in a park or grounds held up by ropes and posts and bandages. Besides, it is not necessary to plant such large trees, because younger ones serve the same end, considering how much sooner they grow and take care of themselves.—YORKSHIREMAN.

Dogwood.—Confusion often arises from the same common name being applied to widely different kinds of plants, and one of the most likely to cause mistakes in this direction is the way in which the term Dogwood is used. To the ordinary mind the word conveys the impression that the different species of the genus *Cornus*, of which the common Dogwood (*Cornus sanguinea*) is the most common in this country, is referred to, but this is not always the case. In the manufacture of gunpowder, charcoal obtained from the Dogwood is used for the best qualities, but this Dogwood does not belong to the genus *Cornus* at all, but is really a *Buckthorn*, and belongs to the genus *Rhamnus*, order *Rhamnaceæ*. The species is *Rhamnus Frangula*, otherwise known as the breaking *Buckthorn* or berry-bearing *Alder*. To such as think of growing charcoal wood this distinction is of the utmost importance, as I have actually heard of *Cornus sanguinea* being grown with the belief that it was the proper wood for the purpose. As a further example of the looseness of the way in which common names are applied, it is not unusual in some parts of the country to hear the *Spindle tree* (*Euonymus europæus*) spoken of as Dogwood, although this is of a totally different order again. Whether other trees are classed under the term Dogwood I do not know, but probably it is the case, as such common names are generally used indiscriminately.—D. J. Y.

Myrobella for covert.—We have just purchased some thousands of this shrub (*Prunus Myrobalana*) with the view of forming a covert with it, but how they may answer for this purpose I am not at present able to state. One good quality is that the plants lift well, with plenty of good fibrous roots, after being two years in nursery rows. I have had an opportunity of trying it as a hedge plant, but should it continue to grow for a few years as rapidly as it did last summer, in my opinion it will be too strong a grower, unless for wide and high hedges. At the same time as we planted the *Cherry Plum* hedges we planted out a quarter with *Sloe* or *Blackthorn*, which were treated in the same manner, but the *Myrobella* made double the growth of the *Blackthorn*. When our hedge plants were received they were very small, with only a single shoot to each plant. We planted out in the home nursery, but not knowing how they might succeed in this district, they were planted in the corner of the nursery, where the ground is rather wet, of a poor, heavy, clayey nature, and somewhat shaded by large *Elm* trees, whose roots, however, did not extend to the soil occupied by the *Myrobella* plants. They were planted out 3 feet between the rows, and from 12 inches to 15 inches asunder in the row. The first season they made very good progress, but last summer their growth was something extraordinary, many of the shoots being from 3 feet to 4 feet long, thick and

strong in proportion. The growth was so vigorous and rapid during the two seasons that the ground was a perfect thicket of fine strong plants, many of the stems being as thick as an ordinary walking-stick. Had they been planted in a good rich soil, it might have been expected that they would have made fine growth, but in such poor ungenial soil it was remarkable.—J. S.

VALUE OF UNDERWOOD.

THE season for disposing of underwood has again arrived. The produce is of considerable importance, but does not receive the attention it deserves. In many parts of Scotland, says a writer in the *Timber Trades' Journal*, underwood is considered an incumbrance, and instead of being utilised as a source of profit, the most effectual means are often adopted for destroying it. In the north of England the same remark applies, where underwood is never encouraged, except where it is required as cover for game. Foresters of considerable experience on first coming to the south of England are consequently prejudiced, and look with great disdain upon valuable crops of underwood. Several cases have come under my own observation where the owner of large woods has been seriously advised to grub and destroy the underwood stems, on the plea that an undergrowth damaged the valuable timber, by preventing a free circulation of air amongst the trees. Where this advice is withheld the forester often declares his antipathy for this crop by leaving it to take care of itself, and thus eventually the underwood is destroyed, or at least soon deteriorates until it is hardly worth maintaining. Within the last ten years underwood has deteriorated very considerably in value. Several causes have assisted to bring about this result. First, there is the great question of labour, which is in this, as in most other cases, a powerful factor in regulating the value of this crop. Within the last ten years the amount actually paid in wages has not materially increased, but the amount of labour performed has so much diminished as to make the expense of converting an acre of wood about 35s. more than in 1874. Then there is the depreciation in the value of hoops, rakeware, hurdles, sheep cages and Hop poles, all of which tend still in the same unremunerative direction. Another powerful factor is the conversion of firewood grates and hearths into stoves and kitchen ranges only adapted for burning coal. Ten years ago a kitchen range in a cottage was the exception, and the cottagers never saw coal except at Christmas, when the distribution of a half-hundredweight to each household was kindly attended to by the squire's bailiff. Now every cottage is supplied with a kitchen range, and the "inglenooks," where the tired "gude man" enjoyed his pipe while watching the flames and sparks emitted from his blazing wood, are things of the past. Instead of the blazing hearth and cozy seat in the corner, he has his chair drawn close up to the half-burnt coal in the grate. Ten years ago all the bakers' ovens in the south of England were specially constructed for burning wood. Now an oven of this description is the exception, and for one fagot now consumed in baking bread, at least 1000 were previously used for this purpose.

All these causes combined have very seriously reduced the value of our underwoods, but there is still another cause which has been more powerful than all these put together, and that has been neglect or bad management. The underwood is often cut in the most slovenly manner. Instead of the stems being cut clean from the stub they are hacked and split in the most unworkmanlike manner. The produce is

removed by carting through the stubs instead of being carried off and placed by the sides of roads. The open ditches for carrying off surface water are neglected, and the "blanks," which are often very numerous and very large, are neither filled up with young plants nor with splashers. Ten years ago *Alder* underwood of nine years' growth was sold in Hants for £27 per acre, the purchaser paying all expenses of cutting, converting, &c. The same piece of underwood sold last year for £19 per acre, and the purchaser, who is one of the largest rake manufacturers in the south, lost £2 15s. per acre upon the purchase. Ten years ago *Hazel* underwood of ten years' growth, suitable for making hurdles and sheep cages, sold for £9 per acre. This year the same description of underwood will not realise more than £6 10s. Ten years ago mixed wood, principally under large timber trees, fit only for bakers' ovens, was sold for £4 15s. per acre. This year the same description of wood will probably realise £3 5s. In consequence of the general depreciation of all descriptions of underwood this crop has been still further reduced in value by careless management. In North Hants a piece of *Ash* and *Chestnut* underwood was sold eight years ago for £23 per acre for eight years' growth. The young shoots were afterwards so severely gnawed by rabbits each succeeding winter, that the crop is almost entirely destroyed. An *Alder* gully upon the same estate was sold for £19 per acre for nine years' growth. This gully should be sold again this year, but the wood is not large enough for either rake or brushware, and it will have to stand two more years before it is worth £8 per acre.

In Surrey and Sussex *Alder* underwood has to be almost exclusively used for powder-making. For this purpose a full crop of seven years' growth will realise about £9 per acre after deducting expenses. The demand, however, for *Alder* has now ceased, and our best powder-makers prefer *Dogwood* and *Willow*. Large quantities of *Dogwood* are sent from Norway and Sweden for this purpose. In our gullies *Willow* is being substituted for *Alder*, which will certainly be a more remunerative crop for damp, low-lying situations. It will be ready to cut at least two years sooner than *Alder*, and will produce a heavier weight of charcoal wood per acre in the shorter time. It will not suffer from late spring frosts destroying the tender shoots, and thus making it coarse and jointy; and consequently will realise more money at five years' growth than an *Alder* gully will do at seven. *Willow* "splashers" strike well into the soil the first season, so that vacant spaces can be successfully filled up with them.

Planting poor clays.—A cheap method of tree-planting on poor clays is what is needed in the present state of affairs. According to my experience, I might say with deliberation that the ground should be ploughed deeply before winter. Winter-rot the sod, then in the spring work the surface lightly, and either sow or plant in drills, putting 3 cwt. to 4 cwt. of bone meal per acre. It is only by such treatment that the plants get fair play, and an early as well as a profitable return may be expected. I need not say that drainage is essential, and also that the fences should be in perfect order. A few head of cattle in early spring running through a plantation and picking off the tops and leaders of the most vigorous plants will throw back your profit for years, even though they may have been but an hour or so in the plantation. Surely this is a subject worth the consideration of our Government, when we hear on all sides of the thousands of acres that are going out of cultivation. But even if the Government be indifferent, it is hard to believe that the landowners are so backward in adding to the beauty and income of their estates.—N. D.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

ROSES AND CLEMATISES FOR WALLS.

Roses for decorating walls are a host in themselves; the Boursault section, such as *Anadis*, a vigorous growing crimson-coloured sort, or *splendens*, which has rosy crimson flowers, cover a large space rapidly and produce an imposing sheet of bloom, but the flowers are thin and poor and their season of blooming is soon over. The same may be said of the different varieties of Ayrshire, which are rampant growers and have an elegant appearance when allowed to scramble at will, but so far as their blooming goes it is of short duration. The well-known *Gloire de Dijon* is one of the most satisfactory kinds that can be cultivated on a wall; its free habit of growth enables it to quickly cover a large space, in addition to which it is a free bloomer, producing beautiful flowers, with the advantage of yielding them up to late in autumn when the plants are fairly treated. The scandent *Aimée Vibert* is another excellent climbing sort that produces such large numbers of pretty white flowers as to half hide the leaves; in addition to this it is all but evergreen, so that it has a fair appearance in the winter. The hard nature of its leaves prevents it from suffering from insect attacks in the way that most Roses do. Amongst others of the climbing *Noisette* section suitable for walls are *William Allen Richardson*, a strong-growing orange-tinted yellow, especially beautiful in the bud state; *Maréchal Niel*, known to everyone, and the finest of all yellow Roses, but, unfortunately, a short-lived kind, to which must be added its disposition to grow so early that the flowers often get cut off by spring frosts; *Rêve d'Or* and *Bouquet d'Or* are both good climbing varieties. *Madame d'Arblay*, a white coloured variety that blooms in large clusters, is also a good wall Rose, and so is *Garland*, another hybrid of the same class with white flowers shaded with lilac.

Of the true evergreen section, *Banksiaeflora*, a clustered Rose with small flowers, is a useful variety. *Félicité Perpetuelle*, creamy white; *Flora*, bright rose colour; and *Princess Marie*, pink, are all good wall Roses. The white and the yellow *Banksian* Roses are likewise good wall plants; they are not the fastest growers, yet in a warm position with good soil they will cover a large space; their bunches of numerous small yellow and white flowers are distinct from those of all other plants, and are very effective. There are climbing forms of several of the Hybrid Perpetual Roses that are beautiful objects on a wall, giving a succession of flowers where they are properly cared for; but, in common with most of the other Roses noticed, unless their wants in the matter of enough manurial sustenance and of water to the roots, with their tops kept clear from insects, are well attended to, the full beauty which they are capable of displaying is never seen. A common mistake made with Roses intended to cover walls is in planting such as consist of only one or two long straggling shoots, which are secured to the wall in an erect position, the result being that they break growth from the top of the shoots only, leaving the bottom bare, in which condition it often remains. If, in place of

this, plants were selected that had had their first season's shoots cut back well down to the bottom, they would have a number of shoots that admitted of their being trained fan-shape. By the use of plants of this description, and securing the strongest shoots in the lowest place on each side, the trees would ever after keep breaking up strong growths from near the base, thus securing the means of keeping the bottom of the wall clothed. The result of planting insufficiently furnished Roses of the character instanced is so obvious, that one would have supposed planters would have guarded against the mistake. Yet so general is it, that probably not one Rose in a score that is intended for clothing a wall is of the right shape to begin with.

CLEMATISES.—The next best flowering plants to Roses for walls are Clematises, which, for general effect and the profusion of bloom which they give for a considerable time each season, are even superior to Roses. The British species, *C. Vitalba* (*Virgin's Bower*), is well known as one of the freest growing of all climbing plants; it can be used with good effect in many places, but there are now so many better kinds, that its day as a wall plant is past. The sweet-scented *C. Flammula* is a free growing and profuse flowering plant, but this, again, with its variety, is put in the shade by many of the hybrids, and it is to these that the planter must look to give the best results. *C. montana*, a very strong growing plant from Nepal, with white flowers, is capable of covering a large space; it is a profuse bloomer, flowering in the spring; where there is plenty of room for it to extend without excluding other fine climbers it is a desirable plant. Many of the very large-flowered varieties that have been raised, though ranking amongst the most effective plants in cultivation when grown in pots, are somewhat disappointing when planted out of doors, and on that account are not the most desirable for growing on open walls.

The Jackmanni type that have medium-sized flowers, which they produce in profusion, are best for walls, as, in addition to their freedom of flowering, they are good growers, and keep on blooming for a considerable time. *C. Jackmanni*, with its deep purple flowers, still retains its place as the leading dark-coloured sort. *C. rubella*, very similar in habit to *C. Jackmanni*, has reddish claret flowers, and is a fine variety in every way; *C. tunbridgensis*, flowers dark mauve, shaded with blue is a distinct and handsome kind. The *Viticella* type, which are desirable for the purpose under notice, like the Jackmanni section, bloom from the young shoots of the current year; of these may be named *C. Thomas Moore*, colour violet, with white stamens that set the flowers off to advantage; *C. Viticella rubra grandiflora*, claret-red; *C. Viticella venosa*, reddish purple; *C. Mrs. James Bateman*, lavender—all excellent kinds. Amongst the early flowerers are *C. Miss Bateman*, a very handsome white-flowered variety, with brownish red anthers; *C. Lady Londesborough*, greyish white; *C. Standishi*, light mauve; *C. patens floribunda*, French white. These early blooming sorts flower from the previous summer's wood, and should not be further pruned than cutting out such shoots as are too weak to bloom; whereas the later blooming kinds that produce their flowers on the young shoots should be cut in sufficiently in spring before growth commences to confine the shoots to something like the number required to cover the space available. To grow Clematises well they must have plenty of manure, which should be applied each winter; in summer, when in full growth, they like a deal of water, and unless their wants in this respect are sufficiently supplied, the plants are subject to mildew, which attacks the flowers,

destroying their appearance and diminishing the effect which they would otherwise produce.

T. B.

MARECHAL NIEL UNDER GLASS.

THIS Rose is so easily excited into growth, that cultivators were not long in discovering its adaptability for forcing; many, therefore, availed themselves of it for the production of an early crop of flowers, but perhaps none were more alive to its merits in this respect than the growers of flowers for sale. Some of my acquaintances have taken it in hand, and have made it a remunerative undertaking; but to make it thoroughly successful, there appear to be two points in its management that are essential. These are a light house and a good rest before forcing is commenced; but these conditions do not embrace all that is necessary as regards its wants, for unless there is an annual supply of new growth the flowers will be inferior in size; and in order to secure good growth, a suitable medium for the roots is indispensable. The border, therefore, must be of fair proportions in comparison with the space which the branches are expected to cover. In every case there should be a depth of 18 inches of good soil, and the width should not be less than 6 feet. The composition of the border should be of the most substantial kind. It should consist of good fibrous loam three parts, and one part well rotted farmyard manure. This makes a suitable compost, but in cases where the loam is naturally heavy a good sprinkle of lime rubble should be added, and also road grit, as this Rose requires a warm and free open soil. If the roots are in a heavy medium, canker will be likely to occur.

In regard to the size of the border, every experienced cultivator whom I have consulted on the subject agrees that a wide border is better than a narrow one, and this accords with my own experience; for I find that this Rose lives longer and makes much more vigorous growth when the roots have unlimited room than when confined for space; but what is most perplexing in its behaviour is the fact that the roots travel sometimes into most unlikely places, where the soil is not of the best description, and yet, singular to say, the growth is vigorous. We have a case in which the roots must have found their way far from the space they were intended to fill, and where the surrounding surface is covered with square brick tiles, and the soil beneath of a poor sandy character; yet this plant, although seven years old, increases in vigour every year. Its behaviour clearly demonstrates that the roots do not like to be confined, and that if we wish to secure long-lived plants and vigorous growth, the root room must not be restricted. While advocating plenty of border space, however, I am far from wishing to make such a condition a prohibitive element, because I have seen, and in my own practice have obtained, fairly satisfactory results where the roots have been confined to narrow borders. It is useless, however, to disguise the fact that, when such is the case, the plants do not remain in vigorous condition many years, and that it is not unusual for them to die away slowly after having been but a few years planted.

Much may, however, be done, even in the case of restricted borders, to secure vigorous growth that may be depended upon to extend over several years by properly making the border. Besides the materials just named, some crushed bones will considerably sustain fertility, and a good deal may be done afterwards by the application of rich surface dressings and copious supplies of liquid manure while the plants are in active

growth. In our own case, having plenty of manure water, we do not require to use any other stimulants; but if I had not that, I should resort to the use of concentrated manure, and an annual dressing on the surface of an equal quantity of turfy loam and hotbed manure. Clay's Fertiliser, if dusted on the surface at the rate of one large tablespoonful to every square foot of border, will prove valuable. It should be laid on and watered in just as the buds start into growth, and another application six weeks later will afford great assistance in enabling the plants not only to develop their flowers, but in strengthening them. An inexperienced cultivator can hardly understand how much the health and vigour of this Rose is sustained by a surface dressing of loam and manure. The roots come to the surface in search of rich food, and revel in it; and when they do this we may be sure the result will be improved vigour.

As regards the management of the young growth, little need be said. I find it best to let it grow in its own way, merely directing its course by timely training; but to pinch the young shoots, or in any other way to interfere with their progress, would be objectionable, so long as each individual shoot is well exposed to the influence of sun and air. Every encouragement should be given the plants to complete their growth early in the summer, by keeping the roots well supplied with moisture and the branches clear from insects and mildew. Gentle fumigating with tobacco will destroy greenfly and thrips; but if mildew attacks the leaves and flowers, sulphur must be dusted on the affected parts, or Gishurst compound, consisting of 1 oz. of Gishurst in 1 gallon of hot water. When cold, the liquid should be applied to the affected parts with a painter's brush. I have found this to be a good remedy for mildew on Roses. Towards the end of August the house should be kept as cool as possible. If it is not possible to take off the roof-lights, so as to expose the plants to the air, all the ventilators and doors must be opened, and left in that state both night and day until it is time to close the house preparatory to commencing forcing. At what time forcing should commence must depend entirely on the time when the Roses are wanted. In any case, whatever pruning is required should be done at least a month before forcing commences, to give time for the wounds to heal. With respect to pruning, only general instructions can be given, as in very few cases will the plants be in the same condition. It is quite safe to say that they will not want any pruning until they have produced one crop of flowers, and then the lateral growths which have produced the flowers may be spurred back to within three buds of the main branch; and, while the leading branches retain vigour enough to produce good sized flowers, the same system of pruning back to a spur may be followed; but it is not the general character of this Rose to sustain the long leading shoots in full vigour for many years. They may not actually die, but they get so weak, that the Roses which they produce are small and inferior in quality. The better plan, when any of the main branches show signs of weakness, is to cut them right back to within a couple of feet of the roots, and if this hard cutting back does nothing else, it will give additional strength to the branches which remain; but it is more likely to result in one or two strong young shoots springing from below the point to which they were headed back. Cutting back is, indeed, the very life of this class of Roses, as they require to be constantly renewed with young growth from near the main stem; and while this occurs annually or biennially, no fear as to deterioration of vigour need be entertained.

As to the time and manner of forcing, I can

only say that if the plants have had a good rest the house may be shut up close in the beginning of November, and a fortnight later gentle fire heat may be given, so as to maintain a night temperature of 50°. During the day it may rise to 55° by fire heat, and after the house has been started a month the day temperature by fire heat may reach 60° when the light is fairly strong, but on wet dark days it should not exceed 55°. The night temperature ought not to be allowed to exceed 52° or 53° when forcing commences so early. In fact, this Rose wants very careful management until the flower buds are formed, and 60° by fire heat is the maximum that should be allowed until the middle of January; then that figure should not be exceeded only in such weather as will allow of a good supply of air being admitted. Gentle syringing of the leaves and stems will benefit the plants if done judiciously; that is to say, when air can be admitted to dry up the superfluous moisture, but damp and confined air will probably result in the leaves being attacked with mildew. Reckoning from Nov. 1, it generally takes from twelve to fourteen weeks to get the first lot of flowers open, and a moderate-sized house will continue to furnish flowers for five or six weeks.—J. C. C., in *Field*.

Fortune's Yellow Rose.—Flowers of this Rose open now must in all cases be brought on in a warm greenhouse temperature, as without the aid of fire heat to keep up the night temperature it could not be had in flower so early. A pink tinge pervades some parts of the flower grown under certain circumstances, but on blossoms grown in a house without fire heat I have not observed it; but that is of little consequence. What I want to refer to is the comparative scarcity of this Rose about the country, and its distinctive character as regards colour from all other Roses in the same class. As a summer flowering Rose on open walls it is the most useful that can be grown. I am assured that it thrives admirably as a wall Rose in Cheshire; therefore it is quite safe to plant it in any part of England. Where there are outside walls to cover, an established plant grows vigorously and produces flowers in abundance, but only one flower on a shoot. The proper treatment for this Rose is, as soon as the flowers are over (for it only produces one crop of blooms in a year, and that early in the summer), to cut away as much of the old wood as can be spared. This will make room for the young growth, which must be nailed to the wall as it increases in length. Much the largest flowers are produced by young wood, and strong young shoots will yield a flower at every bud. Our plant of this Rose is in an unheated house, where it grows vigorously and flowers well every year. It has frequently had shoots that were made after the flowering was over 6 feet long, and at every joint there was a flower bud. The formation of the flower buds is singular; they are long and tapering, and the outside petals are overlaid with a coppery colour not to be found in any other Rose. TAUNTON.

Cytisus filipes.—This Canary Island Broom is not sufficiently hardy to withstand our winters out of doors. The protection of a greenhouse is necessary to its well doing, and so situated it is now in full flower. It is a most elegant species, the shoots of which are long, slender, and droop gracefully on all sides, so that even when out of bloom it is by no means unattractive; but when these slender branchlets are wreathed with white blossoms, a good specimen is effective in the extreme. The flowers are about the size of those of the common Broom. It is best, perhaps, grown as a standard, for then the long drooping shoots have plenty of room in which to develop and display their graceful habit of growth. In order to obtain standards, the plants must from the first be trained up to a single stem, or, better still, they may be grafted on the common Broom, or even on the Laburnum. It is not a difficult operation, especially if the stocks are in pots, when they can be cut down

to the height required, cleft-grafted, and kept in a close case till a union is effected. If no case exists tall enough to accommodate them in an upright position they may be laid down without injury. When allowed to grow in bush form it is liable to become somewhat lumpy in appearance; a better way is to tie the principal shoot to a single stick and allow the minor spray to grow at will. In this manner a pyramidal shaped plant is produced which is very beautiful when employed as a single specimen. No especial care is needed in the culture of this Broom, good ordinary potting compost being all that is required, and the plants may be turned out of doors during the summer.—H. P.

GARDEN IN THE HOUSE.

THE CHRISTMAS ROSE.

THE large white salver-shaped flowers of *Helleborus niger*, or Christmas Rose, will be found to rank amongst the best flowers for cutting during winter. They are useful for dressing epergnes for dinner-table decoration, and for filling specimen glasses associated with foliage for decorating the drawing-room. They will continue fresh for a considerable time, provided care is taken to change the water once or twice a week, and to place a piece of charcoal in it to keep it fresh. The Christmas Rose deserves attention, especially that of amateurs who have no convenience for the production of flowers of a tender description. It is not one of those expensive subjects that render a large expenditure necessary before its flowers can be enjoyed. A stock of strong plants which will produce a crop of flowers the first season can be obtained at a trifling cost, and if planted in a border of ordinary garden soil, they will grow freely and give but little trouble. Good crowns, if well ripened in autumn, will yield a good crop of fine flowers for cutting during the winter, and they will be all the more perfect if slightly protected by glass. The usual practice is to grow the plants in clumps in mixed borders, in which, when in flower, they are very effective. But when flowers for cutting are required they are best planted upon a border in such a way that they can be protected by handlights. The plants bloom naturally in winter, often during snow and frost, which to some extent check the production of flowers and dim their beauty, although they will withstand several degrees of frost without injuring them. The best way in which to secure a plentiful supply of blooms is to select a sheltered spot in the kitchen garden upon a south border, which should be deeply trenched and heavily dressed with farmyard manure as the trenching proceeds. Rake the ground level and tread it firmly with the feet. Make pits for planting the clumps 2 feet apart and 18 inches plant from plant in the row; select strong crowns, and when planting put a mixture of fresh soil and leaf mould to each plant. Planting may either be done in March or in October, but I prefer March, as I have found from experience that those planted in spring yield the most satisfactory crops of flowers the first season. The Christmas Rose is one of those plants which feel the effects of having its roots disturbed; therefore it should be allowed to grow into large clumps, which will produce basketfuls of flowers. I have large clumps of several years' standing which have been covered with ordinary handlights, and from these, during the winter, I have been able to cut large quantities of blooms. When grown in pots it is useful for the decoration of the greenhouse, and will be found serviceable for placing in rooms owing to the length of time during which the flowers will keep fresh. Plants for this purpose should be large enough to fill 8-inch pots, and should be potted up during

March. Early in May plunge the pots over their rims in the soil, which will keep the roots in an equable state as to moisture. During October lift them and place them in a cold frame, when they will begin to throw up their blooms. When not potted in spring the roots may be lifted any time during the autumn and potted in pots large enough to accommodate the clumps. After the plants have finished flowering in spring they may be planted out in the border.

Homewood, Chislehurst. WM. CHRISTISON.

SNOWDROPS FOR BRIDAL BOUQUETS.

I NOTED with special pleasure the fact pointed out by "Veronica" (p. 144) that our Prime Minister's daughter and her bridesmaids carried bouquets of Snowdrops. Assuredly no more appropriate flower could be used than this meek emblem of grace, purity, and modesty. And now the example has been so nobly set of true greatness adorning itself with this common flower, it will probably be more or less generally followed; if so, we have a great deal yet to learn about the Snowdrop before it can become generally available for bridal bouquets throughout the year. And first as to its season of blooming north and south and east and west, a question which "Veronica" might undertake to solve in connection with the other readers of THE GARDEN who love Snowdrops—and that must surely be all of them—a goodly host—scattered all over Great Britain and Ireland, to say nothing of distant foreign parts. Statistics of seasons of blooming from a few hundred readers in different localities would give some idea of the length of the Snowdrop season out of doors.

As I write (Feb. 16) very few of our large stock of *Galanthus nivalis* in the open are in flower, while *G. plicatus* neither shows leaf nor flower above ground. A few patches of the small single by the side of the mansion and tufts of the double on warm borders against hothouses are in flower, though by no means of full stature of flower-stem or foliage. Our Snowdrop season this year will range from February 29 to about March 7, according to present appearances; while *G. plicatus*, according to present symptoms, will probably be in perfection about the end of March. But of course a fortnight of mild weather may upset these estimates.

My own impression is that "Veronica" is right about Snowdrops flowering earlier in the north than in the south. Statistics from our Scotch friends will, however, settle the matter provided always that they add aspect, site, and whether in the open or near a wall or building, and also the county.

Take, for example, Castle Kennedy, in Wigtonshire; the probability is strong that the Snowdrop season there might be earlier by several weeks than at Hardwick, in Suffolk, owing to the milder climate or warmer site; for it is a somewhat singular fact that although the Snowdrop is probably the hardiest plant we have, it is by no means insensible to the fostering and forwarding effects of cosy nooks and corners. This is the more surprising, as it will scarcely endure forcing, as hitherto applied to it. If, however, the Snowdrop is to become as popular as Gardenias, white Roses, and Valley Lilies for bridal bouquets, we must humbly sit at its feet till we learn how to force it, or have it in bloom all the year round for that matter. Certain it is should society demand Snowdrops, they must, they will, be forthcoming. I only trust the fair maids of February may not be esteemed less fair in bridal hands or on bridal brows in sultry June and bleak December than when worn in due season. But in prospect of the coming demand, who will inform us how to force Snowdrops early and retard them so as to extend their blooming season? I have already made appeals through your columns for full information about early and late species or varieties which doubtless will be forthcoming; but in addition to that we want to gain more power over those we have in hand. I confess that I have failed in forcing the Snowdrop. Who has succeeded, and how and at what season were the February fair maids in full beauty, or were they ever in full beauty?

Some years ago I had twelve bridal bouquets to

make on Christmas Eve. The case was unique, and all the bouquets for bride and bridesmaids were to be alike. In a rash moment Snowdrops were promised with Valley Lilies, white Lilac, Roses, &c. Suffice it to say, they failed us utterly, and so, though not always so completely, many times. Now before the brides are down upon us in full force for Snowdrops, at all seasons seems a good time to learn of one another how to meet their urgent demands; for it does seem rather humiliating to our professional pride as well as to the gentler instincts of our manhood to refuse a bride such a simple request as a bouquet or a wreath of Snowdrops on her wedding day, happen when it may. D. T. F.

ORCHIDS.

CATTLEYA TRIANÆ.

THIS beautiful and variable Orchid is now absorbing the attention of orchidists, who are ever on the alert for extraordinary varieties that may crop up among their imported plants. The number of fine varieties which have been sent to us during the past week is an indication that importations continue to yield varieties as fine as, or perhaps superior to, the named varieties, such as *Russelliana*, which are set up as standards of excellence. But in order to derive an adequate idea of the extreme variability of *Triana's Cattleya*, one must see the largest collections in nurseries and private gardens where a specialty is made of it, and where large quantities of imported plants are grown. It is a great treat at this season to see a large assemblage of imported plants in bloom, and no place that we know of affords such an opportunity of seeing what *Cattleya Trianæ* really is than in the great Orchid nursery at St. Albans, where Messrs. Sander have a houseful of this *Cattleya* at the present time, numbering some thousands of plants, the majority of which are flowering for the first time since they were imported. One can imagine the variety to be found in such a collection, and the splendour of colouring with which the whole house is aglow is beyond description. One must not imagine that even in a large collection as this is that the varieties of superlative merit are plentiful. On the contrary, the number of really first-rate forms which may crop up from an importation of some thousands of plants may be counted on the fingers of one's hand. Year by year the Orchid growers become more fastidious in their opinion respecting the points of a good *Cattleya Trianæ*, that it is a difficult matter to find varieties which conform to the criteria of a first-rate form worthy of a name. We have now the famous variety *Leeana*, set up as a standard of size, *Bonnyana* as a standard of form, and *Russelliana* and *Backhousiana* as examples of rich colouring. Hence, Messrs. Sander have been careful to name none of their new varieties that would not bear favourable comparison with the choicest of the named sorts. This season about half-a-dozen have been considered worthy of name, and of these the following were in flower at the time of our visit. One of the most delicate is named *Lady Churchill*, the flower of which is of the most exquisite shape, the petals and sepals being broad and overlapping. The sepals and petals are snowy white, the lip very round and heavily frilled, fading towards the centre into light mauve, while the throat is streaked with lemon and rose. The whole flower is not above 5 inches across, but the perfect form amply compensates for want of size. Another, named *Baron Ferdinand de Rothschild*, is a great beauty. The flower is over 8 inches across and of fine form; the broad overlapping petals and sepals are of a delicate lilac; the lip is 2 inches across, frilled with white, stained inside with the

most brilliant magenta-crimson and yellow. The plant is a grand specimen, bearing no fewer than seventeen flowers. The variety, *W. Vanner*, is remarkable for the large blotch of clear yellow which adorns the lip, the flower being perfect in other respects, and the lip is of good shape and much fringed. A rich coloured form is called *Herbert Dorman*, the sepals of which are oval in shape, pure white with a crimson lip edged with white. It looks more like a *Mendell* than a *Triana*, on account of the white petals. These are among the cream of the *St. Albans Trianæ*s, and, no doubt, other sheaths yet unexpanded will yield some exceptional varieties.

Dendrobium Harveyanum.—This is a beautiful species resembling *D. Brymerianum*, but smaller, and the fringe on the sepals and petals as well as the lip. The golden yellow colour is very pure. It is now flowering in Mr. Harvey's garden at Aigburth.

Phalænopsis Stuartiana.—A flower of an uncommonly fine variety of this Orchid has been sent to us by Mr. Sanderson, Talbot House, Leith. It is larger than that of the *nobilis* variety, and not only the lower sepals are profusely spotted, but the broad lateral petals are freckled also. Mr. Sanderson also sends a form of *P. Schilleriana*, having a large and finely-shaped flower of a much deeper colour than the ordinary forms.

Cattleya Trianæ Backhousiana.—This variety is flowering in Mr. E. Harvey's garden at Aigburth, Liverpool, this year true to character, with the flake of deep colour in the petals distinct. It is considered there to be equal to the best variety of *Trianæ*, the large expanse of pure deep purple in the lip and the pure white throat, without yellow, giving it a distinctive character. Mr. Worth, the gardener, sends two fine blooms of it.

Cattleya chocoensis.—Because this *Cattleya* never expands its flowers so widely as do those of its near ally, *C. Trianæ*, it does not find much favour with those who care only for big bold flowers. But we think its beauty is underrated, and it possesses points peculiar to itself. The pleasant fragrance of the flowers, resembling *Friar's Balsam*, is a character by which it may be distinguished at once from its near neighbours. The flowers are never large compared with the finest forms of *Trianæ*, but the colours are always delicate. The usual form has pale lilac flowers with a lip deeply stained with magenta, but there is a white form with only a dash of yellow on the labellum. The foliage, too, is always paler than that of other *Cattleyas* of the same group. We saw a lovely form of this Orchid in great beauty the other day in Lord Rothschild's garden at Tring, and, in comparison to the more highly coloured *Trianæ*s, we thought it very beautiful.

Orchids from Pontypool.—Flowers from three superb varieties of *Cattleya Trianæ* have been sent to us by Mr. Williams from Mr. Fowler's garden at Ashgrove, Pontypool. We imagine that the varieties sent are the pick of his large collection. One is a splendid form of *Warszewiczii* delicata, having an unusually large labellum, strongly coloured with orange yellow, and with broad petals of pale lilac. Another flower is remarkable for the distinct white frill on the lip, similar to that in the flowers of the much-prized *C. exoniensis*. A third variety, represented by a spike of three flowers, has one bloom peculiarly malformed. It has two lips placed one about the other, a freak not often met with in *Cattleyas*.

Varieties of Lælia albida.—Since this charming little Orchid has been imported largely several varieties have appeared among the importations; indeed, it shows nearly as great a tendency to vary in respect to the form and colour of its flowers as its relative, *L. anceps*. In the *St. Albans Orchid Nursery* among the imported plants may be seen four varieties at least which differ materially from each other. First, there is what is considered the type, which has ivory white flowers, with just a dash of lemon-yellow on the crest of the lip. The second is a form wholly white, the yellow crest being entirely

absent. It, moreover, differs in form; the flowers are rather smaller than those of the type, while the sepals and petals are both broader, and so form an almost round flower. It is, in short, quite a gem, and worth a distinctive name. *L. albidula hololeuca* would be an appropriate name for it. The third variety has been named by Reichenbach Stobartiana. It is the most distinct of all as regards form. The petals and sepals are all much longer than the type, narrower, and more pointed. The colour is ivory white, faintly stained with rose. It is as rare as the pure white form. The fourth variety to be seen in bloom here is bella, which is as common almost as the type. There are two other named varieties, Mariana and sulphurea; the first is tinted with rose; the flowers of the latter are said to be tinted with sulphur-yellow. It may be known at a glance by the deep rose-coloured lips of the flowers. This Orchid is grown in this nursery in a cool, airy house, and for the most part the plants are large masses attached to suspended blocks of wood.

Paphinia Sanderiana.—This new species from New Grenada is at the present in flower in the St. Albans Orchid Nursery. It is like the other species, *P. cristata* and *grandis*, in habit of growth, but differs in the form and colour of the flowers. They are about 3 inches across, with broad sepals and petals, having a ground colour of pale yellow, and on this is sprinkled a profusion of coffee-brown spots, while the large blotches of colour are Venetian red. The lip is beset with tufts of white fringe on a ground colour of reddish purple. It is quite a miniature Orchid in growth, having small bulbs and leaves, but the flowers are relatively large.

Dendrobium aureum.—The delicious fragrance of this Orchid would be sufficient to win popularity for it even if the flowers were devoid of beauty, for the similarity of its odour to that of a bunch of Violets and Primroses is a delight in an Orchid house, especially at a time when, owing to cold weather and heavy firing, the air is apt to get close and stuffy. There is, however, much charm of colour and form in the flowers of this *Dendrobium*—a pale yellow, almost white on first opening, the lip streaked with reddish brown, the whole flower growing deeper yellow as it ages, till finally it ends in becoming quite tawny. Such are the colours, whilst in form the flowers are equal to those of the best of the Dendros. When well managed this plant is very free-flowering, as may be seen by a plant at Kew in an 8-inch basket, and which bears ninety-six flowers upon five pseudo-bulbs. The commonest name for this plant is *D. heterocarpum*.—B.

Angræcum citratum.—This is an extremely pretty little Orchid, not remarkable for gorgeous colouring, but possessing a quiet beauty of its own. The flowers, which are borne on slender arching spikes, are arranged thereon in two regular rows, and when fully expanded the prominent spur at the base of each flower tends to prevent any undue appearance of formality. The blossoms are of a clear ivory white tint, with the lip in most cases suffused to a slight extent with mauve. The foliage, too, is neat, yet robust looking; indeed, it is by no means difficult to manage, for even under ordinary attention it will remain in perfect health, and flower well for years. The small shallow pans that have come a good deal into use within the last few years are well suited for this Orchid, as it is not a robust grower, and needs but little room. It is most effective in a group or mass, isolated specimens not being sufficiently striking. Like its relatives, it does best in a stove temperature, or that of the East Indian house. —H. P.

Acineta Humboldtii at Birdhill.—I went there the other day to see the large collection of Orchids, principally from Assam, recently received by Mr. Gough from his relative, General Sir H. Gough, but only a few had yet commenced to bloom amongst many hundreds of Orchids. Mr. Gough, however, wishes me to ask some Orchid grower what he thinks is the probable cause why for the past fifteen years he has not been able to flower this noble Orchid? He keeps it in the Cattleya house, and as closely as possible follows the commendations of the "Orchid Manual." The plant is seemingly healthy. Perhaps some of your readers who have so succeeded with it may give us their experience. —W. J. MORPHY, Clonsilla.

Cologneya cristata alba.—A plant of this Orchid, having about a dozen bulbs, was sold the other day at Protheroe and Morris's for 60 guineas.

A new Odontoglossum.—On Tuesday last there was exhibited at Messrs. Protheroe and Morris's sale-rooms, Cheapside, a flower of what was generally considered to be one of the most remarkable hybrid *Odontoglossums* that has ever been seen in this country. It can only be described by comparing it with a very deep form of *O. Wilckeanum*. It resembles that variety in form and size, but instead of the ground colour being of a yellow tinge it is quite white, and herein lies its distinctness from others in a similar way. The petals, sepals, and lip are almost wholly coloured with a rich coffee-brown, inclining to Venetian red, and here and there the white ground shows through. This great rarity was, we learn, sent from the Continent to be sold in London, but although as much as fifty guineas was offered for it, it was not sold, the reserve price being considerably higher. The sum offered was a high price certainly, but when it is considered that out of 10,000 imported plants only one such as this may crop up, this sum is not extraordinary. It is very probable that this plant may still find its way into one of the Orchid collections in this country.

Pleione humilis.—No more appropriate name could have been given to the several pretty little alpine Orchids known as Indian Crocuses, for although there is no resemblance in any point as regards form between a *Crocus* and a *Pleione*, yet there is something either in the thoughts they suggest or their manner and time of flowering which makes one exclaim, on hearing the name Indian *Crocus*, "A most suitable name for them." We know best of all the three most accommodating kinds as regards culture, viz., *P. lagenaria*, with its bottle-shaped bulbs and large, spreading, beautifully marked flowers; *P. maculata*, with flowers snow-white, tinged and blotched on the lip with yellow and crimson; and *P. Wallichiana*, sometimes called *P. precox*, which is some what similar to *P. lagenaria*. These three kinds anyone can grow and flower easily if they possess a warm greenhouse and a little gardening skill. But besides these there are some other beautiful and distinct little kinds, of which *P. Hookeriana*, a rose and brown-flowered, plum-like, bulbed species, and *P. humilis* are perhaps the choicest. The last named has bulbs like tiny champagne bottles in shape and flowers 3 inches across, the sepals and petals narrow and white, tinted with rose, whilst the lip is too beautiful for description, its lines, spots, and blotches of deep mauve, its fringe and hair-tipped keels being very charming. It flowers early in spring, but, alas! it does not flower ever willingly. We saw it at Chiswick a few days ago. —B.

Sophranitis violacea.—There are very few Orchid collections which do not include the brilliant-flowered little *S. grandiflora*, whose tiny pseudo-bulbs, thick leaves, and habit generally suggest a *Cattleya* in miniature. Indeed, now-a-days, when so many varieties with rose or purple-tinted, or with very large flowers are in cultivation, we are accustomed to see several of them in flower side by side. But the species known as *S. violacea* is a rare plant, and perhaps unknown or uncared for by a good many orchidists, either through ill-repute or because they have seen very poor forms of the plant in flower. Our opinion, however, on this point is, that a good variety, such, for instance, as that now flowering in the Orchid house at Kew, is one of the most beautiful little Orchids known, and this opinion is general amongst those who have seen this plant. But who is responsible for the description "violet-coloured" for the flowers of this Orchid? Here is an accurate description of it, as represented at Kew: "Pseudo-bulbs oval, in shape and size like the bulb of a *Snow-drop*, pale brown and smooth the first year, regularly furrowed from base to point when old; leaves, one on each pseudo-bulb, 4 inches long, quarter of an inch wide, channelled, stiff, dark green; flower-scape 1 inch high, usually one, sometimes two-flowered, and clothed with small scaly sheaths; flowers, 1 inch across, and composed of regular reflexed sepals, petals, and lip, the last slightly broader than the others, and having a white spot at its base. The arrangement of these six divisions of the flower is as regular as the arrangement in the flowers of a *Crocus*, or, better still, a *Chionodoxa*, and the colour is not violet, but the old-fashioned magenta, or, in other words, a

purple-rose. The Kew plant bears four flowers, and is grown attached to a little raft, with a pinch of *Sphagnum* about the roots, and we believe it is kept in a cool house, where it hangs against a moist wall, with *Masdevallias* and *Disa grandiflora* for its companions. A lover of alpine gems could not fail to be delighted with this little Orchid. —B.

CHRISTMAS ROSES IN FIFESHIRE.

CHRISTMAS ROSES have probably received more attention during the last ten years than at any previous time, the result being that their culture has been much improved, not only in gardens in which hardy flowers are specially grown, but also in the general run of places. An instance of this we have lately had from Fifeshire. In the second week of December, Mr. Murray, the gardener at Durie, Leven, sent us a photograph taken by himself of a bed of Christmas Roses then in perfection in the garden there. This photograph was so excellent, and representing, as it did, a bold style of growing Christmas Roses, we had it engraved, and the result is the accompanying illustration. If every garden contained such a bed of Hellebores to cut from about Christmas time, what a treasure it would be. This Hellebore bed, says Mr. Murray, is quite a sight, the flowers being in such numbers as to be a mass of white. The flower-stems stand about 2 feet high, and the flowers measure, individually, from 4 inches to 5 inches across. "Christmas Roses," he adds, "succeed well with us. When I came here about twelve years ago there were but two plants of the large variety [presumably *altifolius*.—Ed.]. One of these plants did not possess good foliage, so I did away with it. The other I increased, until now I have over fifty plants, and I have given away nearly as many. I think that one of the reasons why Hellebores fail is the fact that too large pieces are planted. My experience is, that you cannot plant too small pieces. After being once planted in good, deep soil, the plants must not be interfered with. As an instance, some large plants which I lifted from the bed shown in the annexed illustration have thriven very little since, and the flowers are pink, while those in the bed, undisturbed, are snow-white."

QUESTIONS.

5478.—**Timber.**—Can some reader inform me what price Cedar of Lebanon timber realises per foot. I have a large Cedar blown down, and no one in these parts seems to know the value of its timber. —A. P.

5479 **Gardens and gasworks.** Can any of your readers give me any information as to the effect of gasworks on gardens to which they are contiguous. I am about to take a garden which is unpleasantly near gasworks, and before I do so I should like to have the experience of someone in the matter similarly situated. —R. DAVIES.

5480. **Clianthus Dampieri**—If this were grafted on *Clianthus puniceus*, here a perennial, standing out of doors, would it partake of the habit of growth and constitution of the perennial plant, and bear the beautiful flowers of the *Clianthus Dampieri*? or would the experiment of trying the plant in a greenhouse be likely to be more successful? —A. C.

5481.—**Heating a small greenhouse.**—I have a small greenhouse 7 feet by 5 feet 6 inches and 7 feet high, and I am at a loss how to heat it. I am afraid I had a flue or hot-water apparatus that my plants would get scorched, the house being so small, and I have been thinking of using an oil stove. Will some other amateur say whether the burning of spirit oil in a greenhouse would be sufficient to keep out frost, and that without injuring the plants by the fumes which may arise from the lamp? We are situated about 800 feet above sea level, but rather protected by surrounding hills. —Fix.

The Corsican Pine at Kew.—In the note respecting this tree in THE GARDEN of February 13 there was an inadvertent mistake with regard to the date. It should read: "In 1825 the tree was about 20 feet high, and on Mr. Salisbury visiting the garden in that year he informed me that he, in 1814, brought it with him from the south of Europe—then a small plant—and that he presented it to Mr. Aiton (who was then director of the Royal Gardens), the spot where it now stands being within the precincts of the original pinetum planted by the first Aiton.—J. SMITH *Ex-Curator*."

FRUIT GARDEN.

PRUNING TO PROMOTE VIGOUR.

It seems to me that the advocates of the old system of close pruning bushes or trees attach too much importance to the apparently superior vigour of the subjects operated upon, attributing more to the efficacy of the knife than the circumstances of the case warrant. That a Rose bush severely pruned, and subsequently disbudded both of superfluous shoots and, later on, of buds as well, will perfect a few, and, considering all things, very few extra fine blooms, is true. But what about the heavy dressing of good, solid manure, the mulchings, and the waterings? Do not these contribute largely to success? To be plain, would the most scientific pruning possible result in the production of prize blooms without the aid of the manure? I think not. Then we are told that the much restricted and closely pruned Apple and Pear trees produce much the finest fruit, these realising high prices, while those grown on unpruned trees are comparatively worthless. This may be true enough in some cases; but, I ask, is it the pruning alone that is responsible, or is it not rather that these pet trees receive the best of soil and a maximum amount of manure? Hard pruning is very frequently a cause of much evil, and excessive extension may also prove very disappointing, and "the truth as ever lies between the two extremes." The more we prune many trees or bushes, the more gross the shoots resulting become, and fertility is farther off than ever. Such growth is apt to be either too pithy or does not mature properly, and is certainly of the very worst quality for laying the foundation of a tree, whether this be a Peach, Plum, Apple, Pear, or a Rose. Not so the growth of unpruned trees. This is rarely too sappy or unfruitful, at any rate not in the southern and midland counties, and whether it is so farther north I leave others to state. For instance, I have cut and sent to London lengths of unpruned Apple shoots from quite young trees, that were longer than walking-sticks and nearly as much round, clothed with fruit hanging, in fact, like the proverbial ropes of Onions. At one time these strong young shoots were, at the winter pruning, cut rather hard back; but during the summer, after they were left to their full length, they formed fruit buds at nearly every joint, and these the next season duly blossomed and fruited. Partial pruning in such case is unavailable; the shoots must be left to their full length, or they break very irregularly, and seldom form fruit buds. It is just the same with other kinds of hardy fruit, and market growers are better aware of this fact than the majority of private gardeners and amateurs are.

The knife must be used at the commencement in order to lay a good foundation, but after that

only thinning out and a little foreshortening is advisable. Under this treatment either bush, pyramid, or standard trees of Apples, Pears, Plums, and Cherries soon arrive at a full bearing state, and that, too, on heavy, deeply cultivated ground. In the case of wall trees restriction must be resorted to, and if they are planted in good soil root-pruning has to be practised in order to make them fruitful. In every instance I would plant maidens in preference to trained trees, as the former invariably form the best trees in a shorter space of time. If "T. B." doubts this fact, let him take the first opportunity of calling on Mr. Pettigrew, at Cardiff Castle, and learn the history of the grand lot of pyramid and trained Pear trees there to be seen. Further, maiden Peach trees, if they do not in the first place completely furnish the lower and least valuable part of a wall, will eventually do so, as their clean and healthy stems are annually pushing out shoots that may be laid in. If allowed to form a leading growth from which branches are laid in right and left, the lower portions of the trees are bound to be much weakened, and out-door trees especially may not push out healthy fruiting growth.



A mass of Christmas Roses (*Helleborus niger*) in the garden at Durie, Leven, Fife.

If "T. B." has in his mind's eye the row of trees on an open wall at Longleat, and which are certainly badly furnished at the bottom, he ought to be told that Mr. Taylor's aim, when he planted nothing but maidens, was to furnish the best portion of the wall as quickly as possible, as hitherto none of the trees planted lasted more than a few years. I have seen those unscientifically trained trees literally crowded with good medium sized fruit, and, what is also very encouraging, they are all thriving longer than expected, and Mr. Pratt gathers many baskets of fruit from them nearly every season. They would prove an eyesore to those who delight in the old style of training, but they do good service, and that is everything.

ROOT-FEEDING.—The mistake many are liable to make with regard to unpruned or very moderately pruned trees is in not properly feeding the roots. We allow the tops to extend, the root-action being equally strong and far reaching, but overlook the fact that the ground must of necessity become more rapidly impoverished than is the case with the more restricted trees. Then, seeing that the more naturally grown trees are

the most prolific, it follows that unless they receive the assistance at the roots they really merit, their vigour and usefulness must soon be seriously impaired. Hard pruning, this including a free use of the hand-saw, may induce extra vigorous growth and apparently put new life into the tree, but it is only for a time, unless renovating measures be also adopted at the roots. If the roots are not properly fed the trees soon revert to their old habit of producing under-sized fruit, but that this should be attributed to want of pruning by such an experienced writer as "T. B." is most surprising. Give fully grown fruit trees and large Rose bushes an annual dressing of good manure and liquid manure if available, and they will produce nearly or quite as fine fruit as the small and generally well managed miniature specimens. The commonest of vegetables usually have plenty of manure given them, while few but the market growers are able to manure their valuable fruit trees and bushes, in many instances owing probably to the scarcity of good manure for that purpose. Nothing is done to induce them to form active fibres near the surface; on the contrary, the annual digging about them serves to drive the roots down into the sub-soil, and the trees in such a state may well fail to be remunerative. Every well established fruit bush or tree ought to have an annual heavy surfacing of manure, not from the frame ground, but straight, if possible, from the farmyard or pigstye, and which still holds all its fertilising properties. Much of this the spring rains would wash down to the roots, while the strawy portion acts as a mulch during the summer, and is eventually taken possession of by the roots. No digging ought to be done, but

if the manure proves to be objectionable on the surface, it should be faced over with soil. The drainings from the cow yards and other places may well be given to the fruit trees during the winter, and this is one of the best methods of putting new life into orchard trees. As a rule, the market growers beat us both in quality and quantity of their crops of both large and small fruits, owing principally to the careful or very moderate use of the knife and the application of abundance of thorough good manure to the roots. To borrow a phrase from "D. T. F.," they do not attempt to keep nine pigs with what ought to go to one. It is a mistake to imagine that only small, closely pruned Roses yield fine blooms. This may, to a certain extent, be the case with the Hybrid Perpetuals, though even these produce very fine blooms, or good enough for ordinary purposes, on large, spreading, and well fed bushes or trees, while the Teas under liberal treatment grow to a great size, large and almost unrestricted trees yielding any number of prize blooms. Plenty of such trees are to be seen in the Rose houses belonging to Mr. Chaffin, of Bath; while the Messrs. Cooling, of Bath, have shown

some of the finest Maréchal Niels ever seen, these being cut from a very large tree which annually perfects many hundreds of blooms. In both instances the trees receive most liberal treatment in the shape of large, well made borders, liquid manure and mulchings.

GRAPE VINES as a rule are not neglected at the roots, though these, perhaps, do not always receive such liberal treatment as they require. Sometimes they get more than is good for them at the beginning, this leading, unless good judgment is exercised, to the formation of large pithy canes, which last for a time only, eventually shrinking considerably, this being followed by shanking and a regular breakdown. Hard pruning of the young Vines also culminates in somewhat the same manner, what promising to be a serviceable house of Vines ending in their being of little value at a time perhaps when they ought to be at their best. Instead of repeated severe shortenings the rods ought to reach the top of the house at one, two, or at the three shortenings. If they grew really well they ought to reach at least one-third of the way up the roof of an ordinary vinery, and if duly stopped at that point no other pruning is needed. The following season they would break strongly, and, besides forming good laterals, would also perfect another length of main rod. In this way a long and very straight rod is secured, not extra large in diameter, but very woody and hard, this rightly being calculated to lay the foundation of a long-lived valuable Vine. This is no imaginary method, as I am pleased to say we have a very promising house of mixed late Grapes, and these have been pruned but very little. Some that were raised from eyes in the spring of 1883 and planted the same season were duly shortened just where they reached the wires, and the next summer half way up the house, and these will be fruited to their full extent, or a length of 19 feet, this year. One short-jointed rod of Lady Downes, 10 feet long, formed last season, measures from $1\frac{3}{4}$ inches to $1\frac{1}{4}$ inches round, and the stem of a Muscat of Alexandria that carried six bunches last season measures at a yard from the ground about $3\frac{1}{2}$ inches round. Vines of Alicante, that each carried three bunches the season after they were planted and six bunches this year, have not quite reached the top, but in both cases this was not owing to weakness, but rather to the leading shoots being scalded in a rather mysterious manner. A tiny Vine of Alnwick Seedling that was shortened down to the ground last winter has formed a fine rod 11 feet long, with joints about 6 inches apart, and this will not be shortened, nothing being gained, as "J. S. W." points out, by so doing, and much harm might be done. Immense foliage and fat rods may easily be obtained by hard pruning, but we have no great faith either in one or the other. In this, as well as other matters, we generally have to "buy our learning," or, in other words, we make a mistake in practice for which we have to suffer, this proving a very forcible lesson. This is the danger to be avoided. When we lay in a good length of rod, instead of severely shortening it back, as of old, we are apt to be misled by the vigour it displays when it recommences growth, and are tempted to leave too many bunches on it. They must be unhesitatingly reduced in number according to the age and vigour of the Vines, and any young Vines that are rather weak ought not to carry a bunch, otherwise a serious check will be given. In this instance again it is not the system that is at fault, but rather those who have not used more sound judgment in the matter.—W. I. M.

— Those who doubt the debilitating effects of the pruning knife on trees might do worse

than go out among the highways and byeways, and study the hedges and trees there. Take a Quickthorn hedge, for example, that is regularly switched and kept down. Does it not show plain signs of failing vigour and decay long before trees of the same species do? and why should it be so? Constant clipping enfeebles the hedge plant, which grows stunted and weak, and finally dies; whereas the tree lives on to a great age, growing on the same spot. This is our experience of hedges, at all events; but examples are abundant. Our park here is full of fine old Thorn trees in good health, and when the snow happens to break them down and they have to be trimmed, they show their latent vigour by pushing strong shoots immediately. They also go on bearing fruit abundantly. But with the hedges, which are never burdened with a crop, it is different, for they will die off of premature old age, and need grubbing up constantly, being really pruned to death.—S. W.

SOME LATE APPLES.

WHEN such large collections of Apples were shown the other day at South Kensington, including many kinds usually thought to be at their best before Christmas, it was naturally thought that the season of Apples might be indefinitely prolonged by the mere act of long keeping. That is true to some extent, but not entirely so, as there can be little doubt that many of the kinds shown had lost their flavour, and were more Apples in appearance than in quality. It would thus happen that sorts selected for culture in the belief that they were good late keepers might have proved very misleading were the selections made from the sorts shown on this recent occasion. Really at this time of the year we must look to kinds that are not so attractive as are the autumn ripeners, for the best flavoured and the most pleasant for dessert purposes. Large high-coloured Apples, and, indeed, many small and handsome, have ere now become soft and mealy, and whilst capable of making fair sauce are yet quite unfit for ordinary eating. For instance, in such collections the small and unattractive Sam Young would be passed by as an inferior sample, and yet it is one of the most delicious of late dessert kinds, and old trees of it are free bearers.

Another variety little known is the pretty and somewhat russety Keddleston Pippin. This, too, is a good cropper, and the fruits are of fair size—in fact almost as large as are those of Cox's Orange Pippin, and like it in form, but in colour a yellowish green when ripe. It has a thin rind, has soft, juicy, sweet flesh, a pleasant aromatic flavour, and is a first-class late dessert Apple. At the same time when the collections alluded to were staged I took to South Kensington a dish of the old Winter Pearmain for the fruit committee to taste. It was disappointing to find that body correcting my nomenclature and informing me that it was after all but Hambleton Deux Ans. I thought I knew better, and think so still, for there is a remarkable difference between the habits of the trees and the quality and form of the fruits. With me this old Pearmain is an erect, robust grower; the fruits are usually large, conical, somewhat square-sided, and have an eye as open as that of the Blenheim Pippin. In the sun the fruits colour finely, and some it is difficult to distinguish from the Blenheim. Fortunately, Mr. G. Bunyard had in his collection fruits of the Deux Ans, and I and others were, through his kindness, enabled to compare quality of flesh and flavour. The Pearmain was pleasant, crisp, and juicy; the Deux Ans dry and flavourless.

The fruit committee have yet to learn more about this fine old Apple, the Winter Pearmain. It is good both for dessert and table purposes, and keeps well till April. A correspondent thinks that the old Tom Putt Apple is one of the

best for cottagers. I have always thought Waltham Abbey Seedling to be the best general Apple, as it is with me a constant cropper, never failing to give produce more or less. It is a capital kitchen Apple and keeps well through the winter; hence is so much more serviceable than is a kind that is good only till Christmas. However, it may prove that where the one kind does well the other does indifferently. That is so often the case, that this divergence illustrates the exceeding difficulty found in laying down hard and fast lines as to sorts of Apples, or indeed of any fruits, as best for general culture. Of course, no one would desire to see cottagers or any other class of gardeners limiting themselves to one kind of Apple, but if Tom Putt and Waltham Abbey Seedling are two good winter Apples, certainly two of the best for earlier use are Stirling Castle and Frogmore Prolific; whilst of smaller fruits that would suit a cottager for ordinary eating, I can find none so constant and free to bear as the little-known Norfolk Bearer.

A. D.

PRUNING AND ITS EFFECTS.

"J. S. W." (p. 87) is surely either fighting a phantom or greatly over-stating his case. It appears to me rather doubtful whether two such antagonistic systems as he speaks of have any existence in the horticultural world. But if he maintains that under no circumstances can close pruning be made to produce vigour, I should be glad to call his attention to two instances among several others that I could name in which close pruning with that very object was attended with the happiest results. Ten or eleven years ago I planted some pyramidal Pear trees; the subsequent history of one of them I will proceed to relate. At first the tree appeared to do fairly well, but after a while it began to look unhealthy, produced no fruit, and did not make much wood. Two years ago its appearance was such that I feared it would not live through another year, but I thought I would give it a chance, and allow it to begin its career afresh. My remedy, I need scarcely say, was "close pruning;" my object, to promote vigour. The growth of several years was clean cut away, and the tree left with nothing but the central stem and the stumps of the branches. The tree now, after two years' growth, is in perfect health with a few blossom buds on its shoots, and quite as large as it was before the removal of the unhealthy wood. The other instance I have to mention of the advantage of close pruning is that of a standard Service tree, which was planted on its present site seven years ago. Like the tree already described, it made but little progress in spite of top-dressing with manure and the occasional removal of some of the bloom buds. Last year, however, I treated it as I had the Pear tree the previous year, and with the best results. The new shoots were so heavy that one of them was blown off by the wind, and I had to secure the others with loops of string fastened to the main stem, and even now it carries nearly as large a head as it did before its decapitation. How, I would ask, are Vines under glass, Peach trees on walls, and fruit trees trained horizontally as espaliers to be treated without close pruning, and that in most instances of a very severe kind? Every experienced gardener knows what a battle must always be going on between him and the upper branches of an espalier to maintain a proper balance in the tree, and how, in this instance in particular as well as in so many others, that is actually true, which the poet of old enunciated only metaphorically,

Naturam expellas furca tamen usque recurret,

and Nature must be met by Art if a garden is

not to become a wilderness. As regards orchard trees, everyone knows that where there is sufficient space and a good soil hardy fruit trees of all sorts will produce fruit of medium size and of excellent quality, and in far greater abundance than can be obtained by any of those methods in which restriction is a matter of necessity. Surely there can be no hard and fast rules at all applicable to such cases. Again, I would refer to a very common practice, and one which I generally follow myself on receiving from the nurseries a bundle of trees. They are planted just as they are when they arrive, with the branches unpruned; if a standard, a good stake is first driven into the excavation and the tree tied to it before filling in. Nor is anything done to the roots except to spread them out, and cut away any portion that may have been seriously injured or left ragged at the extremities. With a top-dressing, if thought necessary, they are allowed to remain and take their own course till the end of the year, when pruning is resorted to, and that usually of a rather severe kind, and with a view "to promote vigour." Last November I received from a well known house at Chester a bundle of choice Roses, and planted them just as they were in a border of rich soil prepared for their reception. My intention is to cut them down early in March to within 6 inches or 7 inches from the ground, and when that is done some of them will be deprived of about nine-tenths of their bulk above the ground. Here, then, will be severe pruning, but not on this occasion to promote vigour. The effect will probably be what I wish it to be, which is to cause the plants to produce compact heads of moderate dimensions. My belief is that the roots, having to begin their work all over again, will not be in a condition to profit by this heading-down operation, but I do not think there can be a doubt but what, had they been planted in the year preceding and left unpruned, the effect of close pruning at this time would be the reverse of what I have aimed at, and that my trees having been planted within 3 feet of each other would have given me infinite trouble by the rankness of their unchecked growth.

In planting White Thorn hedges it is the custom in many places to cut down the young plants when they are set to within a few inches of the ground. The effect in most instances is the production of two or three strong shoots from the buds left on the stem being in a position somewhat analogous to "D. T. F.'s" little pig when his brothers and sisters were removed, and he could draw as freely as he pleased upon the contents of the trough. As to the proper treatment of a recently planted tree in which very little vitality appears to remain, to cut off any part of the head in which the only signs of life remain would be to either hasten or ensure its death. Pruning is a useful agency, and if seasonably and judiciously carried on may be made, not only to restrain, but in some instances even to check, the vigour of our favourite trees and shrubs.

B. S.

Top-dressing fruit trees.—This is the proper time to apply top-dressings to fruit trees and bushes, not only to enable them to carry a crop of fine fruit this year, but to lay the foundation for future crops. Our custom is to go over every tree and bush after pruning is completed and the surface soil is lightly forked up, and put one or two good barrow-loads of rotten manure immediately over the roots, and I can bear testimony to this being the best plan of keeping them close to the surface, thus doing away with any necessity for root-lifting or root-pruning, as with plenty of surface roots fertility is ensured. Someone may say, "My trees grow too strongly already, but I cannot find any roots." The fact is, that from want of food on the surface the roots have

struck down deep into the cold sub-soil; consequently, the annual growths are sappy, long-jointed, and fail to ripen, and the flower-buds do not set. In the case of such trees it would be best to lift the roots entirely and replant at once, keeping the surface mulched afterwards. A twofold object is thus secured. The mulching draws the roots up to the direct influence of sun and air, and when there prevents drought from injuring them, as if put on now it will not disappear before all danger from drought is over. Our soil is not strong or deep enough to produce large standard trees, and if it was the gales to which we are here exposed are too violent to allow them to become fully matured; therefore, we adopt the bush form, and by keeping them stopped in rather close the limbs get very stiff, and do not sway much with the wind. Pruning we look upon as a necessary evil, but non-pruning is not a cure for all the ailments to which fruit trees and bushes are liable. I think if non-pruners were to inspect say a hundred of the first orchards they came to, they would be fully satisfied that it was not to over-pruning they owed their wretched condition, but to an entire absence of anything like cultivation. Not only is the pruning-hook laid aside for good, but the manure cart as well, and under such conditions good crops could not possibly be expected.—J. GROOM, *Gosport*.

PRUNING TO AUGMENT FERTILITY.

Of this there is less doubt than that pruning promotes vigour, as the proofs are even more numerous and the results more obviously apparent. By the augmentation of fertility is meant here the crowding of more flowers or fruit into less space and producing more of either or both in less time. The necessity for this arises largely from the fact that time and space are becoming every day of more urgent and vital concern to the cultivator; hence his first duty almost is to make the most and the best of both. Were time and space of little or no moment, the cultivator could afford to make less use of the knife; but the fates compel him often to take a short cut to fertility instead of the slower road of growing his plants into it. Both of these ways, however, apparently so opposite, lead to the same result. Nature, which seldom seems in a hurry and has the whole world before her as her growing ground, can afford to be prodigal of time and space, and so she proceeds with slow steps and ever-widening area to reach fertility. But though the pace is slower and the area occupied so much wider, not only are the results identical, but the means by which they are achieved are very much alike in principle, though differing in detail. Hence I contend that pruning is not unnatural, for Nature pure and simple prunes or practises its equivalent more severely than art, and also in pursuit of the same end—the checking or weakening of mere growing force and the diversion of the same into fertile channels.

More than this, were pruning unnatural, that would be no legitimate argument against its use. Domestic horticulture may be said to be almost wholly artificial. Plants and trees are placed in highly artificial circumstances, and may need—do, in fact, generally receive—much treatment that may be described as unnatural. The artificial conditions being taken for granted, artificial or, as some would prefer to call it, artistic treatment follow as a matter of course. Natural culture is in one sense a contradiction in terms, for a plant cannot be in a state of nature and under culture at the same time. In another, however, we accept the phrase as descriptive of the best culture, that is, such as is in harmony with the life, character, constitution, health, and highest fertility of the plant. And skilful pruning is obviously included within the range of such a definition of natural culture. The latter is a widely different thing from that pictured by

most cultivators. For example, single fruit trees planted in good soil at regular distances of 20, 30, 40 or more feet apart, growing on and proudly expanding year after year without let or hindrance until the full lap of time crowded all their boughs with fruit, and they stood forth perfected models of fertility, symmetry, and beauty. That is the horticulturist's idea of Nature's indulgent and beneficent reign over growth with its magnificent results. But how opposite the reality. Seedlings struggling for the mastery from the first, suffocating each other in their seed beds in their life and death contest for the survival of the fittest—the fittest, however, being seldom a unit, but two, three, five, or more, which grow up in a crowded home of contention and strife—stems, branches, leaves all in a state of incessant contest and war with one another, each engaged in a deadly struggle for stronger life and more room. In the contest whole plants disappear; boughs are choked or pruned off wholesale; leaves are blanched, paralysed, and destroyed. Nor is the battle for dear life confined to plants of the same species. There is no law of vegetable life that plants are only to contend with their peers. Just possibly when one seedling Apple in a colony has made good its claim to supremacy, a vagrant Blackberry, a twining Hop, or a rambling Rose uses it as a prop to raise itself in the world, and it disappears for ever, engulfed in a smothering embrace. But should it escape such accidents, the contest above ground is over-matched in intensity and fierceness with that going on among the roots. Here rival roots of all sorts are probably already in possession; the soil is thin, poor, and hard; it may be only an inch or two of sun-dried sand or clay over a layer of chalk or primitive or secondary rocks. The tender roots are baffled, foiled, bent, broken, starved, weakened, killed it may be, and the plant droops and languishes for lack of the food and water that ought to have been provided. The plant only needs food, water, light, air, warmth, sufficient space and time to make it fertile, but its efforts after these are baffled, foiled, cribbed, cabined, and confined at every point. And these are but samples of Nature's prunings, and some of the rough and ready means she adopts to concentrate and heighten fertility; for though Nature is so stern in her methods as to kill off many weaklings in her modes of culture, yet what is death to these brings fertility to the survivors.

The result of all this fierce struggle for life and room for growth is to moderate and tone down mere vigour of growth into fruit-bearing spurs and fertile branchlets. Art often comes to the assistance of Nature, and enables her to reach the same goal through slower and gentler methods. By planting wider apart and at equal intervals and subduing all rivals, fruit trees, bushes, and flowering plants grow rather than fight their way to fertility. Roots and branches are broken up and sub-divided, the strength of one being diffused among many till finally fertility is established by mere extension. However, in these cases a considerable portion of the plant or of the area occupied is mostly unfertile. The skilful pruner not only reaches fertility in less time, but crowds more of it into a given space, by as near as may be equally distributing it over the entire area of his tree. His aim, and he mostly succeeds in it, is to clothe the base as well as the summit, the sides as well as the centre, of his plant with fruit. Hence, as a fact, cordons a yard long are more crowded with fruit than trees 10 feet high and as much through. With such examples of concentrated and heightened fertility before him, the modern pruner aims at the highest object of all pruning—vigour of growth, with fertility developed in the making of it.

Methods of doing this have been pointed out from time to time in the pages of *THE GARDEN*. For example, the tops of trees may be forced into fertility by incessant pinching, or by one, two, or three cuts during the season. Restraint or pressure may also be put on the tops by various modes of treating, bending, or training; but the most potent of all means in our power for concentrating and utilising fertility lies in root-pruning or its equivalents, which, with your permission, will be the subject of my next communication.—**D. T. F.**

P. S.—As there was no reference made to the Roses grown by me or any other cultivator—with the exception of those grown by “J. S. W.” and posted up by him in *THE GARDEN* as conclusive proof of the soundness of his mode of pruning them—I fail to see how my simple proposal that they might be exhibited, in order that due honour might be given to “J. S. W.” as a successful cultivator of old-fashioned Roses, can by any logical or reasonable possibility stir myself or others whose Roses have never been named in the discussion to exhibit them against his. Nor is there the slightest occasion now for “J. S. W.” to exhibit his Roses. The proposal was made on the assumption stated at the time that the Rose like walking-sticks, and the clothes-basket-filling boughs of Rose leaves were the products of the old-fashioned Roses generally used for drying. Now that “J. S. W.” informs us that, on the contrary, his Roses are such vigorous varieties as *Mdme. Knorr*, *Achille Gonod*, *Souvenir de la Malmaison* and other Perpetuals and Bourbons, we no longer marvel at the strength of their shoots, but rather that “J. S. W.” should grow such comparatively odourless sorts for drying. But tastes differ about the fragrance of Rose leaves as well as the modes of pruning them, and surely we can agree to differ, as well as to observe the common courtesies of debate by quoting the signatures that appear under our articles. If “J. S. W.” will exercise a little patience he will find not only that pruning can and does promote vigour, but that it also concentrates and heightens fertility. “J. S. W.” quotes the Vine to the contrary, but has he never seen a cut-back Vine make a run of 10 feet or 20 feet in a single season, the long rod thickening out into the dimension and hardness of a nut-brown walking stick within the limited time of six or eight months? If that cut of the knife did not concentrate force and promote vigour, then has language lost its meaning and the irresistible logic of fact its force.—**D. T. F.**

SHORT NOTES.—FRUIT.

Damsons.—These are scarcely cultivated at all in many counties, and only in a few are the merits of the different sorts understood. In Kent the *Farleigh Prolific* or *Crittenden* has driven all others out of the market gardens. It may not succeed everywhere, but where it does it is the best of all Damsons.—**J. Groom, Gosport.**

Fruit prospects.—If a late spring is calculated to insure a good fruit crop, we ought to get a full one this year, for at the present time scarcely any perceptible movement is visible in the buds, of which happily there is no lack even on trees that were heavily cropped last year, and the long enforced rest will doubtless benefit the trees, as although the vines are dormant the roots are busy at work preparing for a vigorous start.—**J. G., Hants.**

Neglected fruits.—Mr. Coleman's remarks on neglected Apples (p. 160) are worthy of careful consideration. For market supply there can be no doubt that *Tom Putt* should be planted largely. If growers were to make a speciality of early high-coloured Apples such as that just named, and send them to market in place of *Lord Suffield* and *Codlins*, that are sadly overdone, they would be well repaid.—**J. Groom.**

The Portugal Quince.—There are some statements in *THE GARDEN* (p. 137) on this Quince which I think are incorrect. Mr. Coleman affirms that the *Portugal Quince* is used as a stock for Pears. The late Mr. Thomas Rivers, no mean authority on Pear cultivation, points out this error in one of his earlier publications, “*The Miniature Fruit Garden*,” and the Pear stocks that I got both from him and from Mr. Pearson, of Chilwell, were a variety with very small leaves, not a quarter the size of those of the *Portugal Quince*.—**C. B., Oakham.**

AMERICAN APPLES IN SCOTLAND.

I AM glad to hear from Messrs. Dicksons that I have furnished information valuable to English fruit growers; but I must say that I am astonished at their statement in regard to the trial of American Apples in Scotland. I was certainly aware that the summers were “cold and sunless,” but from my own experience, as well as what I had learned in English periodicals and books for fifty years, I did not think them so bad as Messrs. Dicksons appear to picture them. I visited England and Scotland during the summer of 1844, from August to November, and the season was similar to our own—of course not quite so hot. It was, I was told, an exceptional year. There was scarcely any rain from the middle of August to October; in fact, the Grass was, in some places, literally dried up.

I did not see fields of Indian Corn, or acres covered with golden Pumpkins and yellow Squashes, nor Tomatoes or Cucumbers or Egg plants. But when at Chatsworth Sir Joseph Paxton urged me to help myself to the Gooseberries, which, as large as Plums, covered the bushes. I had a feed such as you cannot find in America. The *Jargonelle* Pears were so fine, that I planted two trees on my return home, and these were the only outdoor fruits I tasted in England during my visit. In Paris the only Pear I saw was the *Angleterre*, but I had an abundance of alpine Strawberries. As regards indoor fruits, Sir J. Paxton surfeited me with *Cannon Hall Muscats*, and Mr. McIntosh, of Dalkeith, with luscious Pines.

My next visit was in the spring of 1879, also, of course, an exceptional year, for when I awoke in London on the 26th of February the snow was falling as merrily as it ever does in Boston, and the ground was covered 2 inches deep; in fact, heaps of snow remained on the ground in some streets half the month of March; and Good Friday (April 25) was a colder day than ever I experienced in Boston at that late date. All the Cucumbers were blackened and dead, the *Rhododendrons* were badly injured, and I never knew a winter when the plants we grow looked half as bad as those that were grown around London did at that period. Yet Mr. Barron says, “The finest specimens of Pears at the conference came from Scotland!” How is this? A climate so cold and sunless, yet producing Pears equalling those from the favoured *Jersey Isles*. If Pears, so much more delicate than Apples, can be so well grown in the north, surely Messrs. Dicksons' grounds at Liberton must be a very unfavourable spot for trial of new fruits of any kind. This appears to me something like the Grape culture I recently spoke of, when a variety was condemned because cultivators expected impossibilities—good fruit from Vines whose roots were in mud or clay, and never ceased growing until brought to a stand by Jack Frost. If Pears can be grown in Scotland, as Mr. Barron testifies, I am as positive as I am of anything that every American Apple can be raised in good perfection in the same climate and same locality where the Pear succeeds.

Messrs. Dicksons' remark that the English Apples I named as having been grown by me did not strike one as a particularly happy selection for comparison with American varieties reminds me that I wrote from memory, but now I add a list of nearly all the kinds as they stand in the rows (600 feet long, 8 feet apart) from my guide book. One noted variety, the *Wormsley Pippin*, I thought ought to have three letters struck out and called the “Wormy” Pippin, for there was not one Apple on the tree last autumn that I could gather fit for exhibition, so filled were they with worm holes. Messrs. Dicksons close their interesting article by

a reiteration of the old story I referred to in my last paper (p. 54), which they remark seems to prove the correctness of Van Mons' theory. Mr. Knight's theory that all varieties wear out was just about as correct as that of Van Mons; notwithstanding the hundreds of seedling Pears received by Van Mons, there are not ten to-day that are considered of any great value in Europe or America. They were many of them surely a great improvement on the *Crassane*, *Martin Sec*, *Summer Bon Chrétien*, *Ambrette*, *Monsieur Jean*, *Lansac*, and 72 similar old sorts described by Forsyth as the Pears commonly propagated in England in the year 1800, but they were only the beginning of what was to come. The mistake of Van Mons was in not sowing seeds of the very finest Pears instead of the wildlings, thus securing in one generation what it took three or four to accomplish, and after all only in degree. The *Doyenné du Comice* and the *Beurré Superfin*, French Pears, and the *Dana's Hovey* and *Clapp's Favourite*, American varieties, superior to any Pears Van Mons raised, originated by sowing seeds of the finest Pears, abundantly prove the fallacy of Van Mons' theory, and the immense loss of time and vexation of a long life devoted to a noble purpose. The *Beurré Spence*, Dr. Van Mons told the late Mr. Braddick, was the finest Pear he ever raised; but after all it proved to be nothing but the *Fondante des Bois*, a wild seedling found in the woods, as its name indicates, and subsequently called the *Flemish Beauty*—and a beauty it is when well grown, for I have seen twelve specimens of it weighing 12 pounds, perfect pictures in richness of colour, and quite good enough for Van Mons to lay a claim to its being the best Pear he ever raised.

Messrs. Dicksons must have misunderstood me in stating “many of the French, Belgian, and German Pears attain the highest excellence in their respective countries; but though most of them have been tried by Mr. Hovey and doubtless by other American cultivators, they have evidently been found inferior in America to varieties which originated there.” I did not intend to convey any such impression; on the contrary, these same Pears are among the very finest cultivated in America, viz., *Williams' Bon Chrétien*, *Beurré Bosc*, *Urbaniste*, *Marie Louise*, *Louise Bonne of Jersey*, *Doyenné du Comice*, *Doyenné Boussoch*, *Beurré Hardy*, *Duchesse d'Angoulême*, *Winter Nelis*, *Le Tongres*, *Paradise of Autumn*, and some others. But the larger part of the immense number are inferior to the greater part of our American wildlings—that is, varieties found accidentally growing in gardens or fields of unknown origin.

The list of English Apples I have tried and which I referred to above is as follows:—

| | |
|-----------------------|-----------------------|
| Alfriston | Hornmead Pearmain |
| a Blenheim Orange | Pitmastin Russet |
| a Downton Pippin | a Ribston Pippin |
| a Downton Nonpareil | a Reinette du Canada |
| Early White Juneating | Red Juneating |
| Emp. Alexander | Rostocker |
| English Russet | a Sam Young |
| a Golden Drop | a Scarlet Pearmain |
| Golden Reinette | Sops of Wine |
| Kentish Pippin | Scarlet Golden Pippin |
| Kentish Fillbasket | a Sykehouse Russet |
| a King of Pippins | Sturmer Pippin |
| a Kerry Pippin | Winter Peach |
| Large English Codlin | a Wormsley Pippin |
| Dutch Codlin | and several more. |

The trees have been planted forty years, are only 8 feet apart, and have been severely pruned to keep them within bounds, and have borne very well, though not so well as if let alone. The past autumn I had a fair crop, but they were all so poor I could not sell them in the market, only as windfalls, for little or nothing. Alexander is a superb large Apple and good, but is too shy; Alfriston is large, but just about as hard as a rock and good to boil. As regards the selection as

not being "a particularly happy one" for comparison with our American Apples, I need only remark that with the *Pomological Magazine* before me I selected from the beautiful plates in that work such as are described as the finest Apples, because I thought Mr. Thompson ought to know. I have marked with an (a) these varieties.

C. M. HOVEY.

Boston, Mass.

INDOOR GARDEN.

ACHIMENES IN BASKETS.

Most people are more or less acquainted with Achimenes and their value in contributing to the embellishment of conservatories and other plant structures throughout the summer and autumn. Than these there are few plants more floriferous or attractive, and withal so easily managed. The most common method of culture is that of growing them in pots or shallow pans, and when thus treated they succeed admirably and prove invaluable for side stage, room, or even dinner-table decoration. Another purpose for which Achimenes are particularly well adapted is that of furnishing hanging baskets. If this were questioned, a mere glance at the annexed illustration ought to be sufficient to dispel all doubts. It was prepared from a photograph taken in Mr. Crowley's garden at Waddon House, Surrey, where the culture of Achimenes is carried out to perfection by Mr. King. Baskets furnished as here represented would prove an important feature in many plant houses, especially in those of large dimensions, where small specimens in pots or pans would not be capable of producing a similar effect.

THE SEASON FOR STARTING ACHIMENES will soon be at hand, especially if they are required to flower by the month of June. If the corms have been allowed to remain in the soil since last year, they should be shaken out early in March, being afterwards placed about 1 inch apart in shallow pans of light soil and stood where there is a temperature of from 60° to 65°. Here growth will soon commence, and until then water should only be sparingly given. It is important that the young shoots when they appear should not be allowed to become drawn; to avoid this they should be kept in a light position. When about 2 inches high the plants may be transferred to the pots, pans, or baskets in which they are intended to flower. Attention is here more especially directed to basket culture as being a method far more rarely adopted than either of the others. Baskets for Achimenes are best

made of galvanised wire; those about 18 inches across the top and 9 inches deep are very useful, but various other sizes are also procurable. In country districts it will not be difficult to find some nice fresh common Moss for the purpose of covering the inside of the basket and also holding the soil. Where this is unobtainable Sphagnum is the best substitute, but it does not hold together so well. The basket should be suspended, and in proceeding to fill it plants of about an even size should be selected and arranged so as to appear about evenly distributed when looked at from the outside. Fill up with soil as the work proceeds, and then insert plants over the top surface about 3 inches apart. Some of these latter may eventually be trained to hang over the sides and others to fill up the centre. Some cultivators only plant on the upper part of

may be used to regulate the upper plants so as to cause some to occupy the centre, and others to hang over. Thrips and red spider are very destructive to the leaves; if once a footing is secured it is very difficult to effect an eradication. An important provision against their attacks is to avoid, if possible, placing the Achimenes anywhere near other plants likely to be infected with the insects referred to, and keep the syringing regularly practised when all the leaves are in a young stage of development. Like other Gesneraceous plants in general, Achimenes succeed best in a rather light compost, and one in which plenty of leaf mould is intermixed. A little well-rotted manure in addition is also recommended. If loam is used, it should be turfy and torn up by hand; peat should be similarly treated. The proportion of either peat or loam

seems to matter but little, as equally good results, with proper attention, may be secured from the use of either ingredient. Plenty of water is requisite from the time growth is established until it begins to decline. J. G. K.

Freesias.—With reference to the management of these, I find that they grow strongest and best when not rested too long. They should be rested in the soil in which they were grown, and after the foliage is quite dead they only require about six weeks' rest. At the end of that time the soil should be watered, when they will soon begin to start into growth. They should then be immediately re-potted. I find that we made a mistake in dealing with our small roots last year. Having a good number of small ones, they were placed rather thickly in a seed pan. We can see now that if we had filled three pans instead of one we should have had a considerably larger number of flowers and larger roots at the end of the growing season than we now have; every little bit appears to have grown, for the pan is crammed full of growths; and what surprises me most is the fact that there is a lot of flowers upon them. I certainly thought the

roots were too small to flower this year. Anyone having a good supply of bulbs (say, about five dozen) may make a grand specimen pan of them.—J. C. C.

Epacris.—I quite agree with the remarks (p. 88) respecting these lovely flowering plants. The main desire of many who grow flowers is to get hold of things which require forcing into bloom in winter, and, as is often the case where the forcing appliances are not of the best order, the results are not more than half what they ought to be; but if attention was only directed to plants such as Epacris, which blossom freely without any forcing, every one concerned would feel better satisfied. Three years ago we purchased a number of young Epacris. This was in the autumn, and they had shoots from 6 inches to 18 inches in length, according to the strength of the varieties. They began flowering the same November, and bloomed very freely throughout the greater part of the winter. The following summer they were placed in a cold frame, and, after making many



Hanging basket of Achimenes.

baskets, and trust to covering that beneath by the training and tying of shoots, yet a basket is seldom so well or so quickly furnished as when some assistance is afforded from the lower part as well. When completed, the baskets should be suspended near the glass in a house kept at about 60° or 65°.

AS THE FLOWERING PERIOD arrives a more airy and cooler structure will suffice, and eventually the conservatory or greenhouse will be sufficiently warm. Achimenes, if in good health, last in excellent condition for weeks provided they are kept watered and in a suitable situation regarding shade and the amount of air admitted. They will not withstand strong sunshine nor cross currents of air. Syringings with clear water, equally as warm as the air of the house, is of material benefit in the afternoons until the flowering season begins. A few slender stakes

flowering shoots in the shade, they were exposed to the sun to mature. They flowered without any trouble the succeeding winter, and the same plants are in bloom now, and have been so since November, although they are standing in a cool house to which we have no means of applying artificial heat. I do not know of any other plant which would bloom so freely in such a low temperature and remain so long fresh in such a moist atmosphere. Some old Pelargoniums placed in the same structure for winter have lost the greater part of their foliage through damp, but the *Epacris* flowers have remained as fresh as possible. They cannot be too strongly recommended to all who desire to have quantities of lovely flowers during the dull months, and yet have no means of forcing plants into bloom. *Epacris* dislikes fire heat at all times; the conditions under which they succeed best are a cool atmosphere, a sweet mixture of sand and peat in which to make roots, and not too much root room.—J. MUIR, *Margam*.

Lapagerias in pots and planted out.—I would like to know how long Mr. Muir has cultivated the same *Lapagerias* in pots, which he says are best (p. 141). He will probably alter his opinion in time. I imagine all the extensive growers will cast their votes for planting out. This plant makes such an enormous quantity of great fleshy roots, in proportion to its top, that they fill a large pot in no time, fit to burst it, and when this happens growth comes to a standstill. One of our plants covers a trellis 32 feet wide, and it made most of its growth in two years after being taken out of a tub. When pots or tubs are used, they should be deep and as wide at the bottom as at the top.—S. W.

Lily of the Valley.—Notwithstanding what "T. B." has said (p. 163), I still assert, without fear of disproof, that the tendency of this plant, foreign or home-grown, is to rush into leaf, at the expense of the flower, when subjected to a too high temperature, unless the crowns are buried. It was plants grown in the light I spoke of in my former note. In the process "T. B." speaks of—putting the roots in a temperature of 80° or 90°—the artificial burying plan is adopted for the very reason that leaves would push too soon, but he takes care to suppress that fact. A Lily of the Valley forced in such a high temperature in the light runs to leaf, and so do Hyacinths, Tulips, Daffodils, and other plants of the same kind.—S. W.

—"T. B.'s" remarks on Valley Lilies (p. 163) recall to my mind my experience of a small batch of them which I found here about four years ago, and which, for some reason or other, did not come away when first required. The pots containing the crowns were laid by on their sides in the shade during the summer months, and by the end of September had shown no signs of growth. I had the old soil shaken from them, and had them potted in the usual way and plunged in a hotbed specially prepared for them, with the result that by the beginning of November I had some lovely pots of Valley Lilies, showing both flower-spikes and ample foliage. The fact that these crowns did not bloom at the proper time, and when after a lengthened period of rest flowered at an unusually early season, may teach a lesson which may be of some value to those who force this Lily to bloom early in the season.—M. GLEESON, *Clumber*.

Himantophyllum, Imantophyllum, Ima-
tophyllum.—In nurserymen's catalogues and in the horticultural press the name of the beautiful warm greenhouse or cool stove plants which head this note is variously written as above, most generally in the manner occupying the middle place, sometimes in the third way, and most rarely in the manner standing first on the list; and yet, if the derivation of the name is carefully noted, there can, I think, be no doubt that the first is the correct name, and that both the others are incorrect. The name is derived from two Greek words, *imas* (himas), a strap, and *φυλλον* (phyllon), a leaf, from its strap-like foliage. The genitive case of the first derivative name is *ιμαντος* (himantos); therefore, the name can only be correctly written when it is spelt *Himantophyllum*.—W. E. GUMBLETON.

Chrysanthemum Boule de Neige.—This promises to make one of the most valuable of late-flowering *Chrysanthemums*. It is naturally late, and

the flowers are of the purest white, borne in clusters of threes and fours. At the December meeting of the Royal Horticultural Society, Mr. R. Owen, of Maidenhead, exhibited a basketful of it, and was awarded a first-class certificate. It would appear to belong to the reflex flowered section of the large flowering type, though by some thought to be a hybrid Pompon. As to its origin, it appears that it was originally distributed by M. Lemoine, of Nancy, to whom English plant-growers are indebted for many novelties. It appears to possess one good characteristic, that of standing well when in bloom. It may not make an exhibition variety, but it will be ten times more valuable for decorative and cutting purposes. It is certain that some of the very best and most useful *Chrysanthemums* bear late flowers.—R. D.

Acalypha marginata.—Among coloured-leaved plants this occupies a prominent position. Its broad, bronzy looking, serrated leaves give it a very distinct character. It is useful in a small state for many purposes. Little plants of it can be grown in 5-inch pots from cuttings in one season, and cuttings of the points of the shoots strike freely now in bottom heat in sandy peat and loam. It is rather subject to the attacks of thrips, the leaves being large and smooth, affording a fine field for their depredations, but they are easily kept down by sponging or fumigation. The *Acalyphas* are classed with stove plants, but this species may be grown in a cool stove or intermediate house.—E. HOBDAV.

KITCHEN GARDEN.

ONIONS AND PARSLEY GROWN TOGETHER.

MUCH is said, and deservedly, against large over-grown vegetables, but so far as regards their edible properties, for most purposes this does not apply to Onions, which, like their near relative the Leek, are best when least strong or acrid in flavour, a property which may be much reduced if grown large in rich soil. That Onions like manure is known to everyone who has had to do with kitchen garden work, but the amount of strong stimulants they will bear, with accompanying increase in size and improvement in quality, would scarcely be credited by those who have only tried ordinary manuring for them. Similarly to most bulbs, they push their roots deep down where there is depth enough of soil to admit of deep cultivation. Their partiality for heavy soil is well known, and in such the size the bulbs attain and the weight of the crop collectively is much greater than can be grown on light land. The finest spring-sown Onions I ever had were grown on strong yellow loam, like clay in appearance; it had been a long time used for growing vegetables, and had been cultivated to about 2 feet in depth. In the autumn previous it was trenched deeper so as to bring up 6 inches of new soil; a heavy dressing of fresh stable manure was applied, mixing it well with the soil right down to the bottom; 2 inches of night soil was laid on the top and left to remain until February, when it had become well mellowed; it was then forked in, mixing it well with the soil to the depth of 10 inches or 12 inches. Before sowing, 2 inches of soot and some salt were forked in; the seed, White Spanish and Brown Globe, was sown in rows the last week in the month; the ground, which was in dry, workable condition, was made as solid as treading and rolling could make it. The plants were thinned to 8 inches or 9 inches apart in the rows; many of the White Spanish measured from 15 inches to 16 inches round. When they attain this size they are as mild as the Portugal Onions that are imported in such quantities, and that are so much in favour with the cooks, many of whom object to ordinary sized home-grown Onions on account of their strong flavour. Few root crops will yield as much weight from a given area as Onions when

well grown on land that suits them; but when treated as above described, the produce in weight is not equal to that which is obtainable when less room is given them, and the bulbs are proportionately smaller. Sown broadcast in beds of about 5 feet across, with narrow alleys between to admit of weeding and thinning, is the system that gives the greatest weight of produce; but against this must be set the increase of labour by all the weeding having to be done by hand in place of the hoe, which cultivation in rows admits of being used. In beds of this description I have had a greater weight of Onions than I ever saw of Potatoes from a like space, even where the land was of a nature well adapted for Potatoes. It is needless to say that where heavy manuring, such as has just been described, is practised, none will be wanted for the two succeeding seasons. I usually grow a crop of Cabbage or Cauliflower the season after the Onions, with Peas the year following. Those who grow spring-sown Onions for exhibition in addition to those they sow in the open ground make a sowing under glass either in boxes or in small pots, afterwards planting them out; by this plan the plants get a start in advance of those sown where they are to remain, yet there is not often much gained in size; but Onions that are planted are generally rounder in the bottom, a matter of importance when they are required for showing, as, if at all hollow at the base, it tells against them in the competition. There is not very much to be said in favour of double cropping in the kitchen garden, except in the case of a few things, for it usually happens that it becomes necessary to make a compromise by each of the things associated in growth having to go without something or other that they require. But there are a few vegetables that can be grown together without injury to each other, and amongst these are Onions and Parsley.

Those who have had to provide the continuous supply of Parsley required to meet the demand in a large family need not be told that there are times when Parsley in right condition is not over plentiful, especially after a hard winter, and in the time that intervenes between much of the last year's sowing running to seed and the new coming in. In the case of most vegetables that are intended to stand through the winter it is found that the bigger they are the more susceptible are they of injury from frost, but I never found this so with Parsley; on the contrary, weak roots often have all the little top they possess so far disfigured in a hard winter that nothing usable remains, and when the roots are small and poor they take much longer in spring to produce anything worth naming; whereas large strong crowns have a lot of half developed leaves that generally survive a trying frost, and when mild weather comes they are not long in pushing more.

For the winter supply I for a long time always depended upon roots in frames that had been grown amongst the spring-sown Onions, from which source, if means have been taken such as have just been described to secure fine Onions, a plentiful supply of Parsley may be relied on in the best condition, which latter is worth taking into account, for there is a wide difference between the appearance presented by strong, well curled leaves and plain puny ones. Even when the strain is good, cultivation has much to do with the appearance of the plant. When the Onions were sown a few Parsley seeds were dropped in patches at from 2 feet to 3 feet apart in every other row; when up and large enough to handle, not waiting until the plants had become weak and drawn, they must be thinned out to two or three in a place, afterwards, when they have got large enough to be safe, reducing them to a single

plant. No great progress will be made until the tops of the Onions begin to go down, or are laid down, which, needless to say where they are grown as strong as described, is usually practised; then the rich ground, combined with unlimited room for both roots and tops, sets the plants growing at a rate that enables them to attain strength and size such as not possible with ordinary treatment; in good land they will reach 18 inches across. Before the autumn is too far advanced, such as required for filling frames should be taken up with good balls and placed in their quarters, the remainder being similarly moved to a place where some protection can be given when the weather is such as to require it. Each plant grown in the way described will yield as much as a dozen ordinary poorly grown examples, besides which the character of the produce will be as much superior as anything in its way well could be.

TO KEEP UP A CONTINUOUS supply it is necessary at the time the seed is sown amongst the Onions to sow a little by itself. Good rich ground, to which a dressing of soot has been applied, should be chosen in an open place, sowing the seed in patches about 1 foot or 15 inches apart. As soon as the plants are large enough thin them out, leaving about a couple to each patch; these will give a supply to follow the crop sown the previous summer. Another sowing should be made in summer in ground similarly prepared to that advised for the first crop, again sowing in patches at about the same distance apart each way, thinning the plants out as in the case of those grown with the Onions; the crop will not run to seed so soon in the following spring as the early sown. With this kind of treatment little inconvenience will be experienced through canker at the roots, so often troublesome when Parsley is sown thickly in rows and allowed to remain unthinned until the plants are starved for want of room and sufficient sustenance. T. B.

Forcing Seakale.—A friend who is rather a good judge of garden produce on the table does not approve of digging up Seakale roots and forcing them on manure and other warm beds; he declares such treatment spoils the flavour of the Kale; the nearest approach to naturally grown material which he has been able to get has been obtained as follows: The roots are in rows about 3 feet apart, and the soil between the rows at this season is unoccupied. In dealing with the forcing, the soil to the width of 2 feet in the centre of the space between the rows is dug up and placed in a ridge over the crowns. When this is finished, the part over the crowns resembles a Celery ridge and between is the trench. This trench is filled up with fermenting material to the level of the crown of the ridge. The heat thus obtained acts on the roots, while the growths have to push up through the superincumbent soil and are thereby blanched. They grow robust and compact, and, apart from their flavour, I think this is the cheapest way of forcing Seakale with which I am acquainted.—J. MUIR, *Maryam*.

Chou de Burghley.—It may be remembered that I lately referred to the value of Chou de Burghley as a market vegetable in such a summer as that through which we have just passed, because I found that in spite of the drought it did well. "W. I. M." has now brought the subject of our difference back to the starting-point, because he refers to its fitness for market culture in contrast to early Broccoli. Now, the Chou de Burghley is not a Broccoli in the autumn and early winter, but a Cabbage. I have never entertained a high opinion of it as a Broccoli, but as a Cabbage it is delicious, white-hearted, and fairly solid. As to Snow's Winter White Broccoli being largely grown in my district, I must say that is news to me. So far from that being the case, comparatively little Broccoli seems to be grown in Middlesex, not only because it

is too long on the ground to suit quick cropping and impatient market growers, but also because it is far too unreliable for extensive culture owing to its liability to suffer when severe frost prevails. Even if it were reliable, it would come in at a time when the London markets are flooded with Broccoli from Cornwall and the Scilly Islands. My first reference to Chou de Burghley arose from the exceeding scarcity of green material of any kind round London, arising from the drought of last summer. Scores of acres of plants were put out and not one lived. Hundreds of acres of plants that did live attained no size, and these results only where the water-cart was employed at great expense and no other. Not only is there little or no Broccoli of any kind near London, but white Turnips are also very scarce. Therefore any kind of green material, no matter how moderate in quality or growth, is found to be most valuable.—A. D.

THE BEST VEGETABLES.

CAULIFLOWERS.—Snowball, or one of the sorts such as Early Forcing, First Crop, Best of All, which very closely resemble it, is the best for frames and handlights, Erfurt Mammoth being a good succession. Pearl, for summer and early autumn use, and the well-known Veitch's Autumn Giant completes our list.

CARROTS.—Nantes Horn is the most profitable sort for frames, early borders, and late sowing; in fact, I believe on good Carrot ground the supply could be maintained solely with this useful variety. The cooks prefer it to all others we have sent in. James' Intermediate, if a good strain is obtained, is of good form and colour, keeping well, Long Red Surrey also being a good late variety.

CELERY.—Sutton's White Gem is one of the best white sorts in cultivation, and is equalled only by extra good selections of Sandringham Dwarf White. The new White Plume will never become popular, as very few people can afford to grow a sort specially for soups, and for which only it is fit. It may do for the Americans, but will not find favour with anyone used to such crisp and sweet Celery as can be produced in this country. Williams' Matchless again gave us great satisfaction, and I am of opinion that it is very distinct from Leicester Red. It grows much taller, and it is found one of the best for the markets and for exhibition. Major Clarke's Solid Red closely resembles Leicester Red, and one of these two synonyms ought to be cultivated in every garden, as with ordinarily good culture the produce is remarkably solid and crisp. Carter's Incomparable, we find, keeps exceptionally well, and our latest supplies are of this sort.

CUCUMBERS AND MELONS.—There are plenty of these to choose from, but why numerous comparatively worthless sorts are still included in the catalogues is a mystery. Cardiff Castle, a rather short-fruited Cucumber, is very prolific and robust, remaining longer in good health than do the majority; while for a "short and sweet" supply, Telegraph is the favourite. Growers about Bath have a good stock of the latter, and their houses of seed-producing plants, when I saw them, very much resembled some of those remarkable illustrations to be seen in many catalogues. Carter's Model has long been a favourite with me, and is good alike for all purposes. Purley Park appears to be a good form of Telegraph, and as such is worthy of a trial. Blenheim Orange is the best scarlet-fleshed Melon, and Hero of Lockinge is a good green-fleshed companion. Burghley Pet is a pretty and very useful green-fleshed sort, being of a size to suit many places where large Melons are not cared for. Having had frequent opportunities of observing the habit of Longleat Perfection as well as tasting the fruit, I should say

this valuable novelty will find favour among lovers of good Melons, as well as those who grow for exhibition. It is not a showy sort and the flesh is nearer white than green in colour.

ONIONS.—These would appear to be much taken in hand by our vegetable "improvers," but according to my experience not much advance has been made after all. One catalogue describes Banbury Improved as being the finest type of Reading Onion, but if we substitute fine for finest and White Spanish for Reading, a fairly correct description will thus be given of Improved Banbury; Improved Reading, Sandy Prize, Rousham Park, Walker's Exhibition, Nuneham Park, Webb's Improved Banbury, and Pinesfield Improved. Under ordinary treatment it would be a difficult matter to separate them, even from the ordinary White Spanish; but when any one or more of them are taken in hand by exhibitors they attain almost unrecognisable dimensions, hence the so-called improvement. We are satisfied with any one of the above, while for later supplies we grow Giant Zittau, a very profitable sort, and Brown Globe. The Wroxton, recently distributed, proves to be an old acquaintance of mine, and about this undoubtedly valuable and distinct late-keeping sort I could a "tale unfold." Unless I am very much mistaken, it was exhibited at several shows in Kent long before it reached Wroxton, and it was then unnamed. The Silver-skinned Queen is a quick growing sort of mild flavour, and may be sown either in the autumn or spring. White Naples is also early, handsome, and good; while Mammoth White and Giant Rocca are other good sorts for autumn sowing.

POTATOES.—For supplying the table we now depend solely upon the old Ashleaf, Veitch's Improved Ashleaf or Mona's Prize, Scotch Champion and Magnum Bonum. Each of these succeed well with us, and the quality throughout is of the best. It does not follow that I consider all other sorts of inferior value; on the contrary, I could name another dozen good old and new sorts, but we cultivate as few varieties as possible by order of our employers, who when they are being supplied by a really good vegetable of any kind do not like a sudden change. So much always depends upon the cooking, and the fewer varieties there are sent to the kitchen the fewer mistakes are made.

TOMATOES.—For house cultivation we prefer Carter's Perfection, and this has been tried against several American and English raised novelties. It is a good cropper, the fruits very handsome, and of the best quality. Hackwood Park Prolific somewhat resembles it, but does not ripen off evenly, nor is it of so good quality. Of the smaller-fruited sorts, Chiswick Red and King Humbert are as good as any. For profit, a good selection of Large Red will give every satisfaction, and in all probability this and Hathaway's Excelsior are the two sorts most extensively grown for the markets. Dedham Favourite succeeds well under glass, and still better in the open, Large Red being a good companion.

VARIOUS.—Parsnip The Student never fails to do well here, and is of good quality. Radish Wood's Early Frame is the most profitable early sort for frames and warm borders, the forcing Turnip varieties and French Breakfast being also very useful. The ordinary Turnip varieties are the best for the summer, and Long Scarlet Short-top for the late supplies. Savoys—Webb's Little Wonder and Tom Thumb are good early sorts, and Gilbert's Universal closely succeeded them, and proved of excellent quality. Early Elm, Dwarf Curled, and Drumhead are always useful in the order named. Spinach—Victoria is certainly much superior to the ordinary round-seeded

sort, the leaves being larger and more succulent, and the plant does not bolt so quickly. Either the round or prickly-seeded sorts are suitable for the winter supplies, and a very good substitute for these, more especially during the early part of the winter and in the spring, is the Spinach Beet. Endives—Moss-curved, Green-curved, and Improved Batavian are of good service in the order named. Lettuces—Early Paris Market, All the Year Round Cabbage varieties, Superb White Cos, and the Black-seeded Bath Cos, of which growers of Lettuces about Bath hold a good selection, are good enough for anything. Vegetable Marrow Pen-y-byd is a very prolific and good sort, and so also is Long White.

Somerset.

W. IGGULDEN.

ONION CULTURE.

THE Onion crop is generally regarded as one of the most important in the garden. In order to have a good supply of Onions all through the summer and during next winter the sowing must be effected now. Onions require a long season's growth, and never do well unless got in before the middle of March. To look at them on the surface of the ground one would scarcely think that they are deep-rooting plants, and yet there are few, if any, that stand such a short time that go so far down, which being so, it is very important to trench for them, or to sow on land that has been well broken up. Not only do Onions dive deeply, but they are gross feeders, and therefore in trenching a good dressing of rotten manure should be worked in, and in doing this it is always advisable to keep it low down, so as not to come into immediate contact with the bulbs and cause them to rot, which it is apt to do when we get a wet autumn.

In some soils maggot is very troublesome, and in such cases the best thing that can be done is to give a heavy dressing of soot and lime before digging the ground, as this mixture will not only kill any grubs that may be in it, but the soot is one of the finest fertilisers that can be used, and is specially valuable for Onions either now or when they come up. Although Onions require deep rich land, the top should be made very firm by treading, as when the surface is loose they do not bulb so well, but come with large necks, more after the manner of Leeks, and then it is only by bending the tops over that the lower part can be made to swell out at all. Not only must the soil be rendered quite firm, but it is necessary to have it both smooth and level, in which state it may be got by the use of a wide wooden rake to take off the stones and break up the clods, and thus leave the surface fine, when all will be ready for sowing the seed. The distance at which the drills should be drawn is about 10 inches apart, which will give room for hoeing between, and thus save much labour in hand-weeding, as the cleaning must be done in that way unless the rows are a good way between. As to the depth of the drills, they ought not to be more than half an inch, and the seed should be distributed regularly along the bottom by taking a pinch between the finger and thumb, and so dropping it gradually till the whole is in, when it may be covered by drawing the soil over it with the back of a rake. As soon as the Onions are up and large enough to handle it will be time to thin them, and the earlier that operation is carried out the better, for if it is left, the young plants get such a hold of the ground, that they cannot be drawn without seriously disturbing and injuring the others that have to remain for a crop. The proper distance to leave them in the rows is about 6 inches, and after the thinning is done it is a good plan to run the hoe lightly over the ground just to stir and break the crust and destroy any small weeds that may be showing themselves on the surface. Beyond keeping clean by repeating this operation occasionally, nothing more, except, perhaps, a soaking with liquid manure, will be required till the harvesting, the first preliminary to which, the pulling of the Onions, may take place as soon as the bulbs are ripe; and notice of this is given by the withering of the tops and the roots dying and leaving their hold, when the bulbs should at once be drawn and laid out

thinly to dry. After a week's exposure to sun and air they will be ready for storing and should be strung up in ropes or bunches and hung in some dry open shed, as the cooler they are kept the better, and frost does not hurt them.

As to sorts, there are many, the most useful for sowing at this time of year, being the Reading or White Spanish, the Brown Globe and James's Keeping, the last-named being the only one that will last sound late in spring. For pickling there are none equal to the Silver-skin, which is a pretty-shaped Onion that forms small bulbs, if sown on poor ground, that should not be dug, but kept as hard as can be on the surface. For sowing in August to stand the winter and come in early in spring the Queen is the best, as it bulbs quickly and is ready for use before the others are over. To succeed it the Giant Tripoli is the finest, and this, as its name implies, grows to a large size, and is very mild and good in flavour. S. D.

PEA STATISTICS.

I HAVE often thought that it would be a boon to all if Peas could be reduced to a convenient number of varieties, each of which should have some special feature peculiar to itself. If this were so, the whole could be divided into well defined classes or sections. It is evident from the number of blue wrinkled varieties now in commerce that they stand their ground better, or are in greater demand than any other section. We made a careful trial last year of 110 varieties, or at least names, including all new sorts that could be obtained and all the old varieties that we considered of any importance. Of the above number there were 60 blue wrinkled varieties, 19 white wrinkled, 8 blue round, 9 white round, 10 blue oval or indented, and 4 white oval or indented. Some included in the above blue sections are very pale blue, others are greenish blue, and some included in the white sections are pinky white, and others creamy white. These trial Peas were sown on March 18. The first blossom of the earliest opened on May 26, and the first blossom of the latest on June 24. From June 6 to 13, that is, in eight days, 65 varieties opened their first blossoms; of these 15 opened on the 12th. The true test, however, is to find when the pods are fit to gather, some varieties being longer than others between blossoming and podding fit for use. This we carefully noted, and found that the earliest pod was fit to gather on June 18, and the first pod of the latest variety on July 10. In order to show what a great number of varieties come into use at the same time, I may mention that 26 were fit to gather on June 29 and 30, and 29 on July 6, 7, and 8. Amongst the 110 varieties there are some of all heights, from 9 inches to 6 feet and more. There were 50 varieties from 2 feet to 3 feet, and 14 6 feet and upwards. None of the varieties had any protection beyond that afforded by stakes during the summer. The shades of colour found among the growing plants and pods we named respectively pale green, green, dark green, and very dark green. Beginning with pale green, the numbers were 14, 39, 47, and 10. As to flavour, we did not dine off each variety separately, but we are satisfied that wrinkled varieties stand first, and colour also being a consideration, blue wrinkled are preferable to white.

It will thus be seen what numbers of varieties now in commerce might be swept away, and with benefit to all parties. Consumers cannot even yet know anything of the best varieties, or they would not continue to grow almost tasteless and colourless sorts when kinds delicious in flavour and beautiful in colour could be had in equal quantity and at the same time. We know that during the last twenty years much has been done to improve garden Peas, and yet there is room for further improvement. It would, however, be a great advantage if those who raise new varieties would wait to get their characters well fixed before sending them out to the public. Repeated trials prove to us that many of the varieties sent out are no improvement on existing sorts, and even those that are improvements are so mixed and uncertain in character that selection has to be made yearly for many seasons before a truly distinct variety can be secured.

Some appear to be afraid that size will be thought

more of than any other property. But why, let me ask, should not size be considered an important feature? Ask those who gather and shell Peas if size is not of importance, other good qualities being also present. We want in a Pea pleasant and nutritious sweetness, a good pea-green colour, productiveness, habit adapted to circumstances, and, in addition to these properties, size. How can Peas be too large if we have other good qualities in proportion? The qualities just named can be found variously combined in many of the leading main crop Peas. The greatest difficulty is to get them in the very early and very late kinds. R. G.

GARDEN FLORA.

PLATE 533.

THE HELENIUMS.*

HELENIUM was the Greek name of a plant which, according to Pliny, the Roman naturalist, was fabled to have sprung from the tears of Helen, shed, I suppose, in remorse for having caused the Trojan war. As evidence of this, Pliny says that the plant is found in Helen's Isle, situated near Cape Colonna, in Greece, a place connected with the legend of Helen's return home. Whatever the Greek plant Helenium may have been—and we have no clue by which we can discover this—it certainly did not belong to the genus to which Linnæus adapted the name, for the members of that are all natives of North America.

The botanical characters which distinguish Helenium from other closely allied yellow composites are not very obvious, because out of the few species cultivated in English gardens there are two which seem widely different from one another. Most of them have narrow entire leaves, with their winged stalks decurrent; that is, running down the long stem and adhering to it, making what is called a winged stem. Asa Gray enumerates twenty species, of which nine are annual. I have raised several of these from seed brought to me from North America, but I did not find them worth a place in the garden. Judging from my experience and from the descriptions I have read, I cannot recommend for cultivation as ornamental plants more than three species, and even these, amongst the vast number of yellow composites now cultivated, will not command universal admiration.

H. AUTUMNALE.—This is probably the most variable species, the flower-stalks ranging in



Helenium autumnale.

height from 18 inches to 6 feet, and the colour of the flowers from pale green-yellow to rich gold. It is often sold in nurseries under different names, some of them absurdly wrong. After trying many forms, I retain only two, which I call

* Drawn in the Hale Farm Nursery, Tottenham, in August



GAILLARDIA AUSTRALIS, FLORENTINA

VAR. GRANDIFLORUM, a large-flowered variety, which continues in flower from July quite into the frosts of November, and growing 5 feet or 6 feet high. In shape the flowers are exactly like those in the coloured illustration, but the size is larger, and the disc or button is glossy brown.

VAR. PUMILUM, of which the coloured illustration is an excellent likeness, is in my garden the most useful of its tribe. It grows at most 2 feet high, produces a dense mass of flowers in June, and continues to flower for three months. It increases very rapidly, and should be transplanted and divided every two or three years. It likes the moist soil and a sunny aspect, but it is not over-particular. It sends out long roots near the surface, from which tufts of leaves spring after the manner of *Anemone japonica*, making new plants, but it is more easily kept in bounds than that plant. I find these offshoots liable to sport into forms having linear rays, which are sometimes green. These plants should at once be destroyed, as they do not grow out of their bad bit. I shall be glad to learn that there are other *Heleniums* worth cultivating, but if there are I have not seen them.

H. BOLANDERI.—I first raised this from seed sent out as *H. grandiflorum*, under which



Helenium Bolanderi.

name it continues to be grown in some gardens. It begins to flower about the end of June, the flowers being solitary, 3 inches across, on stalks about a foot or 18 inches high. The rays are broader and larger than in any other of the genus and bright rich yellow, and the disc is dark brown, nearly black. This, too, is a native of California, and finds England, especially my garden, rather too cold for it, the flowers often presenting a ragged and starved appearance, but it has the qualities of a good garden plant.

H. HOOPESII, called after Hoopes, its discoverer, is a strong grower, rapidly forming a dense mass of crowns, but in my wet and cold soil it is a very shy flowerer. It flowers in June, making a stout stem 3 feet high, branching into an umbel of four or five flowers. The colour of disc and rays is uniform bright orange; the flowers, when any can be got, are gay and showy, more than 3 inches across; the rays narrow and deflexed. I suspect it flowers better in the warmer and drier climate of the south of England than with me, as it is a native of the hot south-western parts of the United States. Where it flowers

freely it is a very good plant—I think the best of the genus.

C. WOLLEY DOD.
Edge Hall, Malpas.

NOTES.

"In my garden I spend my days; in my library I spend my nights. My interests are divided between my Geraniums and my books. With the flower I am in the present; with the book I am in the past. I go into my library, and all history unrolls before me. I breathe the morning air of the world while the scent of Eden's Roses yet lingered in it." (Alexander Smith, 1830 to 1867.)

I do not remember to have met with a passage from any author which better illustrates the happy union desirable between beautiful thoughts and beautiful flowers. All great men, from Herodotus to Ruskin, have obtained inspiration from the wayside blossoms, from the Lily, the Rose, the Daisy, or the Moss and Lichen of rock or tree. This, after all, is the true use of flowers, not merely to please our eyes, but to feed our hearts. Good books, good music, good pictures, alike make better men and women of us; but this is infinitely more truly the function of living flowers.

NARCISSUS TRIANDRUS.—In pots, in a cool, but sunny, greenhouse, several forms of this delicate little plant are now in bloom. The largest form is white, with the cup nearly as long as the perianth segments. This came from Rev. Wolley Dod, and was collected near Oporto. Mr. Octavius Corder, of Norwich, very kindly gave me a share of his collections made on the Gerez and elsewhere, near Oporto, in May last, and among these *N. triandrus pulchellus* is now blooming. It is easily recognised as being the only *Narcissus* known to me in which the cup is of a lighter colour than that of the perianth segments. The wild bulbs are one or two-leaved, and often solitary-flowered, but when well established on warm dry soils, it grows much more luxuriantly. At Parker's nursery at Tooting, years ago, it used to grow most vigorously, its great, stout Rush-like scapes bearing from three to nine flowers. It is not quite safe to trust these dainty flower roots out in the ordinary borders. Grown in pots in a sunny cold frame, they increase in beauty year after year. Even in Holland I saw them so grown, and very beautiful they were, and Messrs. de Graaff tell me they have now many seedlings showing flower in their grounds at dear old Leyden.

JAPANESE BAMBOOS.—Scarcely any other evergreen plants are more distinct and graceful at this season than are these most elegant Bamboos, which, so far, have passed our winter unscathed. When strong and well established, their slender leafy wands give a character to outdoor vegetation quite different from aught else I know. The really hardy kinds are *B. Metake*, *B. Mazelli*, *B. Ragamowski*, and *Arundinaria bambuseoides*; but even *A. Falconeri* is not much injured outside, although, by reason of its semi-deciduous habit, it is now much less effective than are the other kinds named.

I have often thought a good, bold bed of *B. Mazelli* and *B. Metake*, in some sunny but sheltered nook on the lawn, would be just the place for *Lilium auratum*. Travellers tell us that in Japan this fine Lily is wild on the margins of woods, and that it grows up among dwarf Bamboos. Why not grow it in company with Bamboos here at home? In leafage and habit this arrangement would be a most harmonious and beautiful

one. Perhaps someone has already tried it and will tell us of the result. Our best Japan Lilies last year were a few planted amongst Brake Ferns on a sheltered border.

THE GRASS ORCHID.—"Do you know the beautiful little Grass Orchid?" said a visitor the other day. "No," I replied, "not under that name at least; what is it like?" "Oh! it has grassy leaves and elegant spikes of white flowers like a head of Rye-grass, and it smells just like Vanilla." Of course there was no misunderstanding that—*Dendrochilum glumaceum* was the plant intended, and so it proved. It is one of the most fragrant and exquisitely lovely of all the warm-house Orchids now in flower, and is so distinct from other Orchids in general, that a plant or two should be grown in all good gardens where there is a warm plant-house or stove. It grows well in fibrous peat and Sphagnum Moss in a shallow suspension pan, and enjoys a warm temperature, light, and abundance of water when growing. For cutting, or pulling rather, its filigree-like spikes are very useful. Another species, *D. filiforme*, has pendent spikes of delicate pea-green flowers, but is not so fragrant as the above. It has been called the Fairy Orchid, and just at the moment I do not remember a better claimant for such a pretty name. Both are natives of the woods and forests of the Malayan Archipelago.

HOLLY BERRIES AND BIRDS.—So far as I can learn, not even "the oldest inhabitant" can remember a time when the fruit of the Holly trees was more abundant than they are now. I say "now" because singularly enough the birds have for once condescended to leave our Holly fruit almost undisturbed. Why is this? During seasons that have been milder generally than the past winter I have seen the missel thrushes and fieldfares suddenly swoop down from the hills, and in a few hours some of our finest Hollies were berryless—cleared as if by magic. This year scarcely a berry has been touched, and so on sunny mornings the bushes are agleam with scarlet, orange, and yellow, with crimson fruitage and fruitage of gold. The yellow and orange fruited kinds have this season been more lovely than usual, but, as I have said all, even the great sugary fruits of the broad-leaved Hodgin's variety, have been ignored. Can it be that now and then a panic seizes the birds just as it seized our people during the Corn Law days? Does some discontented agitator amongst the birds excite them to raids on the fruit in our gardens? In a word, is it pure mischief, is it fun, a sort of "surprise party," or is there some other cause? Certain it is, that with a good deal more than an average amount of frost and snow our Holly fruit is untouched as it never was before—at least so far as we can remember.

GALANTHUS VIRESCENS.—Mr. Allen (p. 162) says I am in error as to the colouring of this little Snowdrop, which he describes as having the "outer segments green, tipped and edged with white." I do not profess infallibility, and will at once confess my error if I am really wrong. All I can now say is that Mr. Short sent me a flower or two of a variety bearing this name from Mr. Loder's collection at Floore, and it certainly had the outer segments white and the inner ones green, as figured at the time, or soon afterwards, in these "notes" (see GARDEN, Vol. XXV., p. 371), so it seems possible that there are two forms of *G. virescens*. It would be very interesting to know if Max Leichtlin and Mr. Loder both obtained their stock from the Harpur Crewe collection, or if from different sources of supply. I do not agree with Mr. Allen's estimate of *G. Melvillei*, which the raiser sent me years ago, and which I consider one of the most beautiful

of its order, and certainly our visitors have been unanimous in their admiration of its boldness of bud and delicate texture of blossom. I can see nothing "rough and coarse" about it; indeed, its rarity is the only fault I have ever heard found with it until Mr. Allen's opinion appeared. Perhaps Mr. Loder or Herr Max Leichtlin will kindly favour us with their opinion of *G. virescens* and *G. Melvillei*.

HOT-WATER & STEAM HEATING.—It is not so very long ago—not much over a quarter of a century—since the now general arrangements of hot-water heating superseded the primitive old hot-air or smoke flues. Now from America comes the news that steam heating is there fast superseding the old hot-water arrangement. A friend in Indianapolis writes: "Steam is the heating agent employed here by florists generally. With 10 lb. of steam they can heat fifteen or twenty houses, and resist a temperature of 20° below zero!" In a word, steam heating is becoming so general in America that one would think it must possess some advantages that have led to its ousting the older hot-water system. What have our English hot-water engineers to say on the subject? It would be well for us to know if steam is really as efficient and, under some conditions, as safe and as economical as heating with warmed water. It would be as well for us to hear the best and the worst that can be said of the new system. On the Continent I have seen plant houses heated by a small boiler, and pipes of copper instead of cast-iron. An efficient and economical method of heating the little green-houses or conservatories attached to the dwelling-house is also a great desideratum.

AN IVY GARDEN.—It has been well said that had no exotic plants found their way to our shores, beautiful gardens could have been formed of our native trees and shrubs and flowers alone. Of all our native plants the Ivy in all its erratic forms is one of the freshest and most beautiful, and it is pleasant to hear that a collection of all the varieties procurable is to be made in the Royal Horticultural Society's Chiswick Garden. All are noble, from the gigantic-leaved *Hedera dentata*, *algeriensis*, or *Rægnieriana*, to the tiny *H. microphylla*, or Bird's-foot, which throws a thin gauze or net-like veil of green only over the bare stones. Easily increased and easily grown, the Ivy deserves all the attention that is to be given to it.

As long as a square yard of ugly, dead wall remains, the "Ivy green" has a noble mission to perform. The old-fashioned and erroneous idea that Ivy does harm to masonry and causes dampness is being firmly swept away. No good masonry was ever yet injured by Ivy; many old ruins would, indeed, long ago have fallen, except for its protective embraces; while nothing will keep the outside walls of a house drier and warmer than a coat of Ivy. Ivy-covered walls illustrate once more for us that axiom so generally true in the garden, viz., that which looks most beautiful is really the best also.

CAPE FREESIAS.—What exquisite form, delicate colour, and piquant odour these dainty little flowers possess! But few forced flowers just now can equal them for a warm greenhouse, even though one cannot emulate Mrs. Gibson Black or those Guernsey growers who sent us branched spikes nearly 18 inches long, and bearing many flowers. These flowers are so delicate in texture and so elegant in form, that Hyacinths and Croci actually look great solid, formless lumps of crude colour beside them. I saw some the other day arranged along with Maiden-hair Ferns and *Odontoglossum Alexandræ* in a pretty little cool Orchid house (they had, of course, been grown in a warmer place), and the effect as seen behind a

fringe of *Isolepis* was fairy-like. The proper way to manage them seems to be this: Place twelve good bulbs as big as Hazel nuts in a well drained 6-inch pot in good loamy compost; start them in a sunny, cool, and airy greenhouse, and after they are 3 inches or 4 inches high, place them on a shelf near the glass in a warm plant stove. They are very fond of a little weak manure water, and are really worth any amount of trouble. I thought they were universal favourites with the ladies, but one objected to them the other day because they had a "snuffy odour," and in the sunshine they do remind one of scented snuff with a dash of sweet Primrose.

THE NETTED IRIS.—No really hardy flower is more lovely just now in the open air than are the forms of *Iris reticulata*. You can pick the buds of these (just as in the case of *S. stylosa*) and if brought indoors and placed in water they open out perfectly, and their lovely velvety texture is untorn by winds, unsoiled by storms or rains; or you can place half-a-dozen bulbs in a 5-inch pot during August or September, and place the pots in the sunny corner of a cold frame, where they will throw up their flowers in January or February and prove very welcome indoor ornaments. As seen near the eye their beauty is most enjoyable. It is not advisable to cut their own leaves with the buds, and yet no other leaves suit them so well. The nearest and best substitute, however, is the foliage of the Little Widow Iris (*La Vedova* of Florence), *Iris tubero-a*, which is a much more robust plant, furnishing its narrow glaucous leaves in abundance, so that a good bunch may be gathered without much real injury. I find a good deal of difference of opinion as to which form of the netted Iris is most beautiful. Some prefer the deep blue-purple type; others like the claret-purple *Krelagei* best. When my own opinion is desired in questions of this kind, I always say grow both until your own opinion is determined.

VERONICA.

FERNS.

PROPAGATING FILMY FERNS.

THE culture of this charming class of plants has lately revived to a considerable extent, a circumstance which may be attributed to the remarkable results that have attended cold treatment as advocated and followed by Mr. J. Cooper Forster, whose collection of Filmy Ferns in Upper Grosvenor Street, owing to the unusually long spell of bad weather experienced this season, has had a somewhat harder time of it than usual; yet amongst the sixty and odd species and varieties of which it is composed, not a single one shows any ill effects from the thermometer falling several times as low as the freezing point. Not only do *Hymenophyllum ærginosum*, *crispatum*, *demissum*, *dilatatum*, *flabellatum*, *flexuosum*, *pulcherrimum*, and *scabrum*, and the lovely little *Trichomanes venosum* and superb *T. reniforme*, all natives of New Zealand, look as fresh and enticing as ever, but the Chilean species, such as *Hymenophyllum candiculatum*, *cruentum*, *chiloense*, *dichotomum*, *fuciforme*, *pectinatum*, and *Trichomanes exsectum*, as well as the Javanese *T. auriculatum*, *javanicum*, *meifolium*, and *maximum*, vie with each other in luxuriating under cool treatment. The pretty *T. parvulum*, from Japan, and even the several West Indian species, such as *H. asplenoides*, *hirsutum*, *polyanthos*, and *valvatum*, show unmistakable signs of gratitude for the care bestowed upon them. True it is that, owing to the high prices realised by most of the species, only a few of them are in demand, and these

principally of New Zealand origin; the comparative cheapness of the latter places them within the reach of all Fern lovers, and likewise enables their owners to gain experience in their culture before they attempt more expensive kinds. It cannot, however, be too well known that the treatment which suits them is also that best adapted for nearly all other species, though coming from climes reputed to be warmer, only a few from the West Indies and from Trinidad having, up to the present, proved exceptions to the rule. With the exception of *Todeas*, all the other Filmy Ferns, even *Trichomanes radicans*, are of comparatively slow growth, and it is principally on that account that they are invaluable for indoor cultivation, as they do not for a long time overcrowd the case in which they are planted, and they differ, moreover, from all other Ferns by retaining for years their foliage, which maintains the same bright colour and peculiar transparency to the last. Being of such slow growth when perfectly established, it may be easily inferred that their propagation does not take place very rapidly, and that is the principal reason why they remain so expensive.

IN THE CASE OF *TODEAS*, whose growth is more rapid, young seedlings form, in the course of three to four years, thrifty little plants with from eight to a dozen fronds each, but although these grow freely enough when their spores germinate, it is often found that in the majority of cases the latter are deprived altogether of germinating power. A most remarkable thing in connection with the culture of plants belonging to that section of Filmies is the fact that while *Todea pellucida* and *Fraseri*, both natives of New Zealand, are often found coming up of their own accord in cases in which they are grown, there is no record either of *T. superba*, also from the same habitat, or of *T. Wilkesiana*, from the Fiji Islands, reproducing themselves in the same way. To increase these kinds, which have indivisible crowns, it is necessary to sow their spores, and then to carefully attend to them until they produce their first fronds, an event which generally takes place from twelve to fifteen months after their spores have been deposited on peat. The prothalli of *Todeas*, which are of an uncommonly elongated shape, possess a peculiarity which has been looked for in vain among other Ferns, and which consists in having the property, when cut up into several sections, of continuing to grow, each piece producing a young plant. It may also be remarked that while imported clumps of *Todeas* only produce one growth every season, home-raised plants remain in continual growth all the year round.

THE *HYMENOPHYLLUMS*, which are provided with numerous wiry rhizomes, are generally propagated by division. The rhizomes possess on their whole length small rudimentary roots, which, if the division is done carefully and at a proper season, never fail to produce independent plants. The best time for the operation is March and April, when pieces provided with at least a couple of matured fronds may safely be detached from the parent plant, and pegged firmly on some mossy or spongy material, a compost consisting of two-thirds fibrous peat and one-third chopped Sphagnum being the best adapted for the purpose. If these divisions are kept close and shaded, they will, in the course of a few weeks, be able to bear the treatment given to their elders. Most of the *Trichomanes* are equally provided with running rhizomes, but of a different character, for, while those of the *Hymenophyllums* are of a wiry texture and delight in running through Sphagnum and partly decayed vegetable matter, those of *Trichomanes*, which are hairy and fleshy in substance, generally prefer either

wood or stone, to which they cling with great tenacity. It is this adhesive character which renders their propagation comparatively easy and safe, as if the amputation is done below a couple of matured fronds, and the severed piece adheres to a piece of stone or wood, and is besides provided with one or more roots, which in *Trichomanes* are long, succulent, and worm-like, the operator need hardly apprehend failure; and if treated as has just been recommended for the divisions of *Hymenophyllums*, they will also in a few weeks submit to the same treatment as established plants. The few species of *Trichomanes* which are not provided with rhizomes, such as *T. Bauerianum*, *meifolium*, and others, are usually propagated by the division of the crowns—a tedious and also a risky operation.

The above constitute the only ways by which these plants have up to the present been increased, and it is a fact that seedlings of *Trichomanes* radicans already possessing all the characters of perfectly developed plants may now be found in the Royal Exotic Nursery, King's Road, where some twelve years ago were raised the first seedlings of several kinds of *Gleichenias*. Quantities of *Todea superba* and *Wilkesiana* are also raised there annually, but all these, although by no means commonly raised from spores, are unimportant compared with the successful raising, after many failures, of seedlings of the Killarney Fern. From a purely commercial point of view the raising of *Trichomanes* or *Hymenophyllums* from spores can hardly be regarded as a very profitable achievement, inasmuch as the young seedlings thus produced require as many years as ordinary divisions of the same plants take months to form subjects of equal size; but the fact remains that those are the first artificially raised seedlings of *Trichomanes* of which we have had any account up to this time; as to their being seedlings there can be no doubt, as in most cases, although the young plants have produced fronds which have attained nearly full size, measuring 9 inches inclusive of 3 inches of stalk, they are still provided at their base with rudimentary fronds, to which, in several instances, the prothalli are still attached. The spores of these were sown in 1877; they are, therefore, some eight years old. The first fronds are entire, then follow some once or twice divided, and up to this stage no traces of rhizomes are visible; the young fronds simply appear to start from an underground crown. When they begin to assume an ordinary shape, that is to say, about the second year after the first frond has made its appearance, the rhizomes begin to develop themselves; and on some of the young seedlings alluded to they already measure $4\frac{1}{2}$ inches long, and in some cases are already branching in all directions. They were sown on sandy peat, in which they were grown until lately, but as they got stronger some crocks and pieces of sandstone were added to the compost, and to these hard substances they already adhere firmly by their hairy rhizomes, which have the appearance of so many caterpillars, and the young plants are now treated as ordinary divisions of established plants would be. Q.

SHORT NOTE—FERNS.

Basket Ferns.—In *THE GARDEN* (p. 67) allusion is made to several Ferns that are well adapted for basket culture, but "G." would have done well to include *Adiantum concinnum* and *A. concinnum letum*, the latter being in my estimation one of the most beautiful of all the *Adiantums*.—I.

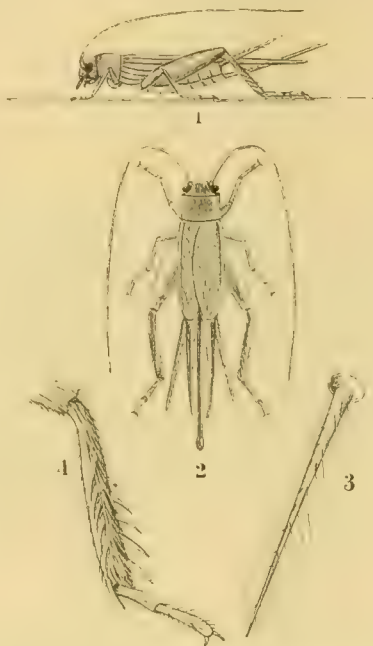
Cystopteris fragilis.—I find this and its varieties to do well in a compost of fibrous peat and loam, with a little thoroughly decayed leaf-mould and fine sand added, and a small amount of old crumbled mortar. They are especially eligible for situations a little moist in the rockery. In pot culture, a few small fragments of limestone may be introduced into the compost, and between these the caudex of the plant should be placed erect. It is important to drain well.—S.

GARDEN DESTROYERS.

THE COMMON CRICKET.

(*ACHETA DOMESTICA*.)

CRICKETS, though less often seen than most common insects, are among those which are the best known; this is probably due in a great measure to the fact that they are often mentioned in literature which is not of a scientific character: Dickens' well-known Christmas story, "The Cricket on the Hearth," for instance. Though seldom seen, they make their presence perceptible by their well-known chirping. Many persons even in this enlightened age hold superstitious notions about crickets, and consider that it is unlucky to kill one, and that their chirping is a favourable omen; these ideas may partly account for their abundance in some places. Whatever may have given rise to the superstition, in many dwelling-houses where the viands are properly protected from them they are probably useful, as they act as scavengers in consuming crumbs and other small portions of food which they find on the floors of kitchens, &c.; but even



Figs. 1 and 2, female cricket (slightly magnified); 3, one of the posterior appendages (magnified); 4, third tibia or shank (magnified).

under these circumstances the noise they make is sometimes very annoying; their monotonous chirp, continuing as it does sometimes for hours together with hardly any cessation, is to some persons almost unendurable. However, though they may be tolerated in kitchens, no gardener can put up with their presence in greenhouses, for they are certain in these situations to bring bad luck to any plant they may attack. I am not aware that they confine their attentions to any particular kinds of plants, but they usually select soft-wooded ones, or young seedlings, amongst which they are sometimes very destructive. Fortunately, they do not appear in enormous swarms as their near relatives, the locusts, do, which, as is well known, devour everything in the way of vegetation which they come across. Locusts, luckily, are not natives of this country, although solitary specimens have occasionally been found here; they probably have been blown across from the continent or in some other way have chanced to find their way here. A swarm of this insect is said to have visited us in 1746,

but they fortunately did not breed here. Crickets ought not to be so common in hothouses as they used to be, for they dearly love warmth and dryness, both of which they obtained more easily when houses were warmed by the old-fashioned flues than they can now with the modern system of hot-water pipes, for in the former there must have been frequently cracks and crevices in which they could find shelter. Their great love of dryness may be taken advantage of when trying to get rid of them, and their haunts should if possible be thoroughly soaked with water morning and evening. To destroy crickets a great many methods have been devised, an almost certain sign that none are really satisfactory and suitable under all conditions; if one was, no one would recommend the others. Among those which are most useful are the following. Though crickets hate moisture, they are thirsty insects; jam pots partly full of water placed near their quarters generally prove very attractive to them, or beer and sugar may be used instead of water. Arsenic mixed with honey put on small pieces of glass, broken glazed crockery, or slate, which should be laid about within their reach, is very efficacious. Arsenic may also be mixed with small pieces of roasted apple or with oatmeal. Cats and dogs must not be allowed to have access to these baits, or they may be killed. Perseverance is required in using these baits daily for a week or more if the extermination of the crickets is intended. Gas tar or carbolic acid poured into the places in which they resort will drive them out, and all cracks, &c., should be filled up with cement.

CRICKETS belong to the same Natural Order (Orthoptera) as the cockroaches, mole crickets, locusts, and grasshoppers, and do not undergo their transformations in the same manner as insects in many Orders do which are hatched from eggs as grubs or caterpillars. The cricket in its larva state, that is, when first hatched from the egg, is to all outward appearance, except that it has no wings, a miniature likeness of its parents; it gradually increases in size, and after moulting several times very short rudimentary wings appear; the insect is now in the pupa state, which answers to the chrysalis in many insects; it casts its skin once more, and then appears as a fully developed cricket. The females lay a large number of eggs in the burrows in which they live. These burrows or galleries they are very fond of making in walls where the mortar is sufficiently soft for them, with the aid of their strong jaws, to be able to work their way in it—I am afraid much of the modern mortar is admirably suited for their purposes—and as they are remarkably partial to warmth, they will continue their excavations to within a few inches of an oven or boiler. Their position in a dwelling-house is generally near a fireplace; in the summer time they sometimes take up their positions in garden walls. The chirping noise which these insects make is produced entirely by the male, the females, very unlike most of their sex, being unable to produce any sound audible to our ears, though this is by no means a proof that they are silent, for the human ear is only able to recognise sounds caused by vibrations varying from thirty per second to thirty-five thousand per second; any sounds caused by a greater or less number of vibrations per second are not heard by us. Whether the note of a male cricket is audible to everyone (deaf persons, of course, excepted) I do not know; the chirping of some grasshoppers certainly is not. I was on a walking tour in Switzerland with two friends some years ago, neither of whom was aware of anything unusual in his hearing powers. Near Zermatt, on some dry pastures, there were a great number of grasshoppers which at times made quite a disagreeably loud noise.

I remarked one day what an abominable noise the grasshoppers were making, when one of my friends stood still to listen, and said he could not hear them; we could hardly believe him, but it was so. The chirping sound is produced by the rubbing of the wing-cases together, some of the veins in which in the males are formed in a peculiar manner, and are described by Professor Westwood as follows: Speaking of the veins in wing-cases, he says, "The strongest of these veins, which runs towards the base of the left wing-cover, is found on the underside to be regularly notched transversely like a file; when the wing-covers are closed, this oblique bar of the wing cover lies upon the upper surface of the corresponding part of the right wing-cover; and when a tremulous motion is imparted to the wing-covers, this bar rubs against the corresponding bar of the right wing-cover, and thus produces a vibration which is communicated to the other parts of the wing covers, which being divided into a number of irregular spaces have each a distinct vibration and produce a separate sound, which unitedly forms the stridulation or chirping so well known."

GRASSHOPPERS.—I may as well mention here, although the insect is not a cricket, that a large green grasshopper has lately been introduced into several greenhouses in various parts of England from abroad, probably from South America. Its name is *Copiophora cornuta*. It has been found to injure the flower-buds and blossoms of Azaleas and the buds of Gardenias. When full grown it measures about 1½ inches in length (the females have a long ovipositor, which adds to their length) and 3 inches across its expanded wings. This insect is fortunately rare at present, only a few specimens having been found, or at any rate recorded. If it were to breed freely in this country, it might prove a very destructive pest. The common house cricket (figs. 1 and 2) is of a dull, pale, yellowish brown colour, and measures about three quarters of an inch in length; but it appears to be a much larger insect, as the tips of its wings project half an inch beyond its body, and the two long hairy appendages at the end of the body are of about the same length. When the wings are fully expanded they measure nearly 2½ inches from tip to tip. The head is furnished with a pair of very long antennæ, which are very slender, and are composed of a great number of joints; the basal joint is thick and rounded. Immediately behind the antennæ are the eyes—these are almost black and rather prominent; there is a dark line across the head from eye to eye. The jaws are strong and toothed. The thorax is almost rectangular, and its width is rather greater than its length; its centre is dusky in colour. The upper wings are short and not longer than the body, and are somewhat horny and strongly veined; they can be of little or no use in flight, but serve as wing-cases to the lower pair, which are large and very delicate. These when at rest are folded up much in the manner of a fan; their points project considerably beyond the upper pair. At the end of the body are two long tapering appendages (fig. 3), which are supposed to be organs of touch, and are, I have no doubt, of great use to the insect when having to move backwards in a burrow in which it cannot turn round. Similar organs are also possessed by the common cockroach and the mole cricket, both of which live in burrows or cracks. The legs are strong and hairy; the hinder pair are formed for leaping, and are very long, and the femur, or thigh, is remarkably robust; the tibia, or shank (fig. 4), is covered with stiff hairs, and is armed with two rows of spines; the feet are composed of two joints. The females are provided with long ovipositors (figs. 1 and 2).

G. S. S.

FLOWER GARDEN.

SNOWDROPS DOUBLING.

THE question whether single-flowered Snowdrops and single-flowered Daffodils can ever produce double flowers without the intervention of seed is one to which I have paid attention for at least ten years. On the part of unbelievers there are two very old theories, both of them supported by very high authorities in gardening. One is, that the single wild Daffodil and the single Snowdrop die out in some gardens in which the double Snowdrop and the large double Daffodil called *Telamonius* grow well, and that imperfect observation has led to the belief that the double flowers have been produced by the single bulb. The other theory is that in some soils or when grown in untilled ground, the double forms become and continue single until planted again in soil favouring the double condition.

Both theories are founded on facts, but the fallacy of them consists in concluding that what occurs in some cases occurs in all. In my garden here I have abundance of Snowdrops and Daffodils, both single and double. I have made careful observations for many years and have found that single-flowered Snowdrops invariably continue to produce single flowers, and double-flowered, double flowers. Wild Daffodils continue to flourish, and I have brought them from scores of natural habitats, but have never discovered any tendency either to become double or increase in size, though some of the habitats are those from which they are alleged to turn in certain soils into the large double form. I do not, however, conclude that because no change takes place in my garden none takes place in any garden. As for possibility, botanists laughed when the late Professor Henslow said he would produce a Primrose flower from a Cowslip root, which I believe he did. The difficulty, however, is to get accurate observation conducted continuously in many gardens for several years. As the question is *adhuc sub judice*, I will not go into the evidence now, but merely say that I am continuing to collect it, and that I hope in April to receive reports from thirty or forty gardens in all parts of the kingdom to which I have sent bulbs of single wild Daffodil, with careful instructions for their observation.

Allow me to add that single flowers turning to double of the same variety, in which I see nothing wonderful, is a distinct question from *N. pseudo-Narcissus* (single type) turning to double *N. Telamonius*, which, I own, is rather wonderful.—C. WOLLEY DOD, *Edge Hall, Malpas*.

—"Veronica" (p. 144) and the Rev. W. Wilks (p. 140) both refer to this matter. The latter doubts their conversion, while admitting the disappearance of the single Snowdrop and the substitution of the double in its stead. The change, he thinks, may be effected through the presence of a few double bulbs among the singles and the rapid multiplication of the former to the destruction of the latter, in accordance with the operation of the law of the survival of the fittest—that is, the strongest. The theory is ingenious, and it may be true, as it would be extremely difficult to distinguish between single and double bulbs of the same strain of *Galanthus nivalis* or any other species. I wish stress to be laid on the phrase "the same strain," as there is obviously a good many strains of the common species of Snowdrop, and there would be no difficulty in distinguishing between the bulbs of the smallest single strain of *G. nivalis* and the more common sort, single or double. Granting, however, that your correspondent's explanations of suppression rather than conversion may be true, there are several other questions to be asked of botanists and the lovers of Snowdrops. The first is, Is the conversion of single Snowdrops into double or the suppression of the single by the double general and almost universal or chiefly

local (using the latter term in a very much wider sense than usual)? Does it extend, for example, throughout Scotland, and is the doubling carried to as great an extent north as south of the Tweed?

The next questions are more for botanists than cultivators. Assuming that either by conversion or otherwise the single Snowdrop is rapidly disappearing before the double, how can the disappearance of the single and the supremacy of the double be explained? As a rule, among all other families of plants, single-flowered varieties, being the nearest to primitive forms, are the more vigorous. If the Snowdrop is an exception to this rule, why should it be so? Can it be that the freer seeding of the single-flowering varieties puts a heavier strain on the bulbs, and so exhausts and finally destroys them? But should it be established that such is the case, one would suppose that the seedlings which spring up freely where Snowdrops are left to themselves in semi-wild places would not only enable the singles to hold their own, but greatly to extend and enlarge their boundaries. But seedlings, which are, however, far less common than many suppose, do not seem in any appreciable percentage to come single, but double. I must, in justice to the Rev. W. Wilks, state that though I have grown *G. plicatus* in quantity for years, and though it has varied very considerably and I have found plants hardly to be distinguished from the double *nivalis* amongst it, that in no case has this fine Snowdrop doubled and retained its character or fine leaves.

The subject of the doubling of the common Snowdrop to such an extent as to threaten the suppression of the single type is one of great interest to the botanist as well as to every lover of this fairest harbinger of spring, for few can doubt that the single is by far the more graceful. I trust Mr. Peter Barr, Mr. Allen, and Mr. Burbidge among many others will favour us with their experience on this point, and also of the success of their attempts, if any, to cross the various species and varieties of the Snowdrop.—D. T. F.

Daffodil Yellow King.—Referring to the editorial note in THE GARDEN (p. 176) in which my name is mentioned, allow me to say that I had nothing to do with naming this variety, though I believe I was the first to introduce it to England and to give it to Mr. Barr. It is also not quite correct to say that the flowers, when presented to the floral committee of the Royal Horticultural Society last April were rejected as unworthy of notice. The fact is that they were nearly withered, and Mr. Barr was advised to send better specimens next year. I will undertake to say that Daffodil growers will not think it unworthy of notice, whatever the floral committee may decide about it.—C. WOLLEY DOD, *Edge Hall*.

Galanthus Imperati.—In Mr. James Allen's excellent article on the Snowdrops (p. 75), the statement that the true variety of *Galanthus Imperati* was introduced by the late Mr. Atkins must have been owing to some misapprehension, as this plant was really introduced by Messrs. Backhouse, of York, in whose catalogue for 1877 it makes its appearance for the first time amongst cultivated plants in England. Prior to that date it was not grown nor even known either in England or on the Continent, except perhaps to the very few individuals who might have read the description of it in Kunth's "Enumeratio Plantarum" or in the "Floras" of Tenore and Parlatore; and I am in a position to state that at that time, even to the curator of the Botanic Garden at Naples, in its native country, it was only known from a dried specimen or two in the *Erbario Gussoneano*. I have reason to know that Messrs. Backhouse and Son were at considerable trouble and expense in re-discovering and introducing this plant into cultivation in England, and I trust Mr. Allen will kindly excuse me for setting him right on this point and giving "honour to whom honour is due."—WILLIAM MILLER.

Naming wild Daffodils.—With all respect for the authorities at Kew, whom I have always found ready to help me when in doubt about a name, I cannot agree with the opinion of "F. W. B." expressed in THE GARDEN (p. 156) that Kew is the best place to send wild varieties of Daffodil to be named. For instance, we have at present some thirty

distinct wild varieties of Trumpet Daffodil collected in the Pyrenees and in Spain and Portugal. If sent to Kew for their botanical names, they would every one of them, very properly and correctly, be returned labelled, "*Narcissus pseudo-Narcissus* variety," and the sender would be no wiser. I wish to relieve Kew of the labour of noticing these endless varieties of one species, and to claim for the *Narcissus* committee of the Royal Horticultural Society the privilege of having these wild forms sent to them. If the only duty for which the *Narcissus* committee was appointed had been to settle the disputes of rival claimants about priority of name or identity of variety of garden Daffodils, some of us would hardly have consented to join it; but we aim also at rather higher work in collecting information about new wild forms, flowers of which we hope to have sent to our meetings.—C. WOLLEY DOD, *Edge Hall*.

GLOBE FLOWERS.

Now that the formation of wild gardens is becoming so general, attention may be directed to the Globe flowers, which above all other early flowering hardy plants are best fitted for the purpose. They hold their own against all rivals, and it must have been this kind of plant to which the writer of the following extract alludes: "I have several acres about my house which I call my garden, and which a skilful gardener would not know what to call; my flowers grow up in several parts of the garden in the greatest luxuriance and profusion. I am so far from being fond of any particular one by reason of its rarity, that if I meet with any one in the field which pleases me I give it a place in my garden. By this means when a stranger walks with me he is surprised to see several large spots of ground covered with ten thousand different colours, and has often singled out flowers that he might have met with under a common hedge, in a field, or in a meadow, as some of the greatest beauties of the place. The only method I observe in this particular is to range in the same quarter the products of the same season, that they may make their appearance together and compose a picture of the greatest variety." The pleasure derived from such a garden almost a century ago could surely be increased tenfold in our time, seeing that we have so many fresh introductions. Choice will, of course, have to be carefully made of those plants only that are suited for such conditions, and, judging from what we have already seen, notably at Kew, Wisley Wood, and Belvoir Castle, the wild garden undoubtedly has a great future before it. The fact that no hoe is required, and that there is also no need for the cutting and hacking practised in the modern mixed border, is a great boon. A wild garden need not, however, necessarily mean a wilderness in which everything is allowed to grow in utter confusion. Order may reign there, as elsewhere. A clump of Globe flowers (*Trollius europæus*), such as that shown in the annexed illustration, is quite attainable in the ordinary border, but they would look better in the wild garden. The finest plant of *Epigæa repens* I ever saw was in just such a position, partly overtopped with thin lanky Grass. It formed a mass more than a yard across and flowered beautifully. Associated with it were also enormous patches of *Linnaea borealis*, as luxuriant as among the Pine trees in the far north, and a group of white Foxgloves against a dark green Pine on the outskirts of a plantation—a picture to be treasured. Bulbs, too, do well in such situations. Lily of the Valley, Snowdrops, and the pretty winter Aconite do well underneath or round deciduous trees. Crocuses, Squills,

Triteleia uniflora, and many of the Windflowers succeed in the open sunny spots, as do also *Cyclamen repandum* and numerous others, that are quite at home if not disturbed. Daffodils and Wood Hyacinths flourish everywhere in a semi-wild state. The Globe flowers, being found in moist sub-alpine pastures and copses, like a partially shaded situation. They may be increased by division, but that is rather a slow process; as seeds ripen freely, these offer the quickest and best means of increasing them. K.

WORK DONE IN WEEK ENDING FEB. 23.

FEBRUARY 17 AND 18.

DRYING weather, but leaden skies still; fruit forcing is about as difficult as ever I have known it—I mean as to the slow progress made from day to day. However, we may this season reasonably blame the weather in default of Grapes, Peaches, and Strawberries not being ripe at the time expected. That, at any rate, shall be my excuse, coupled with the danger there is of permanent injury accruing to Vines, Peach, and Fig trees from excessive forcing. Early Peaches we keep in steady growth by a night temperature of from 55° to 60° at night, and about 5° higher by day, and the final disbudding has just now been done. We syringe but once a day—at 2 p.m.—in this cold, dark weather, and the same in respect of Figs. Second house of Peaches will soon be in full flower, but wishing to retard their full opening till there is a prospect of sunshine, a temperature of 45° is never exceeded by night, with a rise of from 7° to 10° by day, and



Globe flowers (*Trollius*) naturalised by a streamside.

atmospheric moisture is reduced to the lowest point. Tied down and stopped a few of the strongest shoots on early Vines; the shows are all now discernible, and as there are still more than we shall allow the Vines to carry, when next the shoots are stopped all the surplus shows will be pinched off, the shoots being left if there be space for them to be tied out without overcrowding. Sowed in pans and placed in heat seeds of the following for flower garden decoration: Giant Hemp, *Cannabis gigantea*, variegated Maize, variegated Tobacco, *Nicotiana wigandioides* variegata, Marvel of Peru, and Blue Gum (*Eucalyptus globulus*). Pricked out from seed pans *Solanum robustum* and *marginatum*, which will still be kept in strong heat. Cauliflowers and Brussels Sprouts sown in heat at same time we have pricked out in cold frames, which will be kept rather close till the weather gets warmer. Celery and Gold Feather *Pyrethrum* have also been taken out of heat and put in close frames, and will be pricked out in them a week or two hence. Being dry, the plots in kitchen garden that are intended for Parsnips, Onions, early Carrots, and successional sowings of Broad Beans and Peas have been roughly raked over, previous to which a good dressing of wood ashes was spread over, and by the said raking and the after drilling the ashes get thoroughly incorporated with the soil, and are the best preventive against the ravages of slugs and grubs of anything I have yet tried. Continued the trenching of old Asparagus and Parsnip ground and the mending of Box edgings;

repairing of drains and fresh gravelling of kitchen garden walks. The birds have begun their annual raid on the fruit-buds; Plums and Pears appear to be their favourites at present, and, besides splashing the trees with a liquid manufactured from lime, soot, and water to make the buds distasteful, the gun has sometimes to be brought into use, and cruel as it may seem to kill the birds in thickly-wooded districts like this, there is no alternative between shooting and the entire destruction of all fruit-buds.

FEBRUARY 19.

Fine and a little brighter. Continued the kitchen garden jobs of yesterday. Planted Ashleaf Potatoes and First and Best on a well-sheltered border; the distance apart for these early plantings is 9 inches in the row, and 20 inches from row to row, and preference is always given to planting in drills of about 4 inches in depth. The sets were all started in leaf soil, and all eyes or shoots reduced to a couple prior to planting. A sowing of Lettuce and Radish has also been made on a south border; seeds of the latter we always cover thickly with soot, else the birds would not spare a solitary one to germinate. Peas we have to-day had to cover quite over with nets to save them from their ravages; the hard winter seems to have made them more destructive than ever. Nailing in Peaches and Nectarines, each tree as finished being well syringed with Gishurst compound, as is also every portion of wall that the trees do not as yet cover; we thus get uniformity of colour and probably destroy some insects or their eggs that are sheltered in the crevices. Put in a quantity of cuttings of single Dahlias and Marguerites. Divided fibrous-rooted bedding Begonias, and planted them thickly in boxes and placed in heat. Potted off seedling *Acacia lophantha*, a few *Chamaepeuce diacantha*, and sowed seeds of *Gloxinia*, *Begonia*, and *Cyclamen*. Completed the disbudding of early Peaches and shifted Tomatoes into fruiting pots.

FEBRUARY 20.

Much improved weather, and the ground is getting into condition for seed sowing, and we have to-day got in the following: Early Nantes and Early Horn Carrots on a sheltered border having a western aspect, Peas Berk's Challenge, Veitch's Perfection, and Telegraph, Windsor Long-pod Beans, and planted Shallots and Garlic, and continued trenching and mending of edgings and walks. Broccoli have suffered severely from the repeated succession of frost and thaw, and for the present our supply has come to an end, and very nearly of all other green vegetables, purple sprouting Broccoli and Cottager's Kale being the only kinds we have till the late Broccoli turn in, of which Veitch's Model and Sutton's Late Queen have both stood uninjured. Sutton's Safeguard has also weathered the storm successfully, and this appears as if it would soon be ready should we get a week or two's warmer weather. As they are likely to be in request earlier than usual, owing to the partial failure of Broccoli and of injury to autumn-planted Cabbages, we have made a sowing of Coleworts and of All-heart Cabbage in warmth, and autumn-sown Cauliflower plants are still kept well protected, as they will this season be invaluable; and extra supplies of Asparagus and Seakale will also be in demand; a plot of the latter that we did not intend to cut this year, were it not for the failure of other vegetable crops, has had heaps of fine ashes put over the stools, a far better and less troublesome plan than covering with pits and leaves, and the succession is more lasting. In the houses this has been a day of cleaning up and shifting about of plants, watering Pines, and surface-watering inside Peach and Fig borders; picked off the superfluous flowers of Strawberries, and put others in heat, our Strawberry house being now quite filled out with them, besides shelves in Pine and plant stove. Grapes in bottles, too, have been examined; they keep well, scarce a berry decays as yet, and but little addition of water is needed, as it very rarely happens that we have to turn on heat, as the temperature keeps about 40° in the coldest weather, without fire heat; given full maturity of fruit and dryness of atmosphere, equabi-

lity of temperature is, I think, the prime factor to good preservation of Grapes in bottles.

FEBRUARY 22 AND 23.

Both dry days, sunless, and very cold, with sharp frost each morning. Continue trenching in kitchen garden, but had to leave off planting Box, &c., and betake ourselves to shrub trimming, and to clearing and burning up former prunings, and to digging soil for making and top-dressing Vine and other fruit tree borders. For a new Vine border in course of formation some rough turf from common—fibrous part only—has been dug and placed over the drainage, to prevent the soil washing into it. Pruned the first lot of Roses in the open borders—Perpetual class only. We usually have three turns at pruning at intervals of two or three weeks; by this means we get a little longer succession of flower, because, as a rule, the earliest pruned flower earliest. Soon as pruning is done the old mulching is cleared away, and is replaced with the best manure we can get. Disbudded early Muscat Vines; I have no "cut-and-dried" method in regard to this operation, my only aim being to have all wood and foliage that is possible without overcrowding, and disbudding is done on these lines—one, two, and three shoots being left at a spur, according as one's judgment decides at the time; more heat would be desirable at this stage of growth, but under the present weather conditions we shall not exceed 65° by night; in fact, shall be quite satisfied with 60° on frosty nights, as 65° is high enough by day whilst it continues so dark and dreary. Gathered our first dish of Strawberries on the former of these dates, and, considering the sunless weather, they were of passable quality. Vicomtesse Héricart de Thury is the variety, than which there is no better for the earliest crop, and I think there is not for the main crop—an opinion that I have reduced to practice for years past, and with such excellent results that I shall be difficult to convince that there is a better. Tied out and stopped shoots of early Hamburgh Vines, which, pending a change in the weather, we force but slowly; we wish to have the fruit ripe about the middle of May, but as they are not yet in flower they can hardly be so this year, and the look ahead has already been taken by sparing use of old Grapes in hope that we may eke out the supply of these for the fortnight longer that this season our early Grapes will require consequent on this extraordinary sunless weather. Propagating and potting bedding plants have been the only other work we have done in the houses. HANTS.

FRUITS UNDER GLASS.

PINES.

THE latter part of February used to be a busy time amongst Pine growers, as many of them generally commenced the summer campaign by clearing out old stools, pushing late fruiterers closer together and getting a snug pit cleansed and filled with fermenting tan or leaves for the reception of the first batch of newly-potted successions. Those busy times have, in a great number of places, passed away, as Pine growing is now reduced to a very limited scale; but where the king of fruits is still cultivated the rules and directions which applied then also apply now. First of all we have the clearing, cleansing, and preparation of the fermenting bed, three operations which cannot be too carefully performed, as we must have space, we must have cleanliness, and although we can command miles of hot-water piping, we must, if we would succeed, have bottom heat from fermenting materials. Hot water has now become one of our most important horticultural factors, and wonderful result follow its application to plants, fruits, and vegetables, but wherever successful culture depends upon a moist growing bottom heat from fermenting or decaying vegetable matter, fire heat uses much of its value, and results greatly fall off where it is unaided by one of Nature's oldest productions. Tan was formerly used, but tanners now travel fast, for what with grinding and chemicals, that which once stood a twelvemonth and was then sifted, like the hides which it tans, is now worn out and useless before the end of a single season. Fortunately for the horticulturist, we still have our Oak and Beech groves to fall back upon, and as Nature always supplies the genuine article, Pine growers cannot go far wrong in

making up good beds of well-harvested Oak leaves to start with. But simple as the use of the leaves may appear, it must be borne in mind that there are two sides to this question. Oak leaves raked up now in a cold, sodden, half-rotted state and put into a Pine or plant pit will do considerably more harm than good. Better use tan, short-lived as it is; but raked up during the first spell of fine weather after they fall from the trees and harvested dry, they will keep sound for a year, and certainly beat all other vegetable productions for giving warmth and good and genial moisture. To some these remarks may appear unnecessary, but I have yet to learn that a man's tale is more than half told when he says do so and so, but omits the way, the why and wherefore, and I have no apology to offer for having devoted so many lines to fermenting materials, as successful plant growers, now resting on their laurels or in their graves, have borne testimony to their value in the production of their magnificent specimens. A good start, then, being all-important, the preparation of clean crocks and pots and the mixing and warming of suitable compost must be carried on conjointly with the formation of the bed. These items secured, watch the trial sticks or bottom heat thermometer, and when the heat has descended to 85°, a point at which a well-made bed will stand for a long time, allow pottling to stand over until we are out of this dark, dull, cold weather and the plants are in suitable condition. Then, having top dressed plants that are swelling off fruit and filled up the fruiting pit with likely "starters," proceed with the shifting of the most forward Queens intended for throwing up fruit early in the coming year. These will consist of strong suckers that were placed in 8-inch pots last August, and as they will only require one shift into 11-inch and 12-inch pots, they must have been kept steadily progressing throughout the winter; the pots must be well filled with active roots, and they must be in suitable condition as to moisture. When potted and plunged in a bottom heat of 85° the roots will soon find their way into the new compost, which should be rough, warm and sufficiently dry to admit of being firmly rammed to prevent water from passing too freely away or being held in suspension, a condition which very often causes many of the most tender roots to perish. The balls having been properly moistened before the plants were disturbed, water will not be needed until they have taken to the new soil; but the pit must be kept close with sufficient atmospheric moisture, and light syringings on bright days to support them until they have commenced working in the new compost. As days increase in length and the plants begin to grow, air on all favourable occasions must be admitted to prevent them from becoming drawn, and each plant, according to its requirements, must be supplied with tepid water, neither too freely nor indiscriminately, as an excess at this early season is always the cause of injury. Watch the bottom heat closely, as bright sun sometimes produces a sudden rise, and let the air temperature range from 60° to 65° at night, to 70° or 75° by day, and run up to 80° or 85° after closing in mild bright weather.

Younger plants or late suckers that it is thought advisable to shake out and repot in fresh soil may next be taken in hand. Having, as already advised, properly prepared the pit and bed, pot firmly in clean pots, plunge to the rims and keep them close for a time, with a moderate supply of atmospheric moisture. Be guided by the moist or dry condition of the soil at the time of pottling in giving water, as fresh, clean pots and dry compost absorb a great deal of moisture from newly repotted plunging beds, while a close, moist temperature prevents waste, which is really all that is needed until new root action has set in. As future success greatly depends upon the way in which these young plants are started in the spring, keep them near the glass and avoid heavy or systematic shading, unless the pits are very bright and arid, by shutting off fire-heat early on fine mornings. Let the air temperature range about 60° at night, with covering and a chink of air, and run up 5° to 10° in the daytime.

Early starters.—Increase the supply of diluted liquid to plants that have thrown up their fruit, and damp the surface of the bed and the walls to produce

a moist growing temperature, but defer overhead syringing until they are out of flower. Ventilate on all favourable days to prevent the crowns from becoming drawn; tie to sticks before the sun draws the fruit out of the upright, and divest them of gills and superfluous suckers. Let the temperature range about 70° at night, ventilate at 76°, run up to 80° or 85°, and close in time to touch 90° from sun heat.

VINES.

Once more all-the-year-round Grape growers are beginning to feel that the work in this department alone is quite sufficient to keep their hands full. In the Grape room they have the first year's crop of Lady Downes on hand; in the early house the new Grapes intended to overlap the old are in various stages from flowering on to the second thinning; succession houses require daily attention to disbudding, tying, and stopping, and the latest of all will now soon be on the move. The weather hitherto has not been at all favourable to the setting of early Grapes, as the houses have been under one continuous force of fire-heat, not only to compensate for the unusual absence of sun, but also to keep up a growing temperature with the external thermometer ranging from 20° by night to a few degrees above freezing point through the day. Forcing dead against Nature under such trying conditions will have told unfavourably on weakly Vines, and it is more than likely spider will already be lurking, if not actually spreading, in out-of-the-way corners to which moisture from the syringe has not been forcibly directed. As few good growers care to syringe after the Grapes come into flower, a keen eye should be kept on the foliage in those particular parts of the house, and if bunches interfere with the use of this excellent instrument, the sponge, charged with soapy water, will be found a good substitute. Mulching with well-worked short stable manure will also be a step in the right direction, as spider does not make much progress where the roots are well fed and stimulated, and ammonia is constantly present in the atmosphere.

Houses in which thinning has been brought to a close should now be well watered, either with diluted liquid or pure water at a temperature of 80°, according to the strength of the Vines and the absence or presence of copious mulchings. Lateral growths, too, may be allowed a little more freedom, but not to an extent that will result in overcrowding or interfere with the free circulation of air and the escape of condensed moisture.

Pot Vines, now swelling off full crops of Grapes, must be top-dressed with fresh material well charged with stimulating food as often as the old is washed away, and diluted liquid may be used for charging the evaporating troughs and syringing over the surface of the bed on which the pots are standing. If on pedicels and the fermenting material can be turned and renovated without disturbing the pots or roots, a few fresh, warm leaves or a little short stable manure that has been well worked and is perfectly safe may still be worked in whenever the bottom heat touches 70°, not otherwise, as 70° is quite high enough to keep the roots steadily progressing. When all the Grapes have been thinned a second time it may be well to make careful examination of the roots and foliage of each Vine, and if the slightest doubt as to the weight of fruit is the result, lose no time in removing a few of the least promising bunches before they commence stoning, for, next to over-feeding and destroying the roots with strong stimulants, over-cropping is the most certain to end in disappointment and failure. Pot Vines, like Vines in early houses, should be allowed to make as much foliage as the tellis will carry, provided it can have full exposure to the sun and light. It is, of course, necessary to stop every shoot at the second or third joint beyond the bunch, and in some cases to pinch the laterals; but wherever space remains unoccupied laterals and sub-laterals may be laid in with advantage during the time the berries are swelling and stoning.

Ventilation, hitherto owing to the long continuance of severe weather, has been on a limited scale, but the worst is now past, and we may reasonably look for the bright sunny days so long overdue. One great factor in the pot Vine house is the fermenting

bed, from which a never-failing supply of warmth laden with genial moisture is constantly rising, and so long as this is kept up to the mark, the addition of moderate fire heat always admits of letting out vitiated air every day, and not unfrequently the health and strength-giving chink at the apex through the night can be indulged in. With this slight opening Hamburgs and early white varieties should be kept at 65° by night, with a rise of 10° from fire heat and 15° with sun and air. Early closing is, of course, imperative, as it is during the time the house is closed with sun heat that rapid progress is made; at such times the Vines will luxuriate, and the berries will swell fast in a moist, close temperature, gradually receding from 85°, which should be the maximum.

Late houses.—Lady Downes, from which the crop was not cut until the first week in January, may still be kept at rest, with a free circulation of air, but when the buds begin to swell the house must be closed and the Vines placed under Muscat treatment. If external borders require taking out or renovating, all the materials, as previously suggested, should now be in readiness, and every arrangement made for carrying out the work with despatch as soon as the buds show signs of swelling. Muscats, the Bowood variety especially, although kept quite cool, will now show signs of returning life, and as nothing can be gained by keeping them back the general house may be closed for forcing. If the borders were well watered in January another supply may now be given at a temperature of 90°, and the rods must be regularly syringed with tepid water two or three times a day to get the old bark well moistened before the buds become prominent. Old Vines that have been cropped for a number of years may be tied up to the wires at once, as they always break well; but young canes must be kept in a horizontal or arched position to prevent the sap from running past the back buds into the leaders. When all the buds are fairly on the move, let the night heat range about 60°, with a moderate supply of atmospheric moisture, gradually raise it to 70° by day, and run up a few degrees with sun heat after closing. As days increase in length and the young shoots draw out into leaf, keep working the maximum and minimum heats upwards, more or less according to the state of the weather, always bearing in mind that progress should be made by day, and rest through the night is preferable to hard firing. By adopting the give-and-take principle, a strong break and vigorous shows can always be secured without distressing the Vines; and although a little time may apparently be lost at the outset, they will always make up for it after passing through the flowering stage and external as well as internal roots are in full action. W. COLEMAN.

Easnor Castle, Ledbury.

Acclimatising plants.—My experience of forty years fully coincides with that of Canon Ellacombe, that no plant can be acclimatised, in the proper sense of the word. On the other hand, however, it is a fact that large numbers of plants are endowed with a capacity to bear a much greater amount of adverse weather and cold than that to which they are subjected in their native haunts. We can do little, even by artificial means, to alter the seasons at which plants start into growth. Cases in which we have apparently succeeded in doing this must be attributed to some inherent power in the plant itself rather than to anything we have done to promote the alteration. As a rule, plants from the southern hemisphere are more difficult to manage out of doors in the middle parts of Europe than plants from other quarters, because the southern summer is winter with us. It is useless to grow such genera as *Sparaxis*, *Geissorhiza*, *Freesia*, *Cyrtanthus*, *Ixia*, *Tritonia*, &c., in the open, even in sheltered places, because their vegetation at the Cape begins with the spring rains, which coincide with our autumnal showers, and the rough season cuts the foliage down and often destroys the bulbs in nine winters out of ten. A large number of Cape bulbs can, however, be grown out of doors with good success, provided they are species which are at rest during the Cape summer, such as *Antholyza*, *Crocus*, *Montbretia*, *Gladiolus*, *Sandersonia*, *Littonia*, &c. Such bulbs should, however, be planted rather

deep and be given a little shelter when they appear too early above ground. *Kniphofias* will stand well outside, provided their roots are preserved from frost by a covering of leaves and Fir boughs. *Antholyza paniculata* has done well, though subjected to 16° of frost, also *Littonia modesta*; and amongst shrubs, *Caryopteris mastacanthus* and *Senecio laxiflorus*, the former from China, the latter from New Zealand, have stood 31° of frost here. *Calandrinia setosa*, received from Chili as an annual, has not been touched by the above low temperatures, and proves to be a hardy perennial. —MAX LEICHTLIN, *Baden-Baden*.

TREES AND SHRUBS.

CUNNINGHAMIA SINENSIS.

FULLY alive to the fact that there are in this country a number of enthusiastic planters ever ready and willing to make bold efforts to coax Nature or subdue the elements, Mr. Webster, in his excellent description of this handsome Chinese Conifer, has wisely warned your readers that it is not generally hardy. Much as one would like to see the *Cunninghamia* growing freely in our inland Pineta, it is only right and proper to assure the inexperienced that it must be classed with the *Fitzroyas*, the *Saxe-Gothas*, the *Libocedrus*, the *Athrotaxis*, the *Dacrydiums*, the *Norfolk Island Araucarias* and others which might be mentioned, and is consequently of no use to the British planter. There are, of course, a few places in which these trees may grow well for years when, like the tantalising *Eucalyptus*, they may be killed to the ground and the work must be resumed, not with the same varieties or species, as the most enthusiastic planters do not soon forget the lessons which it may have taken them half a lifetime to learn. In Cornwall and Devonshire near the sea, in North and South Wales, and perhaps on the south coast some of the trees I have named may and do succeed, but inland, although I am always on the outlook for rare trees, I have only met with two apparently out of place; the first, a fine *Cunninghamia*, which must have been planted prior to the severe frost of '60-61, was growing a few years ago by the side of a shrubbery walk not particularly elevated in the beautiful grounds at Longleat, Wilts. I had at the time a tree equally good at Eastnor, but it had been grown under different conditions; indeed, the only conditions under which these beautiful objects can be grown and thoroughly enjoyed for an indefinite number of years. Planted out in a warm sunny corner, about 1851, it had made several attempts to develop into a tree, but the winter of 1860 settled all but one or two sucker-like growths that were buried beneath the snow. Every tree injured or killed during that memorable winter was allowed to stand until the following autumn; the sad work of removal was then taken in hand, but the young growths having slightly improved during the summer, the *Cunninghamia* was transferred to a tub and soon grew up into a handsome specimen more than 20 feet in height. With the *Norfolk Island Pines* and *Dacrydiums* which I have long used for terrace decoration in summer, this tree was found well worthy of a place in the cold conservatory storehouse during the winter. The other specimen, which I quite unexpectedly met with in a much colder part of the country, was a free growing tree of the *Fitzroya patagonica* in the shrubbery at Cole Orton Hall, Ashby-de-la-Zouch. It had been planted by my old friend and master, Mr. Henderson, and he was not a little proud in taking me through the immense clumps of *Rhododendrons* to see it. It was at that time, some fourteen years ago, from 12 feet to 18 feet in height, well furnished, and in the best of health.

There are on the irregular band which divides

the decidedly hardy from the doubtful or tender a great number of beautiful Conifers and shrubs which, were they a little more tender, would find a place in many conservatory storehouses for front hall, staircase, and terrace garden decoration; but, hovering as it were over no man's land, they are neglected by pot-plant growers, and lovers of hardy trees—once bitten, twice shy—are afraid to devote their time, their money, and their valuable space to them. All the Conifers I have named do well in pots and tubs; then we have *Clethras*, *Griselinias*, *Viburnum Awafurki*, *Eurya latifolia variegata*, *Embothrium coccineum*, *Elæagnus reflexa foliis variegata*, *E. japonica variegata* (two most lovely shrubs under gas or lamplight), *Desfontainia spinosa*, *Pittosporum undulatum* (a fitting companion for the *Elæagnus*), *Mitraria coccinea*, *Coprosma Baueriana*, the *Phorniums*, *Arundos*, and others, which, grown to a large size, work in well with Tree Ferns, the everlasting Palms, and *Dracænas*. Many of these plants are as easily grown and wintered as the trim standard Bay and the universal favourite, the Myrtle. They are all but hardy; some of them in favourable situations quite so; and all they want is a start with other well-known subtropical plants which are now fast elbowing acres of *Geraniums*, *Calceolarias*, and coloured hearthrugs out of the terrace garden. I would not on any account discourage the purchase of these beautiful Conifers and shrubs, as I have now in my mind two specimens of *Clethra arborea* 14 feet high and 7 feet through covered with flowers; *Griselinia latifolia*, 20 feet high; and *Dacrydium cupressinum*, 24 feet in height, all growing in tubs under 2 feet 6 inches in diameter. The roots, it is true, are eating away the Oak of which the tubs are made, but when that is gone they must have more, as it suits them well. If Conifers of undoubted hardiness were scarce, then we might go on planting Orientals and New Zealanders, but having an abundance and to spare, I would not waste half a lifetime on coddling, protecting, digging up, and burying when one and all of these beautiful forms can be seen on a small scale in private gardens as they are now seen on a large one in the temperate house at Kew throughout the sharpest winter, and they can be turned to profitable account in the open air during the summer. W. COLEMAN.

Eastnor Castle, Ledbury.

Taxus adpressa.—I had the pleasure of drawing attention to this shrub in your pages some years ago, as seen in Messrs. Fisher, Son, and Sibray's nurseries, where there are some fine bushes—for a "bush" it is, and not a tree—judged by the size seen generally. Those who have seen the size to which the Sweet Bay and other tender shrubs attain in the neighbourhood of the Chester Nurseries will not be surprised at this Yew growing into a large bush, 13½ feet high; but ordinarily it is less and spreading. It is a pretty shrub, very distinct in colour and habit, but not to be compared with the varieties of the common Yew for general usefulness in planting. How Mr. A. D. Webster can reconcile his description of it at p. 127, where he calls it a "creeping Yew adapted for planting where accommodation is somewhat limited," with his objection to its being described as "a mere bush" this week, I fail to understand. —S. W.

Garden hedges and screens.—In "J. C. B.'s" excellent remarks on this subject (p. 148), one that is greatly underrated and but partially understood, the following remarks on the clipping of Quick and Privet hedges occur: "Another important point, especially in the case of Quick and Privet, is to frequently clip the sides. If clipping is deferred until July, the wood has become so far ripened that it does not break again; whereas by clipping the soft shoots early in June, they start away again almost immediately, thus causing the hedge to thicken." Now, I do not question the correctness of your correspon-

dent, who is thoroughly up in his subject, but I wish to ask him and other readers well up in hedge lore and management whether the second break is a benefit or an injury to the hedge. The hedge may be thickened with spongy shoots that do not ripen, and which yield weak breaks or none at all next spring; whereas the well-hardened shoots, clipped off in July or August, remain dormant throughout the winter, and afford abundance of strong breaks the following spring. Which of these courses is best for the promotion of the health and strength of the hedge? Of course if one clipping is really better than two, the second clip is a waste of time and money as well as possibly an injury to the hedge. What say the most experienced hedgemen?—D. T. F.

ASPECT OF THE OAK IN LANDSCAPE.

THE aspect of the Oak in landscape has been pointed out by Gilpin with his usual force and effect. "It is a happiness," he says, "to the lovers of the picturesque that this noble tree is as useful as it is beautiful. Thus, it is not the erect stately tree that is always the most useful, but more often the crooked one, forming short turns and elbows, which shipwrights and carpenters commonly call knee-timber. This, too, is generally the most picturesque. Nor is it the straight tall stem, the fibres of which run in parallel lines, that is the most useful in bearing burdens, but that which has its sinews twisted and spirally combined. This, too, is the most picturesque. Trees, under these circumstances, generally take the most pleasing forms. We seldom see the Oak, like other trees, take a twisted form from the winds. It generally preserves its balance, which is one

and sometimes in shorter elbows. There is not a characteristic more peculiar to the Oak than this. Another peculiarity of the Oak is its expansive spread. This, indeed, is a just characteristic of the Oak; for its boughs, however twisted, continually take a horizontal direction, and overshadow a large space of ground. Indeed, where it is fond of its situation and has room to spread, it extends itself beyond any other tree, and, like a monarch, takes possession of the soil. The last characteristic of the Oak is its longevity, which extends beyond that of any other tree; perhaps the Yew may be an exception; it is that which renders it so singularly picturesque. It is through age that the Oak acquires its greatest beauty, which often continues increasing even into decay, if any proportion exist between the stem and the branches. When the branches rot away, and the forlorn trunk is left alone, the tree is in its decrepitude—in the last stage of life, and all beauty is gone." Gilpin concludes this characteristic description with the following words: "I have dwelt the longer on the Oak, as it is confessedly both the most picturesque tree in itself and the most accommodating in composition. It refuses no subject either in natural or in artificial landscape. It is suited to the grandest, and may with propriety be introduced into the most pastoral. It adds new dignity to the ruined tower and Gothic arch; by stretching its wild Moss-grown branches athwart their Ivied walls it gives them a kind of majesty coeval with itself."

Strutt, who was unquestionably the best delineator of trees in this or any other country, thus speaks of the picturesque beauty of the Oak and on its delineation: "European trees may by the painter be divided into four classes; the round-topped, as the Oak, Chestnut, Elm, Willow, Ash, Beech, &c.; the spire-topped, as the different species of the Fir tribe; the shaggy-topped, comprehending those of the Pine; and the slender-formed, as the Lombardy Poplar and the Cypress. In the first of these classes, foremost in dignity and grandeur, the Oak stands pre-eminent, and, like the lion among beasts, is the undoubted lord of the forest. Beauty, united with strength, characterises all its parts."

"THE LEAVES, elegant in their outline, are strongly ribbed and firmly attached to the spray, which, although thin and ex-cursive, is yet bold and determined in its angles; whilst the abrupt and tortuous irregularity of its massive branches admirably contrasts with the general richness and density of its clustered foliage. Even as a sapling, in its slender gracefulness it exhibits sufficient firmness and indications of vigour to predicate the future monarch of the wood; and when at length it is brought to acknowledge the influence of time, and becomes "bald with dry antiquity," no other production of the forest can be

admitted as its rival in majestic and venerable decay.

"THE GENERAL FORM of the Oak is expansive, luxuriant, and spreading. Its character, both with respect to its whole and to its larger masses of foliage, is best expressed with the pencil, in bold and roundish lines, whether as single trees, as groups, or as forming a line of a distant forest; although, when growing more closely together,



Type of an isolated Oak in a park.

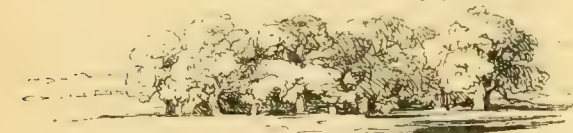
they assume a loftier and less spreading appearance than the more solitary tree.

"But while," continues Mr. Strutt, "as an entire object, these curved lines are sufficient to express the general peculiarity of the outline of the Oak, as well as the larger masses of its foliage, when we come to examine the tree more closely, and in detail, we find that a greater variety of line must be adopted to display its singular proportions, so indicative of energy and boldness. The trunk and limbs are characterised by their amazing strength and by their comparative shortness and crookedness; and the branches by their numerous contortions and abrupt angles, and by the great variety which they exhibit of straight and crooked lines, and by their frequent tendency to a horizontal direction."

THE SPRAY of the common British Oak has been well described and illustrated by Gilpin



Group of outlying Oaks on the borders of a wood.



Distant view of a group of Oaks.

of the grand picturesque beauties of every tree. The Oak, like other trees, shrinks from the sea air; but this indicates no weakness, for the sea air, like a pestilential disease, attacks the strongest constitutions. A second characteristic of the Oak is the stoutness of its limbs. We know of no tree, except, perhaps, the Cedar of Lebanon, so remarkable in this respect. The limbs of most trees spring from the trunk; in the Oak they may be rather said to divide from it, for they generally carry with them a great share of the substance of the stem. You often scarcely know which is the stem and which is branch; and towards the top the stem is entirely lost in the branches. This refers to only the hardy veterans of the forest. In the effeminate nurslings of the grove we have not this appearance. There the tree is all stem drawn up into height. When we characterise a tree, we consider it in its natural state, insulated, and without any lateral pressure. In a forest, trees naturally grow in that manner. The seniors depress all the juniors that attempt to rise near them; but in a planted grove all grow up together, and none can exert any power over another. The next characteristic of the Oak is the twisting of its branches. Examine the Ash, the Elm, the Beech, or almost any other tree, and you may observe in what direct and straight lines the branches in each diverge from the stem; whereas the limbs of an Oak are continually twisting here and there in various contortions, and, like the course of a river, sport and play in every direction; sometimes in long reaches,

with his usual felicity. "In the spray of trees," he remarks, "Nature seems to observe one simple principle, which is, that the mode of growth in the spray corresponds exactly with that of the larger branches, of which, indeed, the spray is the origin. Thus, the Oak divides his boughs from the stem more horizontally than most other deciduous trees. The spray makes exactly, in

miniature, the same appearance. It breaks out in right angles, or in angles that are nearly so, forming its shoots commonly in short lines, the second year's shoot usually taking some direction contrary to that of the first. Thus the rudiments are laid of that abrupt mode of ramification for which the Oak is remarkable. When two shoots spring from the same knot, they are commonly of unequal length; and one with large strides generally takes the lead. Very often also, three shoots, and sometimes four, spring from the same knot. Hence, the spray of the Oak becomes thick, close, and interwoven, so that at a little distance it has a full rich appearance and more of the picturesque roughness than we observe in the spray of any other tree. The spray of the Oak also generally springs in such directions as to give its branches that horizontal appearance which they generally assume."

Strutt observes: "It will be seen that the spray seldom shoots from the lower or under side of the branches, which, added to the roughness and strength of their component parts, enables the branches to stretch out and maintain their horizontal position, not unfrequently even to the very last twig; although sometimes, from the great weight of foliage, and, perhaps, from some difference in the species of the tree, an Oak may be found with pendent boughs."

The branching of trees is of great importance to the painter. As well, it has been observed by Gilpin, might an artist attempt to delineate the figure of a Hercules without expressing any of the muscles in his body as to give the drawing of an Oak tree without a scientific regard to the anatomy of its form, in a just display of the various angles and tortuous irregularities of its branches.

Abies numidica.—This little-known Silver Fir in some respects possesses an advantage over most of the others. In the first place it does not start into growth so early in the spring as to be injured by late frosts as many of them do, and secondly, it will remain in a healthy condition, and even thrive, in light gravelly soil where many kinds will refuse to grow. It is of bold, free growth, sending up a vigorous leader, and forms a broadish pyramid of a rather dense character. The leaves are about 1 inch long, and from their rich deep green colour, even under adverse circumstances, they render a specimen of these species conspicuous among its fellows. This Silver Fir is a native of Algeria, and has been known for about twenty years, but has not become very widely distributed during that time. It is also known under the name of *Abies baborensis*, and has been regarded as a variety of *A. Pinsapo*, though it differs widely from that species. Like the other Silver Firs, it likes an open isolated position to show off its habit of growth well.—ALPHA.

The Constantinople Hazel (*Corylus Colurna*).—The Constantinople Hazel, unlike the common kind, grows to quite a tree, which is distinct, the bark being rough, and the branches spread horizontally. Before the leaves make their appearance the tree generally bears a crop of catkins, which greatly combine to form a graceful tree. The catkins are longer than those of the common Hazel and generally more plentiful. I remember seeing the large trees of this Hazel at Syon some three or four years ago thickly laden with catkins, and thought them to be one of the most beautiful sights I had seen in the way of small trees. The peculiarly fringed calyx that nearly encloses the nut is characteristic of this species. There are some very distinct varieties of the common Hazel, the most noteworthy being *atropurpurea*, the foliage of which is of a rich purple colour. It is easily increased by means of suckers and is as free in growth as the common Hazel, so that when once planted under anything like favourable conditions it will as a rule take care of its own interests, while *aurea*, on the other hand, is less vigorous in growth. It forms a very ornamental

specimen when grafted on the common kind, as during the summer the foliage takes on a rich golden hue. The pendulous kind is also worthy of a place among weeping trees, and the crisped or frizzed variety—that is one in which the calyx (that nearly encloses the fruit) is very much cut and frizzed. Besides these there are several others principally grown for the superior quality of their fruit, but do not differ much in point of growth and foliage from the ordinary kind.—T.

Butcher's Broom.—Mr. Earley (p. 150) has done good service in directing attention to the capabilities of this plant to endure shade. About twelve years ago I went to our woods and brought home about a dozen good clumps of it. I planted them beneath a large Beech tree, and not many yards from the bole, where the shade is so dense during summer that not the least glint of sunlight reaches them, they nevertheless all grew, and are now in perfect health and considerably larger than when they were planted. They are certainly plants that endure the densest shade.—J. C. C.

Cunninghamia sinensis.—I was interested in "A. D. W.'s" account of this Conifer (page 173), but on one point I should like further information. It is this: Some time since, in "Woods and Forests," Mr. Webster wrote an account of *Araucaria Cunninghamii*, in which he mentions a curious style of growth that sometimes occurs in the case of this species. The peculiarity alluded to was the formation of a young shoot at the apex of a cone, and now the same distinctive feature is claimed for *Cunninghamia sinensis* (in which I am aware it frequently occurs) and no mention whatever made of the *Araucaria*. My impression at the time of the first notice was that the *Cunninghamia* was the plant intended, and I wrote asking if such was not the case, but as it elicited no reply, I thought perhaps the mistake was on my side, and the Australian *Araucaria Cunninghamii* might after all be able to survive the winters at Penrhyn. The recent article has however, convinced me that the *Cunninghamia* was the subject of the note in question.—W. T.

Hamamelis arborea.—Notwithstanding the sharp frosts we have experienced, this Japanese Wych Hazel has flowered beautifully, and but very few blooms have been injured on a bush of it in an exposed position, even when the thermometer registered 16° of frost. It is a shrub that should become very popular, for it is almost alone among flowering shrubs at this season in the open ground, and a specimen when the still leafless branches are thickly studded with the curious starry flowers is extremely attractive, especially during sunshine, but of this we have had far too little for the last month. These Japanese Wych Hazels, of which there are two or three kinds, all nearly allied, have only come into prominence within the last few years, and are still sold at rather a high price in nurserymen's catalogues, as they are not the easiest of subjects to propagate, and growth during the earlier stages of the plant is by no means rapid. Even where there is any danger from frosts, specimens of this shrub might be used for conservatory decoration, as a distinct and attractive feature would be the result, while no forcing, but just mere shelter, is all that is needed to have the flowers in perfection.

Depredations by rabbits.—In some parts of the midlands the snow has lain deep for two months and the destruction worked by rabbits where they abound to trees and shrubs is simply appalling. They have barked the Ash trees, great and small, quite round the trunk a yard high, leaving not an atom of bark within their reach; hence the trees are as good as killed. Spruce trees have shared the same fate, also young Sycamores, Portugal Laurels, and many garden shrubs, including Roses, which are barked to the base of the branches. Even Rhododendrons have been eaten in some places. Young Corsican and Austrian Pines have been eaten clean off, but older established trees are unharmed where every Spruce has been singled out and done for. In the *Field* it is said that one or two examples of rabbits actually climbing trees in search of food, &c., had been recorded; but during the past few weeks here these rodents have climbed right to the top of the Holly bushes in the hedgerows

about here and cleaned the bark of the smallest twigs to their extremities. In almost all cases it is the bark that is eaten, being apparently preferred to the foliage.—S. W.

NOTES OF THE WEEK.

Galanthus Scharloki.—To avoid the perpetuation of a mistake, allow me to state that the name *Shayloki* for this Snowdrop should be discarded. It was named G. Scharloki by Prof. Caspary, of Königsberg, in honour of M. Scharlok, from Graudenz, an acute explorer of the botany of Eastern Prussia, who discovered this variety.—MAX LEICHTLIN, *Baden-Baden*.

Narcissus Bulbocodium citrinus.—Mr. Peter Barr sends us what he considers to be the finest specimen he ever saw of this *Narcissus*. It is indeed a giant among the Hoop-petticoat varieties, and looks more like a flower of an *Ismene*, such as *I. Amancaes*. The funnel-shaped cup is quite 2 inches across the top, and the whole flower is of a soft primrose-yellow. The stalk of the flower is about 9 inches high. Can this be a large variety, or is it merely the result of cultivation?

Loasa vulcanica.—I should like to add a few remarks to those given by "K." on this pretty annual. It is true that I first discovered this new species in South America, but not, as it is said, in New Granada. I found it in Ecuador, along the banks of the river Pilaton (and not Pitaton), in June, 1876. I published the description of the plant in the *Illustration Horticole*, January, 1878, p. 11, under the name of *L. vulcanica* (not *volcanica*), from the Latin *vulcanus*, this *Loasa* growing at the foot of the volcano Corazon. I introduced it to Europe from seeds in the same year.—ED. ANDRE.

Iris reticulata cyanea.—This forms a good addition to early spring bulbs. Growers of the ordinary *I. reticulata* will not, however, be likely to exchange it for this new prodigy, which indeed has little more to recommend it than its earliness and loveliness. It appears even unprotected to be a week or more earlier than *Krelagei*, which is itself earlier than the ordinary form, even when both are kept in a cool pit. The flowers of *cyanea* are pale blue and about 2 inches or 3 inches in height.—Q.

Neapolitan Violets.—I send you a bunch of the double Neapolitan Violet, which is a great favourite here in midwinter. None yet surpass it in sweetness and constancy. It begins to flower in October, but is seen at its best from November onwards, just at the time when Marie Louise shows signs (after four months' continuous flowering) of being somewhat exhausted. Then the Neapolitan, bristling all over with fat buds, is ready to contribute its sweet harvest of bloom. Some writers on Violet culture of late years, *i.e.*, since Marie Louise has come into general cultivation, have affected to disparage this valuable old favourite; but I maintain that it is still able to hold its own where a constant supply is in demand, and should still be grown in every collection of Violets.—WM. ALLAN, *Gunton*.

Lachenalia Nelsoni.—Of this beautiful and graceful bulbous plant, Mr. Allan, of Gunton, sends us a bunch of fine spikes which show in a marked degree the superiority of the variety over others of similar colour. The spikes are about 9 inches high, and carry numerous drooping flowers of a rich deep yellow colour. It is one of the prettiest plants one can grow in a greenhouse for flowering at this season. Mr. Allan also sends a bunch of Hoop-petticoat Daffodil (*Corbularia tenuifolia*), which is, perhaps, the best of all the varieties of this section for forcing into early bloom. "This Daffodil," he says, "is a little gem for pot culture, increases rapidly, and is most floriferous, 6-inch pots full producing from twenty to twenty-five flowers; the strongest bulbs will push up three and four flowers each. I received my first bulbs of it and those of *Lachenalia Nelsoni* from the late Mr. Nelson not long before his death—he was always ready to show his treasures with those of kindred taste. A house full of these early flowering bulbs, associated with *Iris reticulata*, *Lily of the Valley*, *Cyclamens*, &c., at this season is a sight that leaves a lasting and pleasant impression on the mind; there is such an inexpressible charm about them that

one finds oneself, with each new year, watching with eager interest for the opening of the first flower. The great point in their successful pot culture is to ripen the bulbs off well on a shelf close to the glass till every vestige of foliage has disappeared, then place them at the foot of a sunny wall till potting time comes round in August. If treated thus, they start away readily in autumn, requiring only a temperature of 40° to 45° to have them in flower early in the year. Some pots of *Corbularia Clusi* subjected to the above treatment surprised me by opening their first flowers in a cold frame in the middle of November, and continuing in flower till after Christmas. If grown in quantity, the white flowers of *C. Clusi* will prove extremely valuable for winter decorations."

Tillandsia Lindeni.—One of the stoves at Tring Park is just now enlivened by the flowers of this beautiful Bromeliad, and a more lovely plant it would be difficult to find. The flowers, about 2 inches across and triangular in outline, are of the most vivid Gentian blue, intensified by the white centre. They are borne on a tall, slender spike rising a foot or more above the tuft of foliage. They do not last long, but being produced in succession the plant is attractive for some weeks. It flowers at no particular period, but two or three times a year according to its condition. The plant at Tring does not represent the typical form of *Tillandsia Lindeni*, which has pink flowers, but is the variety known as *Regeliana*. It was figured in *THE GARDEN*, Vol. X., 466.

Senecio Ghiesbreghtii.—This is one of the most stately of all the cultivated *Senecios*, and excellent for conservatory decoration at this season of the year. It is a stout arborescent species, with large leaves and densely packed corymbs of blossoms as much as a foot in diameter. The individual flowers are about half an inch across, with rich yellow rays, the disc being of a still deeper hue. The propagation and culture of this *Senecio* are easy enough; cuttings of it root without difficulty at almost any season of the year, and a good open potting compost, such as that used for *Pelargoniums*, suits it perfectly. It is a native of Mexico, where it is said to reach a height of from 12 feet to 15 feet, and to be quite tree-like in character.—T.

Anemone stellata alba.—This is a very useful plant for cool greenhouse and conservatory decoration, especially thus early in the season. Our tubers of it were potted up early in autumn and allowed to grow in a cool frame; they have now made excellent plants, well furnished with leaves and thickly studded with starry white flowers, which promise to last at least a fortnight more. The greenhouse should be dry, for if damp the dark blue pollen discolours the flowers; whereas if dry it is easily blown off. If placed in heat at the proper time there seems no reason whatever why this plant should not be in flower soon after Christmas. It stands heat well, but requires to be kept near the glass, or the flower-stems are apt to be weak. As soon as the buds show themselves we begin to give the plant liquid manure, keeping it meanwhile potbound, by which means we get larger and better flowers. During summer the pots should be laid on their sides in the sun and water withheld until they show life.—K.

Carnations at Tring Park.—A houseful of Tree Carnations in bloom is a sight as beautiful as it is uncommon. The importance of growing a large supply of the best sorts of Carnations for winter bloom is fully recognised in Lord Rothschild's garden at Tring Park, where at the present time Mr. Hill, the gardener, can show as fine a display of these plants as are to be seen anywhere. The Carnation is one of the principal favourites in the garden at Tring, and no pains are spared in growing them to perfection. There are special pits for growing on the plants, and a large, light, span-roofed house in which to show them when in bloom. The very best sorts only are grown in quantity, and these sorts must be perfect in every point—good in habit, floriferous, large and full flowered, and good in colour. Many sorts make up the entire collection, but we mention only the very best that are grown, and the three that head the list are *Empress of Germany*, large and full, with broad petals, pure white faintly streaked with crim-

son; Lucifer, the best scarlet, not of the largest size, but very brilliant in colour; Irma, the best rose-coloured sort, clear and lovely in tint and large and full in the flower. Other good sorts which find favour here are Mrs. Keen, deep crimson, The Queen and La Belle, pure white, and Andalusia, the latter a beautiful primrose-yellow, decidedly the best yellow tree variety, and one, we believe, which had its origin in this garden. The popular salmon-pink sort, Miss Joliffe, which one sees so much of in the flower shops, is also grown largely, and likewise *Souvenir de la Malmaison*, the stock of which at blossoming time is quite a sight in itself. Another class of plants which receive much attention at Tring are *Cyclamens*, and of these there is a finer houseful of flowering plants than we have yet seen in any private garden. Mr. Hill raises his own plants from seed, and by selecting for seed-bearers plants possessing the best colours and other good points, he has obtained a beautiful strain. Why is it that in nine gardens out of every ten which we visit *Cyclamens* are not well grown? Surely such charming flower beauty at this season is worth securing at any trouble.

SOCIETIES.

THE ROYAL HORTICULTURAL SOCIETY AND THE COLONIAL EXHIBITION.

TO THE EDITOR OF THE GARDEN.

SIR,—Will you kindly allow me a small space in your columns to protest against the decision of the exhibition commissioners in making the Fellows' tickets for 1886 non-transferable? It has always been one of the privileges of the Fellows to have a transferable season ticket, which admitted themselves or the bearer on all occasions, and this privilege has been in force during the three previous exhibitions which have been held at South Kensington. This decision is particularly hard on those Fellows who do not live in town, as it entirely deprives them of one of the most attractive privileges of membership. It seems to me a most inconsistent policy on the part of the commissioners, after having allowed this privilege during the three previous exhibitions, to suddenly disallow it for this (I believe) the last of the series. Is it for financial reasons to try and make up the reported deficiency on the "Inventories?"

I trust this matter will be taken up by other Fellows.

A FELLOW OF THE SOCIETY.

February 24.

The Narcissus Committee of the Royal Horticultural Society will hold three meetings during the coming season, viz., on March 23, April 13, and April 27. The proceedings at each of these three meetings will be conducted as follows: The committee will meet in or near the conservatory at 11 a.m., when a list of the specimens sent in for examination and of questions for discussion will be presented. The committee will first determine what specimens and questions it will take into consideration, and thereupon be adjourned in order that the members of the committee may conveniently and deliberately examine the specimens. At 1.30 p.m. the committee will reassemble, and proceed to the discussion of the specimens, &c., according to the list previously agreed upon. It is hoped that those interested in the Narcissus will send up to one or other of these meetings any new forms of Narcissus, or any specimens otherwise interesting which they may possess. All such specimens should be sent in, so as to arrive at South Kensington not later than the Monday preceding, that is the day before the meeting, in order that they may recover from the journey before they are submitted to examination. They should be addressed, "The Royal Horticultural Society, Narcissus Committee," and each specimen should bear a label (water-proof), with the sender's name and some number or token by which it may be recognised, and be accompanied by a statement, sent by post or otherwise, of the inquiry which the sender desires to put to the committee, and of any facts which may guide the committee in their decisions. The committee will also be glad to receive communications or inquiries relating to the natural history and culture of Narcissus,

also suggestions for investigations, in order that the work of the committee may be made as broad and useful as possible. Such communications should also be addressed "Royal Horticultural Society, for the Narcissus Committee."

National Chrysanthemum Society.—A meeting of the general committee of this society was held on Monday evening last, the president, Mr. E. Sanderson, in the chair. The Daulish Chrysanthemum Society was affiliated, and five new members were elected. The hon. secretary, Mr. W. Holmes, reported that the sum of £75 would be set apart to meet the expenses of the show of early Chrysanthemums in September; £177 10s. for the usual show in November; and £50 for the show of late varieties in January. In addition, the Royal Aquarium Company offered prizes for cut Dahlias and Gladioli in September; and for *Cyclamens*, Chinese Primroses, berried *Solanums*, Conifers, Ivies, and Hollies in January. The schedule sub-committee brought up their report, and a brisk discussion ensued on the proposal to create a class for blooms of Japanese Anemone-flowered varieties. It was held on the one hand that it is difficult to distinguish between Chinese and Japanese Anemone-flowered sorts; and on the other, that they were sufficiently distinct. It was ultimately resolved by a substantial majority that the flowers should be divided for show purposes, and the catalogue sub-committee were requested to publish in the revised edition of the catalogue of Chrysanthemums issued by the society authoritative lists of flowers that can be shown in both classes. Many special prizes were announced as being offered by individuals and firms for competition at the above exhibitions. The rules and regulations affecting the various shows were revised, and this brought the proceedings to a close.

Royal Aquarium, Westminster.—At the request of the directors, Mr. R. Dean, Ranelagh Road, Ealing, recently submitted to them a scheme for holding a series of four horticultural exhibitions during the spring and summer, as follows: A show of Hyacinths, Tulips, market plants, cut Daffodils, &c., on March 30 and 31; a great artistic Rose exhibition on June 25 and 26; a great Strawberry show and fête on July 2 and 3; and a large display of table decorations, bouquets, &c., on August 20 and 21. This scheme has been accepted, and the exhibitions named above will be held under the superintendence of Mr. R. Dean, of whom schedules of prizes may be obtained.

LATE NOTES.

Fuchsias (*F. W.*). Your Fuchsia shoots look vigorous and healthy. What fault have you to find with them?

Books (*T. G. Ross*).—"Fruit Growing for Profit." By E. Hobday. Routledge & Co., Ludgate Circus.

Berberis (*B. quinaria*).—Yes, you can peg down the shoots of the Barberry to form an edging. Other answer next week.

Saxifraga cordifolia.—You would, I think, render a service to many by calling attention to this plant, it being so useful for cutting during January and February by simply potting it up in autumn and placing it in a cold pit or frame. We have been cutting from it for the past month, and some flowers cut three weeks ago are yet quite fresh—good proof of their lasting qualities.—G. T. W.

Ants in Peach houses.—Allow me to tell "Enquirer" that the only way by which I was able to rid myself of these pests in my Peach house was trapping all I could find, which I did with saucers of treacle placed round the base of the tree, and by putting some upon the branches here and there; also by constantly pouring boiling water in their nest, and every place where there was a possibility of sealing a few. If this be done often one can soon do away with them. I do not think fumigation has any effect upon them whatever.—W. A. Cook, *Holmwood*.

Names of plants.—*W. S.* Phaius Wallichi.—*J. D. E.* *Sparmannia africana*.—*F. M.* *Felleborus niger altifolius*.—*C. P.* *Vitis antarctica*. Cannot recognise the others without fuller material.—*E. M. G.* 1 *Aucua dealbata*; 2, *A. longifolia* var.—*Dr. Cam.*—Not recognised at Kew. Considered to be a hybrid, probably new. Will you kindly send us a leaf, and if possible another flower-spice in a box? We may then be able to get it named.

BOOKS RECEIVED.

Rivers' "Miniature Fruit Garden." Longmans, Green & Co.

"The Apple Tree Annual." Glendenning, London Wall.

"All about Blackberries." Fleming & Co., Leicester.

"Handbook of Mosses." By Bagnall, Swan, Sonnenschein & Co., Paternoster Square.

"The Tourist's Guide to Flora of the Alps." Translated and edited by Alfred W. Bennett. Swan, Sonnenschein & Co.

WOODS & FORESTS.

FOREST ROADS.

A "WILTSHIRE FORESTER" does good service alike to man and horse by calling attention to these (p. 153). Possibly the management or mismanagement of forest roads is the very weakest point in modern forestry. The loss of time, temper, harness, horseflesh, tackle on these is tremendous, and represents an absolute sacrifice of capital that not seldom largely eats into, if it does not quite absorb, the profits of the timber sold. Your correspondent points out how some of the evils incident to bad forest roads may be mitigated or overcome. But were the lines of forest roads more skilfully chosen and more attention paid to their form at first, the majority of them, though unmetalled, would carry fair loads of timber, excepting during the wettest or worst weather. And though it is impossible always to choose a dry or frosty time for the removal of timber, the exercise of forethought will mostly permit of the worst weather being avoided.

Light loads on forest roads also conserve the roads, and need not lead to any serious loss of labour or of time; in fact, light loads may often save much of both alike in loading and in transit. The mode of dragging single trees instead of loading them on heavy drays may also be improved upon by the use of sledges, which spread the weight over a wider area than the system of dragging out single trees. But these and other road-saving modes of transit that will occur to practical foresters are of secondary importance to choosing the best lines and form of roads at first. To afford the utmost diversity of choice, the road should be lined out, if not actually made, before the trees are planted. This need involve a very trifling loss of tree space, and the advantages of a road for all the early processes of subculture among trees, constant observation of their condition, and the facile visiting woods or forests either for business or pleasure must be obvious to all who are familiar with the wants of trees during their earlier stages of growth. But the primary object of making the roads first is to secure the best—that is, the driest—lines, to afford time for the roads to become thoroughly consolidated and surfaced with such good turf or other dwarf vegetation, as to assist them to carry loads of timber without being cut into deep and almost impassable ruts. Where the ground is tolerably level, the highest parts should be chosen for the road. Of course on hillsides or steep banks this would be impracticable, but in tolerably level forests it is far better to drag single trees up to a sound dry road than to place the roads in lower positions subject to flooding or where there might be a difficulty in promptly draining them dry.

With the choice of a good line from which the rain would be shed off so soon as it fell, the road would quickly become solid and hard with the lapse of time. Only those who have had considerable experience of the hardness of dry earth roads in woods and forests can have any adequate idea of their strong carrying powers. Of course the width of the tyres of the wheels have a great influence on the carrying powers of earth roads; and on estates where the falls of timber are heavy, special drays with wheels from 6 inches to 9 inches wide should be kept for the removal of the timber on to the nearest metalled road. This would mostly pay well, not only by conserving the roads, but through the advanced price paid for the timber by the side of a good roadway. Time, which consolidates earth roads, also allows the turf or other dwarf vegetation to form such a matted surface as to add greatly to the carrying powers of the road. The expe-

rience of foresters with dwarf Heaths, Blueberries, or other dwarf plants in the strengthening of roads would prove as interesting as useful. No one who has noted the carrying power of a surface of good turf but must have been impressed by its strength and importance.

Now, if road-making precedes or is carried along abreast of planting, the roads will have time to strengthen their surface long before they are required to carry any heavy weights. During the process of subsidence of consolidation and surface strengthening the produce of the Grass will more than pay for mowing, making and removing. The form of the road is almost of as important a factor in promoting its strength as its site or line. All forest roads should be sufficiently sloped to one side or both from the crown to shed off the water as fast as it falls. They should also be sufficiently raised above the surrounding level as to be thoroughly drained, of necessity not merely in the sense of having an open ditch on one or both sides of them, but from the major portion of their substances being above the surrounding level. Roads of these or other forms ensuring dryness of substance and of base, and clothed with turf or other vegetation at once dense, dwarf, and tough, will be found to carry moderate loads of timber during suitable weather without being cut into impassable ruts. Forest roads surfaced with good turf if injured are also repaired with far more facility than any others. In the rapid and vigorous growth of riven or rent turf, roads thus surfaced possess a means of cheap repair and sound resuscitation that no other description of road can lay claim to. Dryness, solidity, and a good surface are the three most essential conditions for good and lasting forest roads; and as neither of them need be expensive, there is little excuse for the ridges of mud and furrows of water that so often pass for roads in woods and forests. D. T. F.

Plantation management.—According to an old practical forester, the essence of rational treatment of plantations for profit may be summed up in a few words: 1. Choose such trees as are likely to remain where they are planted; and at each successive thinning clear off a few of their lower branches, till a clear stem is formed to the height of 5 feet or 6 feet, or to a greater height in trees having pendent branches, such as the Wych Elm, Lime, &c. 2. Cut down all the trees which are not intended finally to remain by degrees.

Staking and protecting trees.—After planting trees, whether for ornament or profit, it is false economy to leave the plants without protection until they are attacked or perhaps destroyed by rabbits, and then begin to fence. Fencing should always be done at the right time, which is immediately after the trees or shrubs have been planted. Staking and tying should be done also, and where necessary a good mulching should be given to keep the roots and collar of the plant safe during hard frost, and prevent too sudden evaporation in spring. In severe, rigorous winter weather it is often necessary to protect half-hardy kinds with branches, and perhaps none are better for this purpose than those of the Spruce, so that it would be well to have such ready and convenient to the plants so that they could be applied at once in cases of emergency.—J. B. W.

Timber in ravines.—If it was the case that the bulkiest and healthiest trees were always found in ravines, the argument of Mr. J. B. Webster that the deeper and richer soil was the cause would have some force, but all that is asserted is that the timber is tallest and straightest in such situations, and these qualities are not necessarily nor often the result of a rich soil. We live in a regular "Derbyshire" country of hill and dale and could show numerous examples of what has been described in every case, the length of the trees being clearly due to the situation, and not to the soil. All kinds of trees growing in ravines are

tall, comparatively slender, and straight with small tops. They are simply elongated by having the light above them principally instead of all round them, which draws them up. The same thing exactly is observable in all properly thinned plantations, the tallest and straightest poles being in the centre of the plantations and the bulkiest, most branchy, and for that part the healthiest, being at the margins. These facts are so constantly true, that one wonders at any forester failing to notice them.—YORKSHIREMAN.

THEORY AND PRACTICE OF FORESTRY.

At Leek a lecture was recently given on this subject by Mr. J. Robinson, who endeavoured to deal in a concise and popular way with both the theoretical and practical aspects of the subject. In the course of his remarks he said that the cultivation of trees for ornamentation was very often called arboriculture, which meant the culture of single trees, and was distinct from the production of trees for the purpose of commerce, which was termed silviculture, which meant the culture of trees in masses instead of in an individual ornamental manner. With regard to the commercial aspect of the question in these days, one fact connected with it was of great importance. So many foreign products were brought into this country displacing home products, that if our uncultivated lands could be put to some useful purpose, like the growth of timber, there would not only be commercial advantage, but a great advantage to the labouring classes, the growth of trees requiring, as it did, a considerable amount of labour. England and her colonies were said to be more interested in the question of forestry and tree production than any other country in the world. After a few statistical remarks upon the importation of wood into this country and upon the systems of forestry abroad, the lecturer dealt with the question of tree-growing for pleasure, which, he said, had also the advantage of a little profit if well managed. There was only this disadvantage that one's life was so short compared with the life of a tree, that two or three generations were required to see the result of one's labour sometimes. The first thing in growing trees for beauty was that they must never be touched with knife, bill, or saw. He then pointed out a water colour illustration of a Spruce Fir-tree, the branches growing down to the ground so that the tree was in the shape of a sugar loaf. That was the perfection of that tree, and in order to get that effect it must be grown in the open, without any other tree overshadowing it or anything else touching its branches. As soon as the outer branch touched another, one must come down. The Spruce Fir was an Evergreen, because though the leaves did not last for ever, there were always new leaves being produced, but they did not all change at once. A deciduous tree was a tree which lost all its leaves at the same time, and to have a handsome tree of that kind it must not be shaded by other trees surrounding it, but room must be given to it by degrees as it increased in size. In Beeches which grew in the neighbourhood of Leek they saw the branches coming down to the ground and covering it, quite as low as in the case of Spruce and other Firs. That was the way to cultivate trees if they wanted them for ornament, but they could not afford that if they wanted them for timber. The next step was to go into such a place as a wood near a gentleman's house, and these were called woods as different from forests, because the wood is distinguished by having half ornamental and half forest trees. They did not want every tree to have a full development, but to have a fair amount. Therefore, in planting a wood, clumps of trees of various kinds should be planted together, because, when they grew up, it was exceedingly agreeable to the eye to see a certain number of deciduous trees of one character occupying one space; then, in another space near, Scotch Firs growing in other clumps; then Larches giving another appearance. When all this was done, the wonderful thing in forest or wood growing was the "slaughtering of the innocents." They put in trees for growing 4 feet 6 inches or 5 feet apart, and when the wood was fully grown the trees were about 20 feet apart. Thus how many trees in an acre had to be thrown away! They must be destroyed

when they crowded each other, whether they were wanted for woods or forests. They must have light and air as well as the advantage of the soil, in order that an advantageous result might be obtained. To throw these trees away was a wise economy, but perhaps the most difficult to practise, as cultivators did not like to throw these pretty little trees away. In Norway, Sweden, and Canada, where the trees were not thinned, they crowded each other, and then they had trees which were almost cylinders, because the crowding killed off the lower branches. Thus the trees did not get any food from returning sap to thicken the lower part, although the upper part where the branches remained received its due quantity and thickened accordingly. Thus the trees when cut down were almost the shape of floor boards. But there was one disadvantage in consequence of the dead branches. The wood was formed round the branch continually, and as the branch died a piece of the dead branch was left in it quite loose. That was a knot, and when cut with a saw the knot could be pushed out with the thumb and there was a hole. The lecturer also dwelt at some length upon the structure and physiology of trees as bearing upon the practice of forestry, and, in conclusion, hoped that at no distant date we should see a forestry school established in this country on a satisfactory basis.

SEASONABLE WORK.

PLANTING.—When planting can be resumed a start should be made with the larger hardwoods, and upon the drier portions of the woodlands, getting in the Oak, Ash, Sycamore, Larch, and Spanish Chestnut. Where Brambles and other rubbish are likely to spring up in abundance plants of not less than 5 feet in height should be used; but for clean land, and more especially if the site is an exposed one, the Sycamore, Birch, Maple, Chestnut, and Larch may go out at three years old if well grown, the Oak, Beech and Spruce at four years, and the Holly and Silver Fir at five years old. The formation of Hawthorn hedges should be completed as soon as the weather will permit, as this plant comes early into leaf. In all soils, except very retentive ones (for which the Hawthorn is not well suited), the plants are better placed upon the level of the adjacent land. The raised mound, with its deep side ditches completely cuts off the roots from the free range which they ought to have in the soil beyond; hence the scrubby appearance which hedges so placed too often present. In such situations their roots also receive a severe pruning whenever the ditches are scoured or shovelled out. In very wet situations tolerably good fences may be made with the semi-aquatic plants—the Alder, Willow, and Black Poplar. When cropped close, the Alder and Poplar feather low, and the forked growth of the former, combined with the bitter taste of its leaves, prevents its being cropped, and renders it well high impervious to cattle. The Willows may be thickly planted in such situations and their branches interlaced, so that no stock will find its way through fences formed of these. Fill up all plantations where required. In rapid-growing coppices this should be done during the spring following the fall of the underwood, otherwise the vigorous growths from the well-established stools will take the lead and eventually overtop and smother the young transplants. Plants from 3 to 5 feet in height when put in will be found the most serviceable upon clean land, and such will at the end of four or five years be found growing with more vigour than those of a larger size when removed.

THINNING.—Complete the thinning of mixed hardwood plantations, at the same time marking the Oaks for spring felling. This remark applies to Poplar, Chestnut, Birch, Beech, Sycamore, Willow, &c. As soon after felling as possible the produce should be removed from the woodlands. The cutting of coppice and underwood

generally should now be pushed forward whenever this is not interfered with by severe frosts. During frosty weather the adherence between the bark and the wood is so slight, that the blow from an axe will frequently cause them to part sufficiently to admit water, and thus the formation of adventitious buds is prevented. Though the season would under ordinary circumstances prove too short for carrying out the whole of the work, there is little doubt that the most numerous as well as the most vigorous crops of shoots follow the felling operations of February and March. Either the splitting of the wood in cutting or any rough usage which disunites the wood and the bark will seriously interfere with the future crop. By using a moderately light axe for the stronger stools and a good cutting billhook for the smaller ones, but little mischief need be done. Cut low in all situations not liable to inundations, and trim off the surface of the stool so that no water shall lodge upon it.

NURSERY.—The present is a busy time in the nursery, where the preparation of seed beds, the planting out of layers, and the transplanting of seedlings should be going on. The following distances are well adapted to the growth of healthy and robust plants: Hardwoods from 20 inches to 24 inches between the rows, and 5 inches from plant to plant; Birch from 18 inches to 20 inches by 5 inches; and Larch and Scotch from 15 inches to 18 inches by 3 inches or 4 inches. In lifting such seedlings as the Hawthorn, many of the seeds of which are still dormant and will come up next spring, the soil should be eased with a fork so as to permit the withdrawal of the plants without burying too deeply the remaining seeds, which would be the case if the ground was much disturbed. Towards the end of the month, sow any remaining Elm seeds, and also Sycamore, Ash, Maple, and Beech. Plant cuttings of Poplar, Willow, Alder, and Elder, taken from last year's shoots and about 15 inches in length. Where a sufficiency of young stock is not reared from seed, seedlings should now be bought in to fill up vacancies. Give ample room to seedling plants intended to remain more than one year in the lines. Hardwoods, except the Birch, require from 18 inches to 20 inches in the rows and 5 inches in the lines; Larch, Scotch Fir, and some other coniferous trees from 15 inches to 18 inches by 3 inches.

Osiers for the basket-maker may now be cut and tied in bundles, to be afterwards placed upright in a few inches of stagnant water, which facilitates peeling in the spring. Permanent Osier beds may also be planted in suitable land, which should have been previously well cleaned and manured. Situations where the water can be admitted and run off at pleasure will be found the best adapted to the growth of Osiers.

In plantations of coniferous trees, dead branches should now be cleared from the stems. By allowing these to remain on every annual layer of wood is disfigured and deteriorated by the dead knot. By loosening these with a blow from a mallet, many of them may be withdrawn without injury to the trees. The pruning of live branches should, however, be very carefully executed if done at all; in most cases a slight foreshortening will be found sufficient, and where planting and thinning have been judiciously carried out it will not be required.

Dead Oak timber.—On nearly all estates round here there are quantities of dead or dying Oak trees of all ages and sizes which owners are anxious to get quit of first, and buyers take advantage to offer proportionally lower prices on the strength of the trees being "dead." Negotiating a sale of this kind the

other day, the forester met the objections of the merchant with the reply that he did not think that he (the merchant) could tell a section of a recently dead or almost dead Oak trunk from one from a tree cut down in good health, but was willing to abate his figure proportionately if the buyer would face the test, which was, however, declined, and to the disadvantage of the latter. In dead trees it is well known that the sapwood soon begins to decay when the bark falls off, although some time elapses before much alteration is discernible; but the heartwood remains unaffected, and I doubt if even an expert could distinguish it from the sound tree felled in its prime and at the right season. Carpenters, sawyers, and others, to whom I was once at last referred to on the subject, professed to explain that there was no "nature" in the dead timber; but they, too, failed to distinguish the dead Oak from the living when put to the test by being confronted with samples.—Y.

Leycesteria for covert.—The decidedly hardy character of this shrub and the extreme rapidity of its growth, besides the ease with which it may be produced from cuttings, layers, or seed, all point it out as an object well calculated to form underwood, or shelter for game. Its worth for such purposes would be doubled could game be brought to feed upon its berries, which are produced in great profusion. Could its insipid fruit be converted into any useful domestic purpose, it would, I think, under culture, require the same treatment as the Raspberry, as it seems disposed to produce its shoots from the bottom annually. It seems also to possess in a great degree the valuable property of standing unshrinkingly the sea breeze, whence it may possibly be useful where so many things are really useless. The only seeming objection to its covering what appear to be uncultivable wastes is, that it carries too much sail.—N. M. T.

Larch on red sandstone.—It has been proved that the Larch is very soon lost when planted above a substratum of red sandstone. For example, in the vale of Annan wherever the sloping banks have a substratum of the rock or one composed of a sort of red sandstone, shingle, or gravel, the outward decay of the tree is visible at from fifteen to twenty-five years of age. The internal decay commences sooner, according to the depth of the upper soil, in the centre of the trunk, at the root, in the wood being of a darker colour, extending by degrees in circumference and up the stem, until the lower part of it becomes entirely deprived of vegetation, and assumes a tough and corky appearance. This extends to the whole plant, which gradually decays and dies. On the same soil the Oak grows and thrives well.

Tree shelter for farms.—A narrow strip of woods left on the crest of the hills, and on the north and west lines of many farms, would pay a large interest, by the increase of the crops which would result from such shelter on the remainder of the farm. Where the woods have been cut away, I think it would pay well to plant these strips, and by good care to promote their growth as rapidly as possible. Quick-growing species in this case should be selected, such as Chestnuts, Maples, and Poplars. I have for several years allowed all young trees growing along the fences to grow. I have trimmed them, and quite a number have grown so rapidly, that I have trees which will soon be good to cut for rails, posts, or wood. They take no room, shelter the field, and give some shade for cattle.—R. T.

Planting v. sowing.—A gentleman in France, who has had a long and extensive experience in raising trees both for woodlands and ornamental plantations, writes to us thus: "Seedling trees raised on the ground where they are to remain are decidedly stronger and more healthy than those that have undergone the usual nursery treatment of transplanting. I prefer sowing whenever I deal with a tree the seed of which can be had in sufficient quantity. At five years old the *semi-in-place* will overtake the transplanted trees, although the latter are in fact several years older. In sowing seeds, of Pines for instance, the land should be in good condition, rather hard pressed, but clean—soil too well stirred is not good as a seed-bed for Conifers. Sowing broadcast or in drills is the best plan to adopt in sowing. As Pine seeds are small, only about 6 lb. or 8 lb. are required to sow an acre.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE GARDEN.

ROSES IN THE WILDERNESS.

HERE seems almost a contradiction in terms, as the presence of Roses must dispel our ideas of the bleak desert or savage tract of savage solitude and sandy desolation which fill up our vague notions of the fierce howling wilderness. If, as reported, the belated traveller, foot-sore and weary, exhausted and despairing of life, was inspired with, encouraged, and nerved to the fresh exertion that saved him from death by the presence of a single green sprig of Moss amid a boundless expanse of trackless sand, how much more inspiring and strengthening a single Rose in the desert would prove. But it is not of such a wilderness, relieved thus of its savage desolation and dreary monotony of scrub and sand, that we would now write, but rather of those technical wildernesses that were wont to be found outside the boundaries of our older and more famous gardens. These constituted a sort of debatable land—neither garden nor wood, yet often combining the best features of both, and formed a most useful trysting-place between Nature and Art. The garden overflowed into the wilderness, which added a new charm to the wilder grandeur of the woodlands. The combination skilfully blended forms a sort of bewitching twilight equally far removed from the glitter and midday-sun-like broad glare of the garden and the sombre gloom and semi-darkness of the wood or forest. And thus it often comes to pass that a charm almost beyond the reach of art was reached, if attained to at all, in the wilderness. This truth was brought to my mind many years ago in a very forcible manner by a lady of culture and taste thus: Complimenting her on the beauty and extent of her glasshouses, flower garden of an acre glowing with brilliant and chaste colours, and the extent and beauty of the pleasure grounds well furnished with shrubs and choice trees, she exclaimed, "But you have not seen the wilderness!" with an air that proved that this far exceeded all else in chasteness of grace and richness and fulness of beauty. And yet it was little more than a broad winding walk with irregular margins running through a wood. Here the trees and shrubs approached the gravel and there they receded far into the wood, again advancing and receding—never, however, repeating the same curves—through a delightful stroll of half a mile or more. The ground was also irregular, with now a knoll and then a dell; anon a bolder hillock or mound succeeded by a ragged ravine of such form as to lose itself among the trees. And yet this wilderness was really in most of its features and the whole of its furnishing the creation of art, and not the child of Nature. It was formed by set purpose, and was in no sense nor to any visible extent the product of chance, like the world of Hafid's dream. Each plant or group of plants had its or their appropriate niche, as if it had been been chiselled out for them by a consummate artist, yet neither chisel-mark nor footprint were left behind to reveal either his planting or his care. And yet the whole scene bore evidence of much skill in both. Each plant seemed posted in the best place for developing its character and

displaying its beauty. As chance obviously did not form, so neither did chaos reign over this alluring scene of beauty. Plants were subjected to other rules than the operation of the wild law of the survival of the fittest. The weakest seemed as full of health and as secure in their occupation as the strongest; neither did it appear that the freedom of any was restrained by training, nor their liberties curtailed by pruning. A few of the more striking plants noted in this wilderness were Foxgloves, Honesty, Cow Parsnips, Forget-me-nots, Primroses, Snowdrops, Daffodils, Pampas Grass, Arundo Donax (plain and variegated), Leycesteria, Barberries, Spiræas, Heaths, Lilacs, Deutzias, Wistarias, Brooms, Whins, Syringa, Clematises of the older sorts, Honeysuckles, Laburnums, Virginian Creepers, Ivies, Hypericums, and Roses.

Nothing at all wonderful in the material; it was simple, cheap, common-place, and within reach of all. The charm of this enchanted, or at least enchanting, wilderness lay in three things—the variety of its ground lines, which were mostly artificial, the grouping of the materials, and the linking of these two together in bonds so congruous and semi-natural as to convey the idea that nothing else would suit any nook or corner, prominent knoll or deep receding dell, half so well as the plants found in or on each. Many of the trees were draped with contrasting plants, such as Virginian Creepers and Ivy, Clematises and Honeysuckles, Laburnums and Wistarias, &c. But the chief and supreme attraction consisted in the skilful use of Roses alike as drapery for the trees and in groups and masses on the ground. Here a Dog Rose might be seen climbing a tree-stem boldly, and draping all its lower branches with long sprays of pendent verdure and beauty; farther on huge tree-like bushes of Sweet Brier filled the air with their fragrance; while close by huge masses of Noisette, Ayrshire, and other free-growing Roses filled up the foreground, and the higher branches at the back leaped up, as it were, to lay hold of the lower branches of the trees, as if to ask the latter to give them a rise in the world.

Several Roses that had once been stiff and prim standards had run up and out into dense bushes of enormous size; among these the more prominent were huge plants of Charles Lawson, Coupe de Hébé, Blairi No. 2, and that best of all Hybrid Perpetuals for such purposes, Baronne Prévost. Groups of Scotch Roses, Austrian Briers, Moss, Provence, and other summer Roses added their variety of colour and of fragrance to the scene; but the chief attraction was the semi-wild luxuriance that distinguished the Roses in the wilderness from those generally seen in gardens. There was little attempt at individual perfection either of plant or bloom, but the masses as a whole were simply magnificent in their wild freedom and prodigal profusion of growth, the old Brier stems being literally covered over with the far-reaching, crowded branches.

Not a few of the Roses and Briers—species and variety—first noted in that wilderness for the first time are now probably out of cultivation; but, fortunately, we are more rich in suitable Roses for the wilderness than at any previous period of our experience. Within a recent period several new species of Roses have been introduced and the varieties of climbing, scrambling, and free growing Roses have been greatly increased. Single Roses of free growth and brilliant colours are also becoming popular, and all these will find a suitable home in the wilderness. The more robust Teas of the Gloire de Dijon and Gloire de Bordeaux types, Bourbons of the Souvenir de la Malmaison, Baron Gonella, Queen of Bedders, and Acidalie types, and such Noisettes as the Climbing Aimée Vibert, Céline

Forestier, Jaune Desprez, Fellenberg, Jeanne d'Arc, Rêve d'Or, Triomphe de Rennes, and William Allen Richardson are admirably adapted for the wilderness. Among Boursaults, Amadis, grandis, and elegans are perhaps the best, while the Ayrshire section furnish three good whites in Rampante, Thoresbyana, and Countess of Leven, and good pink or mixed coloured Roses in Queen, Dundee Rambler, and splendens. Among the best Evergreen Roses are the two whites or whitish Félicité Perpetuelle and Banksiaeflora; the two pinks, Flora and Princess Marie; while the so-called Hybrid Climbing Roses furnish two more capital whites in Baltimore Belle and Mdme. d'Arbray, a rich crimson in Russelliana, and a good pink in Laure Davoust. In warm situations the Banksian Roses also do remarkably well in the wilderness, growing with a freedom and blooming with a prodigality and profusion which cultivators, through mistakes in pruning, seldom allow them to attain on our walls. There are four varieties of this charming species—two whites and two yellows—the common white and yellow being the best adapted for semi-naturalisation in the wilderness. Fortunei has equally fragrant and far larger flowers than the common white, and in Jaune Serin the blooms are larger and deeper coloured than in the common lutea. Among Hybrid Teas, Cheshunt Hybrid is the best for the wilderness, and the following Teas may well bear it company: Climbing Devonien-sis, Belle Lyonnaise, Belle or Gloire de Bordeaux, Mdme. Berard, and Mdme. Trifle. The so-called Climbing Perpetuals now form a host in themselves, such as Jules Margottin, Bessie Johnson, Captain Christy, Edouard Morren, Charles Lefebvre, Mdme. Verdier, Mdme. Eugène Verdier, and Victor Verdier. The majority of the more vigorous Hybrid Perpetuals also adapt themselves well to the wilderness. The following are merely a few samples gleaned from this class: Camille Bernardin, Glory of Waltham, Glory of Cheshunt, Dukes of Edinburgh and Teck, Jules Margottin, General Jacqueminot, Magna Charta, Paul Néron, Maréchal Vaillant, Thos. Mills, Red Dragon, Boule de Neige, Robert Marnock, Mrs. Harry Turner, Mabel Morrison, The Shah, La Reine, Anna Alexieff, Coquette des Blanches, &c. But we must stop, and these must suffice to show that if our wildernesses are not forthwith enriched with Roses it is not for lack of suitable material, but rather for the want of the will or ability to dispose of our Roses there to such good purpose as to make the wilderness to rejoice and blossom as the Rose. D. T. F.

Roses for early forcing in quantity.—Can anyone recommend two better Roses for this purpose than President and Niphetos? The chief fault of the latter is that, started ahead of President, it will generally be a fortnight or three weeks behind it in opening its flowers. There is so much material in Niphetos that it takes the more time to elaborate and expand its blossoms. President, on the contrary, though a good double Rose, is less profuse in its petals, and the latter are less firmly compressed together. Of course, I am well aware of the existence of many Roses that may be had in bloom in less time, such, for example, as Madame Falcot, Safrano, and others. But these, though useful as buds, can hardly be called Roses when expanded. President and Niphetos, and the latter even more than the former, have the additional merit of breaking into growth so soon as the first crops of Roses are cut. And their second and all successional breaks bloom in much less time than the first one from the dormant bud in the spring. There is an old-fashioned China or Tea Rose grown here and there, under the name of Smith's Yellow, which is almost white when forced early, and has a long, pointed, delicate bud that possesses substantial merits as an early forcing Rose. Has any one tried Boule de Neige planted out under glass for early forcing? The results from pot plants have proved satisfactory,

and this exquisitely formed, uniquely perfumed Rose is even more pure and beautiful under glass than out of doors. Its form is also in striking contrast to the general run of Roses grown under glass, and it possesses a power of perpetual blooming very rare among Hybrid Perpetuals, either out of doors or in. As it flowers in masses, its smaller buds are exquisite for button-hole and other bouquets, wreaths, &c.—D. T. F.

ROSES AND CLEMATISES FOR WALLS.

"T. B." (p. 179) has ably treated of the merits of both as wall climbers, but has not suggested what has long been a favourite idea and practice of mine where practicable—that is, the combining of Roses and Clematises on the same wall. Beautiful as either plant is alone, the beauty is more than doubled by their skilful admixture. There are three or more possible modes of clothing the same wall with these two families of plants. The first is to plant Roses and Clematises alternately, either singly or in groups, and apportion equal regular or irregular areas to each in succession. For example, a Rose and a Clematis may be planted alternately, or two Roses to one Clematis, or *vice versa* in certain proportions one to the other. The effect, though always beautiful, is apt to look formal, and even stiff, though that may seem impossible with such flexible plants as Clematises. But it is easy enough to stiffen Clematises in practice when tightly nailed up against a wall and severely limited in their run to so many lineal feet and inches. A second mode is to use the Clematis as a background for Roses. One Clematis to every two or three Roses would probably suffice for this purpose. A practical difficulty arises here from the virtually herbaceous character of several of the Clematises, and only those sufficiently hardy and with woody stems that survive the winter are fitted for this mode of combination with Roses.

In this mode of mixing Roses with Clematises the Clematis should be displayed thinly over the wall, and the Rose shoots trained over at greater distances than usual. By exercising skill in the selection of colours that will contrast distinctly, if not violently, the effects of the dual mixture will be greatly heightened. The two sets of plants may be carefully trained, or the Clematis permitted to grow more wild and free, and either way the two families combined will form a far richer wall covering than either singly. But the third mode of uniting these two families of plants on the same wall is the most telling, and admits of a good many variations in its execution.

It consists in forming panels of equal areas and at equal distances on the wall and planting each as far as may be with one Rose or Roses of similar character and colour. Plant between each panel one or more Clematises to form a projecting pillar or break between each two panels. To intensify the effect of this mode of wall furnishing with two families of plants of such distinct characters, it is best to keep the Roses pretty closely trained to the wall, and allow the Clematises to grow so freely as to project 6 inches or more. Thus almost all the effects of a panelled wall with architectural piers may be enjoyed on the surface of a smooth, plain wall.

Yet another effective mode of growing Roses and Clematises on the same wall consists in alternating, or otherwise, the two classes of plants so as to provide a sufficiency of Clematises to form a sort of coping of gorgeous flowers and distinct foliage along the top of the wall. Ever and anon, long sprays of Clematis in flower are allowed to drop down from the living coping of verdure and beauty, to relieve the formality and enhance the beauty of the Roses beneath. The method of alternate planting may also be carried out in a much more free and easy fashion. Roses and Clematises alike may be given their head and but little pruning or training indulged in, and by this method of enlarging the liberties of plants their beauty is not seldom immensely enhanced as well. A cut and a tie occasionally to enable one plant to climb and to keep another within bounds will be about all the skill and care demanded of the cultivator to drape his bald brick walls with such a prodigal profusion of glowing

graceful beauty as could be produced by no other two families of plants besides those of Clematises and Roses. D. T. F.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

MUSHROOMS IN SHEDS.—Some appear to be in doubt as to the success of the shed system of growing Mushrooms, but every week adds to my faith in it. On the 31st December last we made up two beds, one in the potting shed and another in a similar structure. On January 30, little Mushrooms about the size of Peas were visible in groups here and there all over the surface of these beds, and Mushrooms were gathered from each of them in forty days after they had been spawned. Under any circumstances the crop could not have been expected much sooner than this, and at present the beds are most satisfactory. If they hold out as others have done, which I have no doubt they will, we shall continue to gather from them until the end of April. Some beds which began to bear in November are still throwing up fresh Mushrooms, and we find that they go on bearing much longer in cool sheds than in warm houses. Probably they do not come up quite so rapidly in the former as in the latter, but the long succession is very satisfactory, and in my opinion the flavour of cool grown Mushrooms is superior to that of those grown in heat. Not long ago I was told that people who had eaten my Mushrooms were so pleased with their flavour, that they wanted to know how they were produced. I therefore feel sure that if they were so much superior to Mushrooms raised by others as to attract particular attention, the merit must be attributed to the cool and natural-like treatment to which they are subjected. So much for shed culture; now for another plan. On November 14 we had an empty two-light frame and some surplus manure which was formed into a bed in the frame. This was spawned, soiled, and covered over with hay in the usual manner, but as yet we have not had a Mushroom from it. I daresay they will make their appearance when the weather becomes better and drier. I feel certain that they have been checked through the hay generating damp, thus keeping the surface of the bed always wet; though the lights have been over them, they did not prevent the interior from becoming wet.

WRINKLED PEAS.—These are not by any means so tough as the round-seeded varieties; anyone sowing a row of wrinkled and a row of round Peas in wet, cold soil early in the season would find that many more of the former failed to germinate than of the latter. Indeed, it is a mistake to sow wrinkled Peas before the beginning of March, at least unless under very favourable conditions, and I would advise all who wish to have a good show of young plants to sow none but round-seeded varieties so long as the soil is wet and cold. Where wrinkled Peas must be sown early for some special object, such as for exhibition, no attempt must be made to put them in trenches or very deep in the ground, and a little sandy soil should be put under and over them. One year we thought we would have a wonderful lot of early Peas, and sowed about a dozen kinds in trenches in February; a wet March followed and the wrinkled rows had to be re-sown.

EARLY CARROTS IN THE OPEN.—Carrot seed is very hardy, and the young plants are not easily injured by severe weather. As a rule, we sow all our early Carrots between the middle and the end of February, and they are always satisfactory. If sown now they would be ready for

use by the end of May or early in June, and would form a succession to those in frames. Those who have no frames, or means of getting early roots, should sow in the open at once, and the result will be satisfactory. Only early varieties, such as the French Horn or the Early English Horn, should be sown now. The soil for their reception should be light and rich and the position exposed to the sun—natural advantages which should never be ignored in producing early vegetables. Carrot ground should always be well dressed with lime or soot before sowing, as Carrots are at all times apt to be attacked by grubs. It is also a good plan to mix up some old potting shed soil with a quantity of soot and a little guano, and fill up the drills after sowing the seed with this mixture.

AUTUMN-SOWN ONIONS.—These form a useful crop; in most cases spring-sown Onions are becoming scarce by April or May, and it is then the autumn-sown ones are ready for use; they keep up a supply until July or August, when spring-sown ones are again ready. The white varieties, such as White Elephant, Early Queen, and Italian White, bulb much earlier than any of the yellow or red-skinned ones, and some of the white kinds should always be grown for early use. Just now is an important period as regards the culture of these Onions. Hitherto they will have been in rows or beds undisturbed, but thinning and transplanting must now take place. Plants left to grow in the seed rows will bulb earlier than those transplanted, but the latter often become the finest. Where there are any blanks in the rows these should be filled up and they should all be thinned out until those left stand about 9 inches apart; a little soot should then be dusted round these and the soil should be trodden down as firmly as possible along each side. Those drawn out should also have the best of attention. They should be planted in very rich soil and in rows, the plants being 1 foot apart each way if large bulbs are desired; but if the only object be to secure a large quantity of small ones for ordinary use, they may be planted at a distance of 1 foot between the rows and 6 inches between the plants. It is Onions of this class which are best for exhibition at the summer shows, and a few may receive extra good treatment for that purpose. One of the best ways of getting large bulbs is to put a layer of cow manure about 6 inches in depth 4 inches below the surface and plant on the top of this. Onions cannot be too well exposed to the sun, and the soil should be made quite firm before planting.

POTATOES AT THE BOTTOMS OF WALLS.—Early Potatoes may always be raised in frames, but it takes a great many frames to produce pecks or bushels of tubers, and although a few early dishes may be secured from under glass, it is from the open air that the main supply will always be derived. There are many, too, who place great value on early Potatoes, but who have no frames to devote to their culture; growers of this class must always look to early planting in the open to furnish new tubers in May and June. In the majority of instances, however, it would be a mistake to plant the earliest crop quite out in the open garden; on the contrary, a sheltered position should always be selected for it. Respecting this we have never found any spot to suit the first crop so well as along the bottoms of walls, especially those with a south and east aspect. A row of close-growing early kidneys put in thickly along the bottom of a south wall always furnishes many good dishes, and with a little care neither frost nor cold winds do them harm. In the majority of instances wall trees are protected throughout March and during the greater part of April, and by allowing

the protecting material to hang down until it almost touches the ground, it affords excellent protection to the Potatoes. Apart from this, too, there is always an amount of shelter and some amount of heat at the bottom of a wall, which is of the greatest advantage to the Potatoes. In cases in which the trees are not protected some protection can be put against the wall to shelter the Potatoes on cold nights. I would, therefore, recommend all who are in a position to do so to plant at the bottom of their walls as soon as circumstances permit.

MANURING SPRING-SOWN ONIONS.—It is the general desire of Onion growers to grow their bulbs as large as possible, and when for exhibition that is desirable, but those who have to keep up an all-the-year-round supply of Onions know that the largest bulbs are by no means the most useful or best keepers; medium-sized bulbs therefore find most favour. It is difficult, however, to get Onions of this stamp when the soil is very heavily manured before sowing, as manure promotes strong growth and extensive development, and for this reason I am in favour of growing Onions, especially such sorts as Bedfordshire Champion and James's Keeping, in poor soil. Ground very lightly manured, or not rich in any way, will never produce very large bulbs, or perhaps not quite medium sized, but they will be thoroughly sound, high-flavoured, and capable of being kept in good condition for many months. Those who have now prepared a very rich piece of ground for their spring Onions should try a few on a poor quarter also, and I feel sure they will be greatly pleased with the excellency of the bulbs which they will obtain from it.

BROAD BEANS.—I am glad "A. D." has somewhat altered his opinion in regard to these. In replying to my notes on January 2 (p. 14), he asserted, after growing Leviathan and Seville Long-pod for two successive seasons, that he found "absolutely no difference" between them. On February 13 (p. 145), replying to Messrs. Carter's remarks, he admits "that the Seville strain is a week or so earlier" than the Leviathan, and as this was one of the distinctions between the two which I pointed out, I fail to see the grounds for "A. D.'s" contention.

CUTTING SEED POTATOES.—When any one buys a few pounds of seed Potatoes at 1s. or 1s. 6d. per lb., they are naturally anxious to make the most of them. If planted whole they would not go far towards yielding a remunerative return. To do this they must be cut up into several pieces. Round Potatoes always bear cutting better than kidney ones, and in an ordinary way the latter are better uncut, but in the case of expensive seed each Potato may be cut into two or three pieces. We would not, however, exceed this in the case of kidney sorts; round kinds, however, may be cut up into as many pieces as there are eyes, each eye being allowed a small piece of Potato attached to it, and in this way a tuber from 8 oz. to 12 oz. in weight will furnish from a dozen to a score of sets. We have cut up a tuber only weighing 3 oz. into ten sets and the return was over 30 lbs.; this is nothing out of the common, as some heavy cropping kinds will exceed this considerably. In cutting up any kind the operation should always be performed the day before planting, as this gives the cut part time to dry and become hardened before coming in contact with the soil. J. MUIR.

Margam.

5459.—Gardens and gasworks.—We have small gasworks here, the west wall of which forms part of a kitchen garden wall in which we grow our main crops of Asparagus, Celery, Carrots, herbs, &c. When the wind is from the east, a prevailing quarter,

the smoke is blown very much over the garden, but I have never noticed any injury to result from it. I am, indeed, of opinion that no harm would befall a garden from being contiguous to gasworks provided other conditions were favourable.—J. MUIR, Margam, Glamorganshire.

ORCHIDS.

THE MASDEVALLIAS.

No other genus of Orchids has risen so rapidly in popularity as this, a circumstance at which no one need be surprised, as in no other genus can be found such infinite variety of both form and colour. They are also easily cultivated, though they certainly like a little more heat than ordinary cool-house Orchids. A minimum temperature in winter of 50° is much better than one of 40°, or even 45°. Although some cool-house Orchids may remain in health for weeks in winter in the lowest temperature just named, the Masdevallias will not do so. The best species, perhaps, amongst them is *M. Harryana*. It is not only the most beautiful, but it is also one of the easiest to grow. Of this we had a few plants of the first importation. *M. Lindeni* had been exhibited at South Kensington the same season, and *M. Harryana* was expected to be very similar. It has proved to be superior to *M. Lindeni* or even to *M. Veitchiana*, which was well known at that time, but costly, until the new introduction flowered, when it fell in value considerably. We still possess those earliest plants; but they have been propagated and divided until they have increased more than one hundredfold. I may add that some have not been successful in propagating these Masdevallias. I have been told by a good Orchid grower that in some cases failure has been owing to the plants being divided with a knife; my plan is not to disturb them until they have grown a considerable size, when they may easily be separated by gently drawing them asunder with the fingers. One of the plants to which I have alluded was divided in that way into ten good plants; now they might be divided into fifty. Now is a good time to propagate these Masdevallias by division; and when repotting, do not use very large pots. When once they are established and have made plenty of fresh roots, it is easy enough to repot them.

Next in importance to *M. Harryana* I would place *M. Veitchiana*. This was discovered by the late Mr. Pearce in the Cordilleras of Peru. It flowered in the Chelsea Nursery in 1868, when it created quite a sensation, owing to its distinct and beautiful colour. Its culture was not then so well understood as it is now, and therefore plants of it were very scarce. Subsequently to this it was introduced in quantity, and therefore is now plentiful. It requires the same treatment as *M. Harryana*. Like that species, there are many varieties of it, all of which vary in colour and size. These are two of the best species for exhibition, large specimens of them making a brilliant display. The first hybrid Masdevallia, the result of crossing *M. Veitchiana* with *M. amabilis*, is named *M. Chelsoni*, a kind which I have grown in our own collection under the same cultural conditions as those under which the others thrive.

Another remarkable and distinct species introduced for the first time by Mr. Davis, Messrs. Veitch's collector, is *M. Davisi*, a kind found near Cuzco, in Peru. Its flowers, in the case of the best varieties, are bright yellow; others have flowers of a much paler colour. It is distinct in character and contrasts strikingly with the richly-coloured flowers of the others. Several Orchid growers, it would seem, have taken to seedling

raising, and now that there are so many distinct and richly-coloured species and varieties from which to select parents, we may expect to obtain hybrids of surpassing beauty.

A notable species of the same type as the above is *M. ignea*. I do not know who was the first to introduce this species, but it is stated in the *Botanical Magazine* (t. 5962) that it was originally imported from New Grenada in March, 1870, and sold in Stevens's sale rooms. It soon flowered in various collections, the result being many distinct and beautiful varieties, the most brilliant of which is *M. ignea superba*. *M. Lindeni* is evidently specifically distinct from *M. Harryana*. It is figured in the *Botanical Magazine* for 1872 (t. 5990) from a specimen flowered at Glasnevin by Dr. Moore. It is stated to have been first introduced by Mr. G. Wallis from New Grenada in 1869. Mr. B. S. Williams states that this plant is not *M. Lindeni*, but *Harryana*. We have grown both species for many years, and they are certainly distinct in leaf and flower. I can easily pick out *Lindeni* from the *Harryana* group by the leaves. It is quite as vigorous in growth as *Harryana*, and reproduces itself with the same freedom. I like to see the Sphagnum growing freely on the surface of the compost; when that is the case all these Masdevallias succeed well, especially if the drainage is effective.

M. amabilis may also be admitted into this group. It is a Peruvian species and distinct in character. Its flowers are of small size, gracefully poised above the foliage on slender stems, and very bright in colour, which is a distinct rosy red or carmine. Plants of it grow with considerable freedom amongst other cool house species. *M. towarensis* is a little gem. A few years ago it was very scarce, but now it is plentiful. It was, I believe, in the first place sent to Germany from Tovar, in Columbia, where it was found at an elevation of several thousand feet. Mr. Rucker, of Wandsworth, flowered it in 1864 from one of the German importations. It was grown there under the name of *M. candida*. This species does not succeed well in the cool house during winter. I always place it at the cool end of the Cattleya house, where the plants furnish us with a wealth of bloom during the Christmas weeks. We do not scruple now to cut the flowers off with the whole stem attached. The flowers are produced from the crowns of the old stems. If the stems are not removed, i.e., if all the old stems are left, but few new ones will be produced; whereas if they are removed, new ones are produced in abundance.

J. DOUGLAS.

Cattleya Trianae (W. J. Thomson).—The dark form is certainly not *Russelliana*—not nearly so large as that variety, though the colour is almost as rich. The pale form is very pretty, and different from the ordinary run of light-coloured *Trianae*. This form and others similar are usually called *C. Warszewiczii*.

Cattleya Lawrenceana.—We have succeeded in flowering this new and beautiful Cattleya. Both of the plants which we have of it are nicely in flower, one having a spike of three flowers, the other two, and on a separate bulb there is another flower. The flowers are of a clear purple-lilac; lip dark purple, with yellow on the upper part.—J. LAING AND CO., Forest Hill.

Galanthus virens.—In reply to a question about the origin of this Snowdrop (p. 191), allow me to state that I obtained two bulbs of it from the late director of the Vienna Botanic Garden, Professor Fenzl; that I gave thereafter a bulb of it to Rev. Harpur Crewe and another to Mr. Allen. The bulbs in Mr. Loder's collection probably came from Tring; there is only one form, and Mr. Allen's description of it is exact. I cannot state my opinion about Melvillei not

being so fortunate as to possess it, but I remember that it was by competent judges declared to be a very desirable variety.—MAX LEICHTLIN, *Baden-Baden*.

HOT WATER V. STEAM HEATING.

TO THE EDITOR OF THE GARDEN.

SIR,—In your issue of 27th February under the above heading "Veronica" says, "From America comes the news that steam heating is there fast superseding the old hot-water arrangement," and further on in the same article asks, "What have our hot-water engineers to say on the subject?" I think the question may be answered without admitting that the Americans are ahead of us in their method of warming horticultural buildings; with them it is a question of "economics," their iron industries being protected by a high tariff—150 per cent. on tubes and pipes at their present value in this country, 65 per cent. on raw pig iron; and, as even against this tariff plus freight commission and insurance, such goods are sent from this country to the United States, it may be taken that their market value there or cost to the consumer is at least 100 per cent. greater than like goods may be bought here.

This being admitted, it follows that, economically considered, it may be advisable to adopt a more expensive and less desirable initial power to warm the pipes if thereby a smaller exposed surface will give off sufficient heat to raise the temperature of the building to the desired point. Simply put, the question is, Are the defects and disadvantages of steam heating more than counterbalanced by the saving effected in original cost of apparatus by getting the smaller amount of piping to do the same work as would be done by a greater quantity of pipe heated on the low pressure hot-water system?

Apparently our American friends have answered this question in the affirmative. That steam for warming purposes may be superseding hot water in factories or wherever steam boilers are in use for other purposes, such as driving machinery or working lifts, I should be prepared to believe; it sometimes happens that by utilising waste steam a building may be heated without cost at all, further than the original expense in labour and materials; but I accept with some reservation "Veronica's" statement that even in America steam is taking the place of hot water in its application to the heating of horticultural buildings.

The ordinary hot-water pipe will sustain a much higher pressure than 10 lbs. per square inch, so the same article may be used either for steam or hot-water heating purposes to heat a building 60° Fahr. with steam at 10 lbs. pressure per square inch or 240° Fahr.; 6½ feet of 4-inch pipe will raise the temperature as many degrees as 10 feet of 4-inch pipe on the low pressure hot-water system, where the average temperature may be taken as 180° Fahr. This shows a saving in favour of steam to the extent of 33½ per cent. in cost of the heat-distributing medium. A further advantage may be claimed for steam heating, viz., that the levels do not need consideration; the boiler may be placed above the level of the pipes without fear or risk that the apparatus will not act.

Care, however, must be taken to provide for the escape of condensed water at such point or points where from the construction of the apparatus it will tend to accumulate.

That steam apparatus for warming horticultural buildings will come into general use in this country I do not believe; certainly, not so long as the pipes or heat-distributing medium can be procured at a moderate cost. The objections to

steam heating apparatus are many and weighty. On a small scale it is impracticable, and on a large scale it has the following disadvantages: Whenever steam is used under pressure its use is inevitably associated with such risks as explosions, &c.; skilled and almost continuous attention is absolutely necessary. The fittings of a steam boiler, consisting of injector, safety-valve, steam and water gauges and cocks, are liable to get out of repair; a water gauge glass that has been in use for weeks or months may fly to pieces at any moment, and unless an attendant is on the spot to at once shut off the gauge cocks, the result, so far as your apparatus is concerned, will be collapse. A very slight alteration in the condition of the fire may raise the pressure of steam in the boiler to 15 lbs. per square inch, or reduce it to 5 lbs., giving a temperature in the pipes at the former of 250° Fahr., or a temperature of 227° Fahr. at the latter—a variation of 23° Fahr. with a corresponding effect in the houses. The low pressure hot-water apparatus possesses great advantages in this respect; is not liable to rapid variations; steam pipes would lose their heat in half an hour as against from three to four hours in hot-water pipes.

It would be necessary to fix steam boilers in duplicate, as they periodically require cleaning out, for which purpose the steam and water must be blown off. There is also a question which perhaps I am not very well qualified to decide, viz., whether it is not better to warm glass houses by a greater heating surface at a low temperature than by a smaller heating surface at a high temperature. Certainly there is a limit to the extent you may go in the latter direction; instance the disuse of the high pressure hot-water system for horticultural work. On the question of economy in fuel the advantage is decidedly in favour of the low pressure hot-water system when good types of boilers are used.

C. P. KINNELL.

Bankside, Southwark.

NOTES OF THE WEEK.

Camellia reticulata variegata.—This is an uncommonly pretty plant, and we think somewhat rare. The first time we have seen it in bloom was the other day. The contrast between the large single blooms, which are cherry-crimson, and the white-edged foliage is extremely pleasing, and the plant stands out conspicuously from the rest of the group of Camellias of various kinds, of which the large conservatory in the Pine-apple Nursery, Maida Vale, contains a good collection.

Begonia Lynchiana.—This Begonia, which is synonymous with Roezli, is at present in full bloom, and extremely pretty it is when placed amongst other plants, either in the stove or intermediate house. It is usually grown with a single stem, which pushes up as straight as a Reed and bears large handsome leaves, which sometimes measure 12 inches across, and flowers which rise well above them. The colour of the latter is reddish crimson. Cuttings of it will strike root, but seeds sown late in autumn make the best plants for flowering the following winter.—W. H.

Open-air Daffodils.—I send you a few of my early Daffodils from the open air. The big one is Ard Righ (Irish or Yellow King), the small one a form of N. nanus. I have cut to-day (Feb. 27) the following sorts in bud, viz., N. cernuus, obvallaris, pseudo-Narcissus (Italian), princeps, and lobularis plenus. These will expand to-morrow indoors in water. The weather we have had lately is against flowers opening out of doors. On Saturday the sun shone warmly, and the bees were busy among a bed of *Erica carnea*. But during the last forty-eight hours there has been a bitter east wind accompanied by frost and snow.—W. B. H., *Temple Hill, Cork*.

Fortune's Yellow Rose.—Some good blooms of this beautiful salmon-tinted Rose, so seldom seen,

have been sent to us by Mr. Cook, of Holme Wood, Peterborough, who evidently grows it well. In his note accompanying the flowers he states that he has had it in bloom for six weeks, and asserts that it looks nearly as well now as when it first blossomed. His plants of it are taken out of the forcing house as soon as the first bloom opens and placed in a greenhouse, in which the temperature ranges from 40° to 50°. He finds that by so doing the blooms get much better coloured, and also last much longer both on the plants and cut than when subjected to too much heat.

Gardenia citriodora.—While double Gardenias are common enough one rarely sees this little shrub grown, although deliciously scented. The flowers are single, about the size of a shilling, ivory-white, and borne in clusters among the foliage. It is a dwarf, bushy shrub, floriferous when well grown. It likes warm stove treatment, and flowers freely at this season; for variety's sake alone it is worth consideration. We saw it in bloom in the Pine-apple Nursery this week, where it is grown well in company with the ordinary Gardenias.

Royal Horticultural Society.—At the moment of going to press we have received a copy of the journal of the Royal Horticultural Society containing the report of the Orchid conference held at South Kensington in May last year! It has been compiled by Messrs. Burbidge and Ridley, the former reporting upon the plants of horticultural interest exhibited; the latter on botanical exhibits. Full reports of the papers read at the conference and the discussions thereon are also given. To these matters we shall allude more fully hereafter.

Royal Botanic Society.—The usual summer shows of this society will be held on May 19 and June 9. The schedules of these exhibitions have just been issued, and they show no material difference from those of former years. The classes set apart for the first time last year for *bona-fide* specimen plants of Orchids are continued this season, and we cannot but think that these classes will tend in a large measure to put a stop to the unfair practice of "making up" specimens. The first prize, however, for *bona-fide* specimens is £5, whereas that for twelve specimens, either "made up" or single plants, is £7. These prizes should be reversed, if it is really the intention of the society to encourage skilful Orchid culture.

QUESTIONS.

5462. **Gooseberry bug.**—Can any of your subscribers say if there is any effectual way of ridding a garden of the Gooseberry bug, as it is called in Scotland?—J. T. M.

5463. **House flies and window plants.**—I am told there is a plant, well adapted for growing indoors as a window plant, that is most effectual in keeping flies away, as they will not enter any room in which this plant is. Can any reader of THE GARDEN give me the name of it?—CALIFORNIA.

5464. **Grafted Vines.**—I have a Muscat of Alexandria grafted on a Chasselas Musque, but it does not do very well; would a Gros Maroc do on the Chasselas, or would it be better on its own roots, or what would be the best stock for it if grafted or inarched in an early vinery? Perhaps some Grape growers will oblige me by their opinion in the matter.—WILLIAM JOHNSTON, *The Elms, Abingdon*.

5465. **Undergrowth in woodland.**—Part of the avenue here, about 300 yards, has been cut through a wood which is on a considerable declivity. The part above the avenue which faces south needs some undergrowth—wild vegetation—would be preferred, but when left to itself, brambles—the Blackberry—abound. I shall be much obliged for information on the subject. The trees are principally tall Larches and some Scotch Firs.—R. L. A.

5466. **Heating.**—I am in a little difficulty, and should be much obliged if some of your readers would be kind enough to give me what help they can in the following case: I am a young gardener, and this is the second year during which I have had charge of four houses with a small forcing and propagating house, 16 feet by 10 feet, next to the boiler. On each side is a brick tank, containing a flow and return 4-inch pipe for bottom heat and a flow and return above for top heat. The bottom heat pipes are covered with brickbats, then a layer of turf with soil on top. My difficulty lies in the fact that I cannot maintain a steady bottom heat. Sometimes there is a nice heat coming up through the soil, and within ten minutes it is gone, perhaps not to appear again for a couple of hours or more, and again to disappear, although there is no appreciable difference in the heat of the pipes; indeed, it seems that the hotter the pipes the less the heat comes up. I should mention that the pipes heat admirably, and I always keep as near as I can the same kind of fire. Any advice as to what I should do to maintain a steady bottom heat will be much appreciated.—C. F.

FLOWER GARDEN.

ROMNEYA COULTERI.

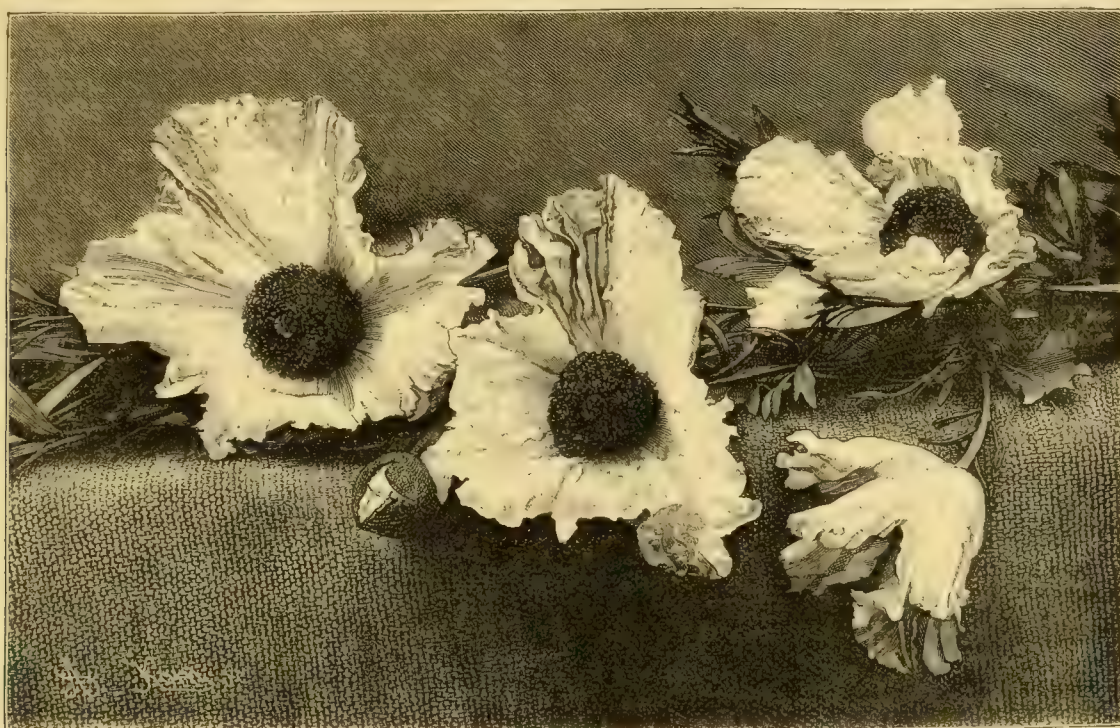
WHEN this fine Tree Poppy is better known, it will be found to have other good qualities, besides that of supreme and stately beauty, as an outdoor plant. Flowering, as it does, from July till November, when the size of the flowers decreases as cold days and nights check the development of the many yet unopened buds, it may well be considered one of the best of plants for yielding a long succession of bloom. Its value as a cut flower may be seen from the engravings; it lasts well in water, and its delicate perfume (Primrose-like, with a dash of Magnolia) is most acceptable in a room. The texture of the petals is extremely delicate—indeed, half-transparent; they never lose the crumpled folds that in the case of most Poppies betoken a newly opened state. Seen out of doors against a blue sky, the colour of the sky can be seen faintly through them, while

drawn and the blooms are kept clean and pure. Of course, such care would only be taken in the case of flowers for gathering, but for ordinary garden purposes protection is superfluous, as few early blooming plants are hardier. The more we can induce our common garden plants to dispense with protection the better, but when needed for special purposes even such simple and unpretentious flowers as double Snowdrops are all the better for some little protection.—A. D.

SPRING CULTURE OF GLADIOLI.

ALTHOUGH much has been written on these bulbs, yet as the season comes round for planting them, enquiries are sure to be made as to the best plan to pursue; and while there are differences of opinion on this, as on most other subjects, yet the experience of some thirty years must be of some use, bearing in mind, too, that some very competent authorities, such as Mr. Douglas, stated that the stand I exhibited at the Crystal Palace show in September was the best twelve

not do it again, as of those left the year before last very few have survived in any vigour, although the last two winters had certainly not been severe; in fact, I find that with most bulbs left in the ground wet is more likely to do them injury than cold, while worms of various kinds are very likely to destroy them. I fancy the decaying corm proves a convenient and tempting shelter for several species, and that from these they attack the newly formed corm, so that I should not, as far as my experience goes, recommend anyone to adopt this plan, especially with valuable kinds. If a grower has plenty of the cheaper varieties, by all means let him try it, but, as I have said, my experience is quite against it; objection, too, has been taken to the lifting of the bulbs and keeping them dry all the winter, and one of your correspondents has recommended the plan of taking them up with the earth attached and placing them where they will be free from frost, this involves an amount of space which few have at their disposal, and I



Study of Romneya Coulteri flowers. Engraved for THE GARDEN from a photograph.

indoors the same quality adds much to the refinement of the flower and its suitability for the closest examination and enjoyment. The bold centre of strong yellow stamens gives the utmost colour-value to the dainty milk-white of the petals, with which the pale glaucous, deeply-cut leaves are in quiet harmony. G. J.

Double Snowdrops.—Whilst botanists seem to find beauty only in single Snowdrops, gardeners generally prefer double ones. The doubles are very constant, very neat in habit, bloom very profusely, and are either in pots or, as cut flowers, always marketable. Double flowers almost invariably are more enduring than single flowers. The dense bulbing habit of double Snowdrops renders them effective both in clumps and in pots. They are also so enduring, that in good soil patches of them will remain sound for generations if undisturbed. For very early blooming it is well to have clumps growing beneath a warm wall, or where a handlight can be placed over still larger clumps, as the flower-stems are then slightly

ever set up by an amateur, so that the thirty years' experience had not been in vain, and, therefore, I may hope that my details of culture may not be without service to others who have not had such lengthened experience of them. I would take the opportunity, too, of referring to some remarks on them which appeared in last year's GARDEN. "W. I. M." objected to my statement that Gladioli might be planted in May. Now, I should not advise their being left until then, unless in very exceptional cases, where frost is severe, and where, although the bulbs might not be killed, they would certainly not be benefited by being caught by it; but that it may be done without injury I can testify, for at the great exhibition in Paris in 1878 there were some remarkably fine spikes exhibited from Fontainebleau, the bulbs not having been planted until May. Another correspondent praised warmly the plan of leaving the corms in the ground, and wrote enthusiastically of the size of those thus left. I have tried this plan, but shall

do not myself think that it will in any appreciable way improve the keeping of the bulbs or ward off the decay to which they are subject. The beautifully silky-skinned corms that come from Fontainebleau are all kept dry on shelves until exported, while those for their own growing are treated in the same way, nor have I ever met any other grower who has advocated the plan. And now with regard to

SOIL. I am convinced by my last year's experience that the conclusion I had come to that the Gladiolus liked rather a stiff soil, provided that it was well drained, is correct. I at one time thought that they preferred a light, open soil, but I have been led to alter my opinion; their fleshy roots seem to rejoice in strong soil, and I do not desire to see better foliage or blooms than those which I had from corms planted in this kind of soil. But it is an absolute necessity, if planted in such soil, that there be no lodgment of moisture about the roots. It was probably the greater ease with which this could be avoided that led to

the idea that lighter soils would be preferable; but with due care as to drainage I believe that the stiffer soil is most suited to them. In order to obtain fine blooms a certain amount of manure must be added to the beds. This should be well rotted, and applied, if possible, in the autumn, the ground being well dug over and left rough, so as to allow the frost to penetrate it.

TIME OF PLANTING.—As a general rule, I should say that the first week in March is about as good a time as any, although this will depend greatly on the situation and the object for which they are cultivated. If merely for the satisfaction of the grower without any reference to exhibiting, it may be done at any time after the 1st of March; indeed, I know some growers who advocate February as a suitable time. I have never tried it, but the ground with me would hardly ever be suitable for it then. If they are grown for exhibition, I think we shall find that if planted in March they will flower in the south of England throughout August, but in the north and in Scotland rather later; while if exhibitions are not held until late in September, April will be sufficiently early. However, situation and climate have so much to do with the time of flowering, that growers must rely on the experience of their own locality. Here, which lies so far south, and where we are much sheltered from north and east, it would be thought that we ought to be early; but I am sure we are not, and I believe it is to be accounted for by the soil being largely cooled by the great number of springs which we have. There are a number of small things which alter the normal condition of things, and which each person is likely to know more about than outsiders possibly can.

METHOD OF PLANTING.—The beds should be 4 feet wide, thus allowing for four rows. I find it best to draw a drill about 4 inches deep, place some sand at the bottom where each bulb is to be placed, and then when the row is filled draw the earth back over it and make another drill. In planting the bulbs I always put a label to each variety, and then enter it all in my garden book, so that should the label be displaced I can always refer to my book at the time of lifting the bulbs. I am not very particular as to planting with regard to colour, for they bloom at such very different times, that however beautiful they are in their individual spikes they do not make so grand a display in the beds as many other flowers do. Before planting I take off the outer skin of each bulb, and where two eyes are clearly to be seen I cut it in halves; I thus double my stock, and where bulbs are new or scarce this is a matter of some importance; but besides this a fairer chance is given to the blooms, for where they are crowded together it is impossible to have them so fine. Some of the finest blooms I had this year were from bulbs so treated, while some of the best bulbs that I lifted in autumn were from roots so treated. Where even the bulbs are small they may be cut, provided the two eyes are clearly to be seen. I know many people are somewhat timid as to carrying out this plan, but every year's experience only tends to confirm more my conviction of its usefulness and desirability.

VARIETIES TO PLANT.—Here again the object for which they are required must be taken into account, although as a rule those which are best suited for exhibition are those also best adapted for the decoration of the garden, for they are chosen for those qualities which always commend themselves—length of spike and size of flower. The question as to the sorts for exhibition resolves itself into their comparative cheapness or dearness. A person who requires them for the decoration of the garden is not likely to give

eight or ten shillings for a new variety, while one who grows for show will do so if he believes he can thereby get better flowers than those he already possesses. The following are good and cheap varieties: French.—Adolphe Brogniart, Amalthée, Belladonna, Anna, Delicatissima, Dumont d'Urville, Horace Vernet, Dalila, Africain, Murillo, Baroness Burdett Coutts, L'Unique Violet, Leandre, Rayon d'Or, Legouvé, Flamingo, Pygmalion, Meyerbeer, Norma, Orphée, Schiller, Didon, Pactole, Seduction, and Shakespeare. Of dearer kinds I would advise Gallia, Mabel, Grand Rouge, Arabi Pasha, Amitié, Tamerlane, Flamboyante, Stanley, and Gordon Pasha. English.—Agnès Mary, Agnus, Astræa, Brennus, Charles Noble, Countess of Pembroke, Dr. Hogg, Rev. H. H. D'Ombraïn, Marquis of Hartington, Mr. Stridinger, Claribel, Mrs. D'Ombraïn, A. F. Barron, Mrs. Dobree, Queen Mary, Shirley Hibberd, and Trojan.

For those who are most interested in the culture of this beautiful flower I add the names of those which are being introduced into commerce now: Amiral Courbet (Souchet)—early flowering, carmine-violet, white spot in centre, lined with reddish cerise; De Brazza (Souchet)—long spike of well-formed flowers, shaded carmine-red; Fille des Champs (Souchet)—flowers not very large, beautiful cerise-rose; Magdalena (Souchet)—early flowering, very pale lilac petals, lightly flamed with carmine-rose; Mescalille (Souchet)—medium spike, flowers beautiful salmon-rose, slightly shaded with carmine on the throat; Neige et Feu (Souchet)—upper petals cerise-rose lightly flamed with violet, lower petals with a large ivory-white spot—the contrast is very striking; Oriflamme (Souchet)—orange-rose, a little paler at the centre, lower petals slightly shaded with golden yellow and tinted with carmine; Pharaoh (Souchet)—rose-cerise, lined and bordered with violet, middle line of the division white; Sceptre de Flore (Souchet)—flowers large, throat white with a carmine-red star, colour of the petals shading into bright rose; Cramoisi (Berger)—reddish carmine shaded with deeper tint of the same colour on the edge of the petals; Drap d'Or (Berger)—pure yellow, lightly tinged and shaded with rose, lower petals having a crimson spot at the centre; Duchess of Teck (Kelway)—white, with a dark blotch on the lower lip; Lord Iddesleigh (Kelway)—salmon, veined with red; Galatea (Kelway)—blush, tinted with rose; James Wood (Kelway)—cherry, with a yellow throat; Lady Derby (Kelway)—white, with purple spot on the lower petal; Mrs. Langtry (Kelway)—white, tinted with purple; Nox (Kelway)—lilac-rose, tinted with purple; Princess Irene (Kelway)—white, veined with rose; Sir Francis Bolton (Kelway)—salmon flaked, lower petals marked with rosy purple; Sir G. Wolsley (Kelway)—crimson, flaked and shaded dark crimson; St. Blaise (Kelway)—salmon, veined with crimson, with yellow centre; Thomas Moore (Kelway)—scarlet-crimson with a violet blotch on the lower petals. All these varieties of Mr. Kelway's have been certificated at some one or other of the shows where he has exhibited them; some of them I have myself seen, and can testify as to their great beauty.

DELTA.

Snowdrops dying off.—I see in THE GARDEN of Feb. 20 (p. 162) a paragraph under this heading, in which it is suggested that proximity to the sea may be the cause of failure. Snowdrops grow here right down to the edge of the rocks, where in rough weather they are covered with spray. They grow in the wood and scrub, and are, I believe, wild, for they were there long before I built my house, and as far as I can learn the land above was never cultivated except as an orchard. They have probably

been there for ages, and they take care of themselves and blossom freely. I believe they seed themselves, for they come up in such queer out-of-the-way places. —*Kingsweir, S. Devon.*

PLANTS FOR COVERING WALLS.

WHEN glass was dear, and the other materials of which plant and fruit houses are constructed cost much more collectively than they do now, walls were often occupied by various plants not sufficiently hardy to bear severe winters away from the protection which a wall affords, and proper attention was generally bestowed on them; but since glass erections have become so common as to afford accommodation for the quantities of tender plants that are now grown, these seem to have so far monopolised attention that wall plants do not get their share. Indeed, in many gardens nothing is less satisfactory than the wall plants. It often happens that their roots have little to sustain them except poor exhausted soil, and frequently not sufficient of that, in addition to which they get much less root moisture in the shape of rain than would reach them if growing in an open situation. Walls, too, protect insects in severe winters, as is shown by aphides always appearing earlier on such plants as they infest than on those in open places, in addition to which the leaves and shoots receive little of the drenching summer showers that do much in freeing plants fully exposed from insect life. Moreover, it often happens that plants growing against walls have their roots so placed that there is some difficulty in applying the manure necessary to keep them in a condition that will support free growth. The result of these collective disadvantages is that unless means are taken to meet the various requirements of plants when so circumstanced they get into a stunted condition that often causes them to be more an eyesore than an ornament. A free application of water by the syringe or garden engine is the best preventive against insects. It is equally essential to keep up the fertility of the soil, especially in the case of such plants as Roses, which are not easily overdone with manure. The roots of wall Roses are often under gravel or turf, and there is no means of applying manure in the ordinary way without taking up the gravel or moving the turf; this latter can be done as often as is found necessary without much difficulty in the autumn or winter, so as to admit of a liberal amount of manure being worked into the soil as far as the roots extend, but with gravel paths it is different, as breaking up the gravel would often be objectionable. Where the roots are thus out of the reach of solid manure being given they may be kept going by a free use of manure water applied to the surface of the walk, giving it in sufficient quantity to soak the soil underneath thoroughly, or by applying concentrated manures to the surface and washing them down with water. If applications of this kind are given often enough during the growing season, and care is taken to do the work effectually, Roses, Clematises, and other manure-loving plants may be kept growing freely for a long time. By following this course I have had strong growing Roses, such as Gloire de Dijon, Aimée Vibert, and the Ayrshires, as vigorous at the end of a score of years as when they had been planted only a few seasons. Many wall plants do not require any special attention in the matter of manure, as when once they get fairly established in soil that has been well prepared in the first instance they are able to keep on growing without further support.

AS TO THE KINDS OF PLANTS to be chosen for occupying a wall, much depends on the extent in height and length and other local circumstances. Where the intention is simply to hide an

unsightly wall it is obvious that evergreen plants will best effect the object in view, and there are few things equal to Ivy; it will maintain a healthy appearance where little else would grow. But there are Ivy walls and Ivy walls, and it seldom happens that we see the most made of the plant. In colour the different varieties present quite as much diversity as in form and size of foliage; such sorts as *Hedera madeirensis variegata*, the leaves of which are more than half creamy; *aurea maculata*, with blotched yellow leaves; and *argentea*, which has white variegation, afford a striking contrast to the deep green of the plain-leaved sorts. A wall of moderate height, say up to 12 feet or 14 feet, when planted with judgment so as to intermix the different forms and colours as they should be, becomes one of the most pleasing and interesting objects imaginable. In preparing for planting it is necessary to see that plenty of manure is dug into the ground, as in rich soil the progress made is more than double that which takes place where it is poor; afterwards it is requisite to regulate the growth of the stronger kinds to see that they do not overrun the weaker growers, keeping each to their allotted space, which should not be formal or strictly regular in outline, and, as a matter of course, giving more space to the most vigorous growing varieties both in height and width. Such kinds as *Regneriana*, that do not cling like the generality of Ivies, need to be secured by nailing in the ordinary way. Not the least desirable feature in a wall covered with different kinds of Ivy is that the large strong-growing sorts stand out so much further from the wall than the close clinging kinds, and thus break the objectionable even surface that exists where one variety alone, or kinds that are similar in growth, are used. Those who may happen not to like any admixture of variegated foliage have plenty of varieties to choose from that are so far different in the size and shape of their leaves as to give the needful contrast. Yet, although Ivy with its many excellent properties is one of the best of all wall plants, still, for some purposes, such as draping a villa or a cottage, flowering plants all, or in part, are indispensable to give the requisite life and colour which green foliage only is incapable of affording. Some desirable blooming plants are evergreen, like some of the *Magnolias*, *Ceanothuses*, and *Escallonias*, but many of the most attractive are deciduous, such as *Roses*, *Clematises*, *Cydonia japonica*, *Honeysuckle*, *Jasmines*, *Wistarias*, and others which constitute the finest of all flowering plants suitable for covering walls.

T. BAINES.

SHORT NOTES.—FLOWER.

Muscari lingulatum.—Will some of your readers kindly give us a note on this plant? It is now in full flower, and from its tongue-shaped, distinctly ribbed leaves, as well as neat, dwarf habit, it is particularly interesting and effective. I can find no information as regards its culture or by whom it was introduced.—A. D. W.

Galanthus Imperati (p. 104). Mr. William Miller tells us that this plant was introduced by Messrs. Backhouse, in whose catalogue for 1877 it appears for the first time. This is, however, surely a mistake, for if the editorial note "Welsh spring flowers," in *THE GARDEN* of February 21, 1885, p. 144, be correct, then I am in a position to prove that it has been grown in this country for at least half a century.—A. D. W.

*. As far as we can recollect, the Snowdrops sent to us by Mr. Webster respecting which the note in question was written, the variety was the true *Imperati*.—Ed.

The notes on *Helenium* in last week's *GARDEN* seemed to say: 1, that *Helenium pumilum* was the only *Helenium* worth growing; 2, that H. Bolanderi and H. Hoopesi were also very good garden plants. The fact is I had described the species mentioned in the order in which they were placed in Asa Gray's "Botany"—H. Hoopesi first, and H. pumilum last. When I received my *GARDEN*, I found that this order had been changed. The remark at the end of the description of H. pumilum was meant to include all the four varieties which had been described.—C. WOLLEY DOB.

Snowdrops near the sea.—Mr. Groom will be interested to know that on the north-east coast of Yorkshire the Snowdrops do not thrive when exposed to the direct blast of the sea winds, which sometimes entirely destroy the leaves, and thus weaken the bulbs. When, however, their leaves are protected from the salt blasts they grow well enough. The bigger *Galanthus plicatus* is much hardier in this respect and grows and increases freely, so that in time I have no doubt it will replace the weaker kind. Singularly enough, the double Snowdrops suffer soonest and speedily die out, while the common single ones continue.—E. H. W.

SALVIA HORMINUM VIOLACEA.

THIS plant is also known as *Salvia Bluebeard*. But I am not now concerned about its name; my object is rather to direct attention to its singular character. Although it produces plenty of flowers, they are so insignificant, that if the plant had no better feature to recommend it, it would not be worth notice. Its singularity consists in the fact that on every flower-stem and above the flowers there is a number of purple bracts, which constitute its decorative qualities. These bracts are sufficiently numerous to make it conspicuous, and the flower-stems are so freely produced as to render a mass of plants very effective. I do not think it will ever become a popular plant for massing, but it has sufficient merit to render it acceptable for small beds and for planting in mixed borders. Not the least noteworthy feature connected with it is that it continues up to quite late in autumn to send up fresh flower-spikes, and as every flower-spike also produces the purple bracts just alluded to, there is a continual accession of colour, so that from early summer until late in autumn the plants may be truthfully said to remain in full dress, which is more than can be said for some other summer bedders. Treated as an annual, this *Salvia* can be had in flower quite as early as the ordinary run of annuals, i.e., if the plants are raised under glass. The beginning of March is soon enough to sow seeds of it. We sow it in large pans, and place the latter in the early vinery; when the young plants are large enough to handle they are pricked out into boxes 3 inches apart. They are grown on in the vinery until the end of April, and then they are taken to a cold pit to be hardened off. As regards summer quarters, I find a rather poor soil better for them than a rich one, as in a strong soil they grow too high for the general run of bedders. When planted out they should be put 9 inches apart each way. In habit they spread a little at first, but their general tendency is to grow erect; they, therefore, neither want pinching nor supporting in any way, and only require water at the roots in the driest of summers, and only then when the soil is poor. From what I have seen of the behaviour of this *Salvia*, I believe that anyone possessing a greenhouse or a cold frame might raise it early enough to get it in good form as early in the summer as they do *Phlox Drummondii* or similar annuals. With us in the west of England self-sown plants flower in August.

C. J.

Galanthus Imperati.—Mr. Miller says that this Snowdrop was introduced by Backhouse, and not by the late Mr. Atkins, as stated by me. In 1878 I had *G. Imperati* from Backhouse, Ware, and Colchester, and in 1880 from Gusmus. When looking over Wheeler's place in 1880 I saw a row of Snowdrops very much finer than any I possessed, and on making enquiry I found that it was *G. Imperati*. The following season I secured some bulbs of it. In writing to me last spring, Mr. Barr told me that this form was introduced by the late Mr. Jas. Atkins and distributed by his firm, and that Wheeler had it direct from them. This form is very superior to those I had from other sources, being larger and finer in every way. It has the *Imperati* characteristic of producing some deformed flowers, whilst blooms perfectly symmetrical, but having four petals, are not at all rare. I have arranged with Mr. Loder, of Floore, to exchange blooms of *G. virescens*, so we shall shortly know whether there are two forms cultivated under this name. The kind I have certainly does not answer to "Veronica's" descrip-

tion and the plant figured in *THE GARDEN* (Vol. XXV., 371).—JAMES ALLEN, *Park House, Shepton Mallet*.

FRUIT GARDEN.

RATIONAL PRUNING.

THE following anecdote bears on this subject. A neighbour of mine laid out a lawn in front of his house, and in the spring sowed Grass seeds to obtain a turf. The seeds grew famously, and when the Grasses were about 6 inches high his man wanted to skim it over with the scythe to thicken it and prevent the stronger Grasses from killing the weaker ones, but my neighbour had read somewhere that if you want anything to get strong quickly you must not prune it, and veto was put upon the use of the scythe till the Grass was a foot high and in flower. This was done on the plea of strengthening the roots, but he knows now that the treatment was a mistake, and that his man was right. It would hardly be saying too much if we hazarded the statement that to a very great extent success in gardening is based upon knowing how and when to prune. Almost everything that comes under the gardener's hands can be benefited by pruning. *Pelargoniums*, *Fuchsias*, and all the usual run of stove and greenhouse plants are more or less pruned; indeed, there is hardly a plant grown whose outline and general effectiveness cannot be improved by pruning. But the pruning of all these various plants should be adapted to their needs, and be suitable for the accomplishment of the object which we have in view.

Pruning as an abstract principle is right, but in the doing of it some skill and a good deal of common sense are required. If we place in the hands of two separate individuals half a dozen plants—*Pelargoniums* say, for instance—the one man turns them into models of beauty, and the other has a number of sprawling, straggling things that no one would care to acknowledge. The first man understands how to prune, and the second is a non-pruner. Peas, Broad Beans, and Scarlet Runners are the better for a little pruning, and the grower of the big Leeks nips off the ends of the Flag-like leaves to throw strength into the base. He knows nothing of the science of the matter. All he cares for is the fact that he has proved it to have the effect which he is seeking, and though science may be dead against him, he plods on without stopping to enquire into the why or the wherefore.

Doubtless in the case of fruit trees and *Roses* there are many who prune too much, but that is no argument against a right use of the knife. I could pick out a number of good garden *Roses* that would quickly form large bushes, but if left unpruned would become naked in the centre, and, like the unpruned Apple tree, carry their produce only on the extremities of the branches. Sunshine favours the formation of blossoms and fruit, and the pruning-knife should be so used as to let in its influence to every part of the tree if the tree's load is to be properly distributed. A celebrated artist when asked how he mixed his colours replied, "With brains, sir;" and so must pruning be successful. And empiricism, or rule of thumb, should be banished. A stunted, weakly tree may have new life infused into it by a rather severe use of the knife at the winter pruning, and an over-vigorous tree may have its exuberance checked either by docking the roots or by stopping the young growth in summer. Nature is constantly showing us the advantages of reciprocity and how necessary it is to maintain a right balance of the various parts. But many

of our choicest fruits are not natives, hence the need for building walls and other devices for improving climate, and hence also the greater need for greater care in the application of the pruning-knife.

The pruning-knife has doubtless, in many instances, been too freely used, and it has ever been the tendency of an enthusiastic nature on discovering with what little wisdom the trees have been pruned to fly off to an opposite extreme and say pruning is a snare and a delusion. Let your trees grow as Nature wills them to do. Pruning, rightly done, is beneficial, but in the doing of it the age, habit, and variety of tree should be well considered, so that each tree or plant may be regarded in the same light as a doctor would scrutinise a patient when called in to prescribe. There is a right and a wrong way in pruning so commonplace a thing as a Thorn hedge, and near where I am writing is a very good example of both how to do and how not to do it. In the one case the hedge, where rightly pruned, has a broad base resting on the ground. The sides present the appearance of an inclined plane, gradually tapering till the top is reached. This was a very good fence when I first saw it seventeen years ago, but it is a good deal better now, and, though leafless, so dense is it that a moving object on the other side could scarcely be seen through it. It is pruned once a year with a long, keen-bladed switch-hook when the growth is completed, but before the wood is hard and ripe. A short distance from it is another hedge that has been sometimes pruned and sometimes left several years together without pruning, until at last it got out of hand altogether, and became so thin and naked in the bottom that it had to be cut down; and now it is full of holes and gaps, which have to be filled up with dead materials. As regards pruning, the hedges of this country are, I think, in a worse plight than its fruit trees.

E. HOBDAY.

Pruning to promote vigour.—I notice that "D. T. F." in his reply to me last week has, mounted upon a postscript, "made a strategic movement to the rear," which I expected. It appeared reasonable to him that I should be called upon to run, if necessary, two or three hundred miles with my Rose bushes to prove my words, but the mere suggestion that he should do the same and meet me on equal terms on ground of his own choosing has shown him the probable consequences of his incautious proposal, and now we are told in a depreciatory tone that "he made no reference to the Roses grown by him or any other cultivator," and hence he should not be asked to vouch for his statements! I know perfectly well that neither he nor any other cultivator has the Roses to show, and therefore his "contention (p. 135) that Rose shoots, like walking-sticks, are more certainly produced by severe pruning than by not pruning" topples over at the first assault. Why your correspondent hazarded such an assertion under these circumstances I cannot comprehend. His attempt to represent the varieties I named as being vigorous under any circumstances, which some of them are not, is equally weak, because it is not *vigour*, but the *comparative vigour* of these or any varieties under different modes of culture that is the question under discussion. "D. T. F." asks in regard to the Vine, "has 'J. S. W.' never seen a cut-back Vine make a run of 10 feet or 20 feet in one season, thickening out into the dimensions of a walking-stick within six or eight months? If that cut did not concentrate force and promote vigour, then has language lost its meaning, and the irresistible logic of fact its force." The words in this passage are stronger than the logic. The cut-back Vine would do exactly as he describes, but if it had been left unpruned it would have been longer and thicker still, and the augmentation of force and vigour proportionally greater. I can see that "D. T. F." is only acquainted

with cut-back Vines, and has never tried the two methods of pruning Vines side by side and of equal vigour, and his arguments are, therefore, excusable on that head. I simply accept "D. T. F.'s" reply as an acknowledgment that he cannot prove his case with living examples of his own or anyone else's.—J. S. W.

CANKER IN FRUIT TREES.

THE theory that insect and fungoid parasites are the sole or even the chief cause of canker is extremely fanciful. Undoubtedly there are myriads of insects that do shelter in the cavities of the outer bark of fruit trees, as is the case in almost every other kind of tree, but that they are at all injurious is very questionable, and that they are in any appreciable degree the cause of canker is about as correct as it would be to say that the maggot is the cause of death of the decaying carcass which it devours. There are, of course, a few insects peculiar to fruit trees, such as the American blight, the Pear scale, and aphides, which if disregarded would soon do immense mischief, but the effects of their attacks are very different from that of true canker, and should on no account be confounded with it. Lindley believed that plants in perfect health (in which expression I imagine he included all vegetable life) never suffered from the attacks of either insect or fungoid parasites; or, in other words, healthy plants are quite free from their attacks, simply because they were healthy.

Although this theory may not be quite consistent with the teaching of modern and more advanced science, yet it would perhaps be wiser on the gardener's part, and frequently save him much trouble and annoyance if he relied and acted more fully on such an assertion rather than attempt to account for disease by the inconsistent theories and preposterous speculations which unfortunately are now too rife, and which tend to confuse and cloud rather than clear the understanding.

While I cordially agree with the statement of "A. D." (p. 117) in respect to canker being caused chiefly by unsuitable conditions of climate, of which we have had abundant proof during the last few years, yet when he entirely demurs to the inference of Mr. Douglas, "that canker is sometimes caused by the roots getting down into unsuitable subsoil," I think his reasoning is somewhat at fault, nor does the instance which he adduces as an illustration respecting the Ribston Pippin Apple tree really controvert or disprove Mr. Douglas's statement.

To say that because "myriads of kinds of trees, no more hardy than the Apple, get into similar soils and no canker results, showing that the cause of canker must be looked for in some other direction," scarcely supports the sound reasoning exhibited in the first part of his paper. For instance, the Spruce Fir will revel in a subsoil in which the Scotch Fir, also the Ash and the Oak, would quickly canker and die, and yet they may be considered to be all equally hardy. And what is true with respect to forest trees is equally and even more forcibly so with respect to many kinds of fruit trees, and especially so with respect to some varieties of the Apple. While some varieties appear to be almost canker-proof, others are extremely liable to be affected, which would seem to indicate that the latter require either an improved climate or soil, or probably both, to grow them successfully. We, as gardeners, are careful to recognise these individual peculiarities in the cultivation of tropical plants with the greatest nicety, but frequently and senselessly disregard them altogether in the cultivation of fruit trees, thinking that because they are varieties of the Apple or the Pear, they should,

therefore, all be subjected to the same uniform treatment. Assuming that because the French Crab, or the Wellington, does not canker, neither ought the Royal Russet nor the Ribston Pippin under similar treatment; or, because the Beurré de Capiaumont Pear will thrive, so also ought the Glout Morceau or the Chaumontel in the same soil and situation.

The successful experiment of "A. D." in heading back the Ribston Pippin tree would seem without due consideration to prove conclusively that atmospheric conditions were alone to blame, but I would ask, is it not possible, even probable, that if the roots of this tree had been more favourably situated in respect to moisture and temperature that the branches would not have been so predisposed to suffer from sudden atmospheric changes. It is, I believe, a well-ascertained fact that a plant or tree whose roots have absorbed more water than its nature requires, and whose sap-vessels are consequently widely distended with crude sap, is much more liable to suffer from sudden or extreme changes of temperature than is one whose tissues are not so overcharged. It does not, however, necessarily follow that the roots themselves should be the first to suffer. The branches of a tree may be seriously affected even for a lengthened period with canker while the roots may appear perfectly healthy, and in consequence of this many cultivators have been deceived with respect to the first cause or causes of canker, erroneously concluding that because the roots on examination were found to be healthy, that therefore the first cause must be above and not below the surface of the ground. The strong and exuberant growth of the branches, sometimes so much admired, is frequently produced by over-wet or over-rich soil, and so long as fine and comparatively mild seasons prevail, no evil results may accrue, but when extreme temperatures do occur, then this very exuberance may and does, I think, render the branches more sensitive, and consequently more liable to injury. I have known more than one instance in which the correctness of this conclusion has been clearly demonstrated by two trees of the same variety and situated precisely alike, except that, although near each other, the roots of one being placed a few feet higher and therefore somewhat drier the tree was quite free from canker, while the one in the lower and wetter soil was seriously affected.

With such evidence I cannot think "A. D." is correct in inferring that wet soil is not, in many instances, the first, if not the chief, cause of canker. It may possibly be true that in a drier, less variable, and a milder climate canker would not attack trees, even in a wet soil; but this is not sufficient to disprove the assertion of Mr. Douglas that such is the case when so situated in this climate. I am inclined to believe that in such cases the somewhat low temperature of the soil surrounding the roots is not nearly so objectionable nor so conducive to canker as is its excessive dampness, for reasons which I have already stated, in respect to the disastrous effects of severe frosts on trees so placed.

"A. D." asks, "Now if canker were the product of cold, wet, or sour subsoils, how happens it that the roots so placed can yet produce such robust, healthy growth, and not for a year or two, but for many years?" To this I would reply that when a repetition of those "intensely low temperatures, with successive hoar frosts," which he so accurately describes as being a prolific cause of canker, again occur, these trees so unfavourably situated, and having such robust growth, will be the most likely to suffer, and just so in proportion to their vigour and the wetness of the soil they are growing in.

The heading-back process may again and again take place without the roots being materially injured, but eventually they also suffer from such harsh treatment, and at this stage remedy is almost hopeless. "A. D." further says, "it seems pretty conclusive that as canker affects fruit trees chiefly there must be some connection between that and the fruit-bearing properties." But do we not in reality find canker affecting nearly every kind of forest tree when planted in unsuitable positions, or after a period of exceptionally severe or otherwise unfavourable weather? At one time it is the Larch, the Beech, or the Poplar, or it may be even the hardy Oak or the Ash. Some scientific writers have from time to time endeavoured to prove that canker in these trees is also produced by insect agency, but I think they have generally failed to substantiate such theory, the first and true cause having eventually been found to be due to unsuitable position or climate, or a combination of both.

"A. D." correctly describes canker "as a disruption of cellular tissue produced by bursting of the sap-vessels or cells, the coagulation of the sap practically causing a severe wound in the wood affected." Entertaining such an opinion, it appears to me somewhat strange that he does not see and readily admit the force of Mr. Douglas's argument that wet subsoils, if not the chief or the first cause, must at least be an important factor in the production of this disease. If it was generally recognised that wet subsoils, low, damp positions, and extreme temperatures are, if not the only causes of canker, they are at least the chief causes, and planters were to adopt the most effective preventive measures to counteract their baneful influence, canker would assuredly not be so prevalent as it now is, and we should then happily hear less said against poor guiltless insects and entertain fewer equally absurd notions.—T. CHALLIS.

—I am much obliged to Mr. Douglas for his authority on the subject of soil temperature at Balcarras. All that need be said is that both Lindley and himself have been misled; and if Mr. Douglas will read further on the subject in the same book from which he quotes he will find satisfactory proof of this, as in the tables of temperature there furnished it is demonstrated that the mean temperature of the soil could not have been as stated at Balcarras. With regard to curing canker, it does not require a lifetime "to perform such an experiment" as Mr. Douglas records, but what he said was that his experiments had been "frequent." As to canker, I believe it is generally admitted that the disease is, as a rule, worst in weak trees, or in trees in which the growth is weakened from some other cause previously. In

two large gardens I know of, one in Staffordshire and the other in Yorkshire, the trees worst affected are those round the kitchen garden quarters and which are on the natural stock, and have been long close pruned and kept within a certain compass on narrow borders between the walks and the crops. I have often noticed the gnarled and cankered condition of these trees, and remarked that in the orchard just outside the disease is almost unknown.—S. W.

CURE OF CANKER.

IN THE GARDEN (p. 91) Mr. Douglas gave us his opinion as to the cause and cure of canker in Apple trees, and mentioned some experiments said to have been made at Balcarras, in Fife, fifty years ago in an orchard in which canker was very prevalent. These experiments were pre-

account of his experiments furnished to the Caledonian Horticultural Society in 1827, and published in its Transactions, vol. iv., p. 292. In case Mr. Douglas may not possess a copy of the Transactions, I venture to send you the following extracts from Mr. Reid's account of his experiments, which may prove interesting to those who are investigating the cause and cure of canker.

"I was," says Mr. Reid, "entrusted with the management of the gardens at Balcarras in 1812. The orchard there contained about two Scotch acres, and was stocked with upwards of 600 trees; these I found generally in a very unhealthy state, being much infected with canker. During the first season I examined the soil and found that it consisted of strong, cold loam, of various sorts, and in general about 3 feet deep, on a sub-

soil of cold clay. I lifted a few of the trees most infected with the canker, in order to ascertain the situation and state of their roots, and I found that they had run generally to the depth of 3 feet, as the spots whereon they were planted had been paved with flags at that depth. The roots were clean and healthy, but few in number, mostly of a very large size, and had very few fibres. I am of opinion that the depth of the roots and the want of fibres, even in the most favourable soil, must have a tendency to injure the health of the tree and to produce canker. I was induced, from the state of the roots being so deep and the diseased condition of the trees, to hope that if new trees were planted near the surface the roots would become more fibrous, the trees more fruitful, and be less apt to canker.

"In 1813 I made some experiments by covering several thermometers, for about fourteen days, close in pits of various depths, and found during the summer months the average heat at 6 inches to be 61°, at 9 inches

57°, at 18 inches 50°, and at 3 feet deep 44° Fahr. I therefore concluded from these experiments that if the roots could be retained near the surface, they would be in a more favourable situation than when allowed to run 2 feet or more down in the soil. In autumn, 1813, a few of the diseased trees, of about ten years' standing, were dug up and planted as near the surface as their roots would admit. These have continued ever since to improve, and are now bearing annually good crops, and are perfectly free of canker."

Mr. Reid then proceeds to describe the method which he adopted in replanting part of the orchard with young trees. The trees were planted almost on the surface, and the soil was raised in mounds over their roots. After describing the planting and after treatment, he goes on to say that "trees that had been planted and cultivated



Study of Romneya Coulteri flowers. Engraved for THE GARDEN from a photograph.

ceded by observations made on the temperature of the soil at various depths, and the figures given by Mr. Douglas as showing the result of these observations are discredited by "S. W." in THE GARDEN of Feb. 13. At the conclusion of his remarks, "S. W." says: "The ratios furnished by Mr. Douglas sufficiently show the absurdity of his figures; a difference of 17° in the space of 30 inches in depth of the surface soil was never recorded in this country under ordinary conditions, and one wonders at any writer venturing such assertions, far less founding the cure of canker upon them." Mr. Douglas makes a mistake in the date—the experiments referred to were commenced at Balcarras by Mr. Reid in 1813, more than seventy years ago—but the records of the temperatures given by Mr. Douglas are exactly what were stated by Mr. Reid in an

in the above manner were more moderate in growth and more easily kept within compass of pruning; the wood was of a firmer texture and much less apt to canker; they were much more fruitful and the fruit of finer quality, and about three weeks earlier ripened than the fruit of the old trees that had been allowed to remain undisturbed. This," he adds, "must be owing to the heat of the sun reaching their roots situated so near the surface, thereby producing a more rapid vegetation, and bringing both wood and fruit sooner to a state of maturity. I have been told," he goes on to say, "by various classes of visitors, that by allowing such young trees to bear such great quantities of fruit they would soon be worn out and decay. I allow this may be the case in some measure with trees planted and cultivated in the usual manner, by digging and raising kitchen vegetables among them, whereby the roots are forced to seek nourishment in the unfertile subsoil. The case of trees planted on the surface and feeding among the rich warm particles of a fertile soil must be far preferable; indeed, where the roots are never injured by the spade, nor the action of the atmosphere obstructed by crops of vegetables. Further, the young trees have hitherto done well, and at present have a very healthy appearance. But even suppose they should decay, as remarked, at the age of fifteen or twenty years, it may be answered that the fruit already produced by them is a sufficient inducement to continue the practice by keeping up the succession from a nursery of young trees. . . . A few of the old trees were left unremoved for the purpose of experiment with regard to the canker. Although by great attention in pruning these old trees and cutting out the canker I have succeeded in preserving them up to this period (November, 1824). Their fruit is of inferior quality and so late in ripening, that it makes a poor return for the great trouble necessarily bestowed on them. As a confirmation of the above plan of planting on the surface being preferable to the common method, I have at present a great number of the branches of these young trees regrafted with scions taken from the most diseased of the old trees, particularly the Hawthornden Apple and the Jargonelle Pear, and several other sorts, commonly supposed to be the most subject to canker. All these new grafts are doing well, and have carried good crops for the last six years."

Mr. Reid's employer, the Hon. Robert Lindsay, of Balcarras, sent to the secretary of the Caledonian Horticultural Society the following letter confirming his gardener's statement:—

"Balcarras, 29th Nov., 1824.

"Sir,—This letter accompanies a paper written by my gardener, stating his observations on the disease called canker in fruit trees, also the mode which he adopted in planting out a new orchard of Apple trees at Balcarras. Allow me to mention that nothing could be more unfortunate than the soil chosen by my predecessors for the garden and orchard at Balcarras, the elevation being about 220 feet, and the soil a retentive clay, with a cold tilly bottom. The consequence was that for twenty years I tried to establish an orchard without success. With the force of manure the trees grew to a luxuriant size, but the wood cankered and produced no fruit. Under these untoward circumstances my gardener proposed a new plan of replanting the trees within a few inches of the surface, treading down the soil to prevent the roots going down, and thus forcing the smaller fibres to run horizontally along the ground. At the same time he raised up some of the old diseased trees to the surface, carefully cutting out every particle of canker. The experiment completely succeeded, and I

have now the satisfaction to inform you that there is not a more productive orchard in Scotland than the one to which I now allude, or one more deserving the attention of those who have to work upon a cold bottom. For these advantages I am indebted to the superior judgment of Reid, to whose statement I refer."

The foregoing extracts are interesting as showing that Balcarras, with its beautiful views of the Forth and the Lothians, with its charms of wood and lake, with its reminiscences of Lady Anne Lindsay, the fair authoress of "Auld Robin Gray," has an additional claim to the attention of the horticulturist from having been the scene of such instructive and well-considered experiments in fruit culture early in the century. The advantages of shallow planting and the necessity of an abundance of fibrous surface roots in growing fruit, especially in unfavourable situations, have evidently long been known, but, like other truths, have often been forgotten or neglected, and have to be constantly reiterated in order to instruct the ignorant or to rouse the indifferent. At a general meeting of the society held March 6, 1828, it was resolved that the London medal for 1827 should be awarded to Mr. Archibald Reid for this communication, the advantages of the practice recommended having now been amply confirmed.

JAMES GRIEVE.

Pitrig Park, Edinburgh.

Pruning to augment fertility.—In my first article I charged "D. T. F." with changing his opinions, but I did not think he had so little staying power in his convictions as to change them once a fortnight; such, however, is the case. In his first bold outset on my remarks, which seem to have opened quite a field of new enquiry to him, he occupied three columns trying to prove that pruning promoted vigour, and in his remarks last week under the above heading he contradicts himself in the most distinct manner. He writes (p. 185): "Nature pure and simple prunes more severely than art, and there is also, in pursuit of the same end, the checking or weakening of mere growing force and the diversion of the same into fertile channels." Exactly! The effect of pruning is the "weakening the growing force" wherever that force may be diverted to, but what about the "walking-sticks" that were produced by growing force more than by severe pruning? Another assertion of "D. T. F.'s" (p. 185) is to the effect that pruning augments fertility, and by "the augmentation of fertility is meant the crowding more flowers or fruit into less space." I deny that pruning has any such effect, nor can any such examples be found. "D. T. F." is here clearly thinking of dwarf trees that are pinched and restricted, but he misapprehends the cause of their fertility altogether. They produce fruit in little space, not because their branches are pruned, but because their roots are curtailed by being on a weak stock. Plant two trees of the same kind under equal conditions, prune one severely and leave the other unpruned; leave the roots alone, and then see which tree will produce most fruit in the least space and soonest. It will be the unpruned tree, and with me this is a fact I have proved over and over again. "D. T. F." is thinking of root-pruned trees, and has never seen in the whole course of his experience such an example as he writes about.—J. S. W.

SHORT NOTES.—FRUIT.

Late Apples.—I notice with pleasure Mr. Coleman telling us about good local Apples. Will he or anyone tell us of all the true late-keeping Apples? Everyone has autumn and early winter sorts, but it is unpleasant to note how woolly and spotty these are towards the end of winter.—J. H. H.

Strawberries.—Forwarding Strawberries in the open border is not so often practised as it should be. It consists in covering the beds, or some of them, with light glazed frames, that are easily removed from place to place. Everybody who desires to keep in the front rank should have a number of these handy frames ready for use. I have often thought that a good deal might be done by means of such contrivances.

AMERICAN PEAR CULTURE.

If the experience of Messrs. Dicksons is to be considered as final, it is hardly worth while to occupy space with any further remarks about growing Pears in Scotland. But I cannot believe such to be the result under good and proper culture. Taking the Seckel Pear as a sample, for I made the remark that where that succeeds our numerous varieties will do quite as well, I wish to show what has been done even in the cool and sunless summer of England if not in Scotland.

In the year 1818 the late Dr. Hossack, of New York, sent to the Royal Horticultural Society of London eighteen trees of the Seckel Pear, with a beautiful drawing of the fruit, executed by Miss Coxe, the daughter of Mr. Coxe, the author of the first pomological work in America, and who described and figured it in his book in 1815 (p. 189). The letter of Dr. Hossack was published in the Transactions of the society (vol. iii., p. 256) with a copy of the drawing, in the grand style in which all the plates were executed for that invaluable work.

The next account I find of it is in the *Pomological Magazine* (vol. ii., p. 72) with another beautiful plate, and full description by (as it was said) Mr. Robert Thompson. It is as follows: "Much attention was naturally excited by Dr. Hossack's letter, and the trees liberally transmitted by him along with his description were eagerly sought after. Subsequent experience in this country has amply confirmed the American account. The Seckel is found to exceed in excellence of flavour the very richest of our autumn Pears, possessing a high vinous aroma which can scarcely be compared with anything in fruits. The fault of this variety is that it only remains in perfection for a few days; it speedily decays after being gathered. The period of ripening with us is usually the end of October." The next is Lindley's account of it in his "Guide to the Orchard" (p. 383), 1831: "This beautiful and excellent little Pear ranks among the richest of American varieties. It bears its fruits in clusters at the ends of the branches, is very hardy as an open standard, ripening its fruit with certainty, but they do not keep in perfection more than a few days." One more statement by Mr. Thompson in his "Gardener's Assistant" (p. 487), 1860: "A most delicious dessert Pear, ripe about the end of October, but only keeping good a few days."

The Seckel Pear is with us an early October Pear, but it can be purchased in our market any day from that time up to January 1 (three months). The whole complaint of the authorities quoted above only shows one single thing—the want of a knowledge when to gather Pears. They should invariably be gathered as early as September 20 or 25, and they are in eating condition from October 10 to January 1. Of course, to keep them after November 1, they must be put into what we call cold storage houses. But the Seckel is one of the very best of our autumn keeping Pears, in eating condition twice as long as Bartlett, Beurré Superfin, Beurré Capiaumont, Beurré d'Amanlis, and many others. With this notice of the Seckel, which originated in Pennsylvania 150 years ago, in a climate far milder than that of Massachusetts, with summers three weeks longer, I leave the subject and turn to my main object, Pear culture in Massachusetts after an experience of fifty years.

I have already stated in a previous paper that I first began to plant Pear trees on an extensive scale in 1840. My object was not to grow Pears for market, but to ascertain the real value of the hundreds of varieties introduced, detect their true names, and describe them in the *Magazine of Horti*

culture, that such information might be obtained by its readers as would show what were good, what indifferent, and what bad. At the same time it was one of the prominent objects to show how a large variety of Pears might be cultivated in gardens of limited size by the use of pyramids, and from 1840, when I began to plant, for about twenty years I pruned every tree with my own hands, heading-in in autumn, and pinching all summer, and they were as beautiful a garden of pyramids as I had ever seen, even after looking through the Luxembourg gardens and the leading gardens in Paris and in England, including Mr. Rivers'. The lower branches touched the ground and the tops were at last beyond my reach; but after all this care and labour my only reward was splendid specimen trees, but no fruit worth picking—only here and there a solitary Pear. I felt discouraged; but as I don't acknowledge any such word, I pondered over the situation, and soon came to one conclusion, viz., that I would never prune the trees with a knife again; the only instrument should be the saw. This was in the autumn. As favourable weather occurred on the approach of winter, I began by sawing off all the lower branches to the height of 2 feet or 3 feet. Not a shoot was pruned or pinched during the summer, and the trees grew away as if they actually revelled in their release from the audacious pruner. Another year soon made its appearance, and as the warm days of April set in I could detect the fruit buds from their size, and I felt that the trees were going to reward me for their liberty. Each year they grew away vigorously, and each year larger and larger increasing the crop, when in 1862 I gathered 1600 bushels, and began to keep an exact account of the crop. No further pruning was allowed for ten years, when the trees having become too crowded I thought something must be done. But I dreaded the pruner and feared to let anybody do the work. Luckily, my old foreman, who planted nearly all the trees, had just returned from California where he had been for ten years, and, knowing his capacity so well, I set him to work, cautioning him, however, at the same time to be very tender with the trees. He began to prune in July and ended in September, doing the work to my satisfaction. Since that day not a single tree has been pruned, only some of the lower limbs sawn off. To be sure, about every other tree has been grafted by heading them in quite short, and this alone has prevented crowding of the branches, standing as they do a good 6 feet apart. The largest trees are a Vicar of Winkfield and Harvard, each 18 inches in diameter and 25 feet high, but the whole tops were grafted with Dana's Hovey some six or eight years ago; and this is the way I have prevented crowding without pruning, grafting the whole top with some other popular kind.

In 1862 I had but two Bartlett Pear trees that I planted; I have, however, grafted enough poor or unsaleable sorts to increase the number to about 100. Every Glou Morceau, Vicar, Dunmore, Flemish Beauty, Beurré d'Arenburg, Easter Beurré and Monarch have been grafted, except one tree. Of many sorts I have only half a tree, some only one branch, and some two or three kinds on one tree. One of the most curious sights is a Beurré d'Arenburg, of which I never could get a decent specimen. The two trees I grafted with Clapp's Favourite—a wonderful grower—and a fine summer Pear. Every kind was grafted as near the main stem as possible. The last two years I had a splendid crop of Clapp's Pear, and after gathering (August 20), the whole trunk of the tree, from the lowest branch to the top, was completely covered with large and fine specimens of d'Arenburg, precisely like a huge string of Onions. The tree had thrown out little short spurs on the

main trunk, hardly large enough to be seen without close examination, and the spurs were covered with fruit-buds. Such has been my experience in the growing, pruning, and grafting of Pears.

THE GARDEN has advanced the idea that we have too many varieties, and that the larger part are useless and should be expurgated. Very true, with certain reservations. Why do people continue to cultivate 300 varieties of Hybrid Perpetual Roses, when 25 contain all that are really distinct? And why should they grow 300 varieties of Pears or 600 varieties of Apples? The late Mr. Downing described and named 1400. All this must be governed by the purpose for which the fruits are cultivated—if for market, one thing; if for home use, another. In this I am reminded of the old anecdote of the wealthy epicure who wanted a cook. The applications were numberless. The question put was, How many kinds of soup can you make? Some said 50; some said 100. That would not do. Finally, one applicant was asked the question, and without the least hesitation replied 365, one for every day in the year. "Ah! you will do," said the epicure. Now, there is a great deal more difference in the flavour of Pears than there is in English beef and oxtail soup, or consommé vermicelle and consommé Julienne, and the true lover of Pears wants a new flavour every day, which he can have, and which I have had for six months, from August to February—180 days—for twenty years, beginning with the Doyenné d'Été and ending with the Josephine de Malines. But for market many Pears are only a vexation, twenty-five being ample, though, as you will see by my list, I market from 100 to 150 varieties. A great deal has been said about Boston "cultchar." I can only say that, so far as Pears are concerned, Boston has a keener taste for good Pears than any other city in the country. With the exception of about a dozen popular varieties, everything in New York is classed as cooking fruits, and the people know no difference between the delicious Doyenné du Comice and commonest cooking Pears. In Philadelphia they purchase at enormous prices a Pear called the Keiffer, a composition of sand and vinegar, not quite so good or so soft, only when rotten, as a poor Quince, which, it is said, they eat with a great relish.

But you will see that Boston Pear lovers do appreciate a good fruit, and are willing to pay a fair price for it. A careful examination of the list will show that the Boston, Pratt, Beurré Hardy, B. d'Anjou, St. Crispin, St. Michel Archange, Clapp, Sheldon, Lawrence, Merriam, Caen du France, Paradise of Autumn, Manning's Elizabeth, and especially Dana's Hovey, sell for higher prices than some of the well-known Pears.

All this only demonstrates that there are more than ten, or twenty, or even fifty varieties which sell well in the market, and, narrowing down too far, does nothing to educate the people to a true appreciation of what is excellent, or encourage the production of superior sorts.

To the Pear connoisseur, however, the market is no criterion of what is good. A very handsome old Pear, called the Belle et Bonne, but only fairly good, will sell for about as high a price as the Bartlett. He does not care for this; it is the variety he wants. To-day he has the rich and spicy Seckel; to-morrow the musky Bartlett; next day the Almond-flavoured Abbott; the next the Bergamot aroma of the Sheldon, the sugary Pratt, the Pond-lily flavour of the Andrews, the sharp, sugary acid of the Beurré Superfin, the honeyed sweetness of the Doyenné du Comice, the cinnamon-tasted M. Vernen, the refreshing Hannas, the rich smack of the Brandywine, the nutty Edmonds, the juicy, rose-water

flavoured Urbaniste, the champagne briskness of the Baronne de Melo, the pink-fleshed, melting Josephine de Malines, and, not to prolong the list too far, the inexpressibly luscious Dana's Hovey—more a confit than a fruit. My estimate of this variety was so great, that I paid the originator £100 for one hundred scions as long ago as 1854.

But I find I am entrenching on your space, and now give you some of the actual results of Pear culture as I have recorded since 1862, having a complete detailed list of every variety sold, the quantity of each, and the price per bushel, of which, at least, one bushel was gathered, to say nothing of the pecks and half-pecks of innumerable varieties I make no note of, which, when not wanted for my own use, were sold as mixed kinds. As the records cover just twenty-four years, I will, to save space, only give the quantity gathered when the crop was a large and favourable one.

| Year. | Number of varieties. | Bushels. |
|----------------|----------------------|----------|
| 1862 | 151 | 1128. |
| 1871 | 120 | 1016 |
| 1873 | 135 | 1637 |
| 1875 | 120 | 1406 |
| 1876 | 131 | 1635 |
| 1877 | 114 | 1432 |
| 1879 | 104 | 1605 |
| 1884 | 100 | 1290 |

Eight years 11,069

The number of trees does not vary far from 2000, but about two-thirds have been under the process of grafting nearly all the time. Some are half dead from twice re-grafting, some have not rooted strongly on the ground, and some are in poor condition; so that the number of really vigorous and healthy trees would not exceed 1200. The crop of 1879 being a good one and the prices very low, I select that year for an enumeration of kinds and the number of bushels.

TABLE OF THE NUMBER OF VARIETIES AND THE NUMBER OF BUSHELS OF PEARS GATHERED AND SOLD (EXCEEDING ONE BUSHEL) IN THE YEAR 1879.

| Variety. | Bush. | Price. | Variety. | Bush. | Price. |
|--------------------|-------|--------|--------------------|-------|--------|
| | | £ s. | | | £ s. |
| a Adams . . . | 17 | 3 19 | Gansel's Berga- | 7 | 1 3 |
| a Andrews . . | 3 | 0 12 | mot. | | |
| a Abbott . . . | 37 | 3 12 | Gen. de Lamori- | | |
| a Brandywine . | 22 | 4 11 | ciere | 3 | 0 10 |
| Gold Beurre of | | | a Harvard . . . | 4 | 0 12 |
| Bilboa | 7 | 1 3 | a Hannas . . . | 10 | 1 15 |
| a Bloodgood . . | 3 | 1 4 | a Hull | 17 | 3 0 |
| a Boston . . . | 113 | 24 10 | a Henkel | 12 | 2 14 |
| Beurré Robin . | 29 | 4 10 | a Hovey | 27 | 15 11 |
| a Buffum . . . | 15 | 1 11 | a Heathcot . . . | 16 | 2 3 |
| Bartlett . . . | 227 | 53 14 | a Huntingdon . . | 4 | 0 9 |
| Belle Lucrative | 6 | 0 12 | a Howell | 2 | 0 13 |
| Beurré Hardy . | 18 | 4 12 | a Julienne . . . | 3 | 0 10 |
| Beurré Benoit . | 3 | 0 12 | a Knight's R. I. | | |
| Beurré Superfin | 10 | 1 15 | Seedling | 8 | 1 2 |
| Belle et Bonne | 12 | 1 4 | a Kirtland . . . | 2 | 0 6 |
| Beurré Bosc . . | 2 | 1 0 | a Kingessing . . | 7 | 1 8 |
| Baronne de | | | a Lodge | 3 | 0 7 |
| Melo | 5 | 1 6 | Laure de | | |
| Belle Epine . . | | | Elymes | 10 | 1 10 |
| Dumas | 2 | 0 9 | Louise Bonne | | |
| Beurré Duval . | 3 | 0 13 | of Jersey . . . | 50 | 7 9 |
| Belle Henriette | 4 | 1 0 | a Lawrence . . . | 40 | 10 12 |
| Beurré Lange- | | | Manning's Eli- | | |
| lier | 27 | 6 0 | zabeth | 5 | 1 17 |
| Beurré Har- | | | a Myramensing . | 4 | 0 18 |
| donpont . . . | 2 | 0 12 | a Moore's | 6 | 1 12 |
| Beurré d'Anjou | 7 | 3 2 | a Merriam | 80 | 16 14 |
| a Clapp's Favour- | | | Marie Louise . . | 11 | 1 0 |
| ite | 9 | 2 10 | a Laughlin . . . | 4 | 0 19 |
| a Cabot | 5 | 0 15 | Omar Fasha . . . | 4 | 0 17 |
| a Coffin's Virgou- | | | Paradis d'Au- | | |
| leuse | 4 | 1 8 | tomne | 13 | 3 1 |
| Caen du France | 7 | 4 2 | a Pratt | 24 | 7 6 |
| Conseiller de la | | | Poire d'Albert . | 2 | 0 6 |
| Cour | 3 | 0 14 | a Sterling | 13 | 3 2 |
| a Dearborn's | | | a Sheldon | 39 | 9 6 |
| Seedling . . . | 8 | 1 12 | a Swan's Orange | 30 | 3 4 |
| Doyenné Bous- | | | St. Michel | | |
| soch | 72 | 11 10 | Archange | 13 | 3 7 |
| Dunmore . . . | 2 | 0 6 | a Seckel | 11 | 1 9 |
| Duchesse d'An- | | | a St. Crispin . . | 6 | 1 17 |
| goulème . . . | 6 | 2 5 | a Tyson | 6 | 1 15 |
| a Edmond's . . | 8 | 1 0 | a Tet | 5 | 0 15 |
| a Edwards's Eliza- | | | Urbaniste | 71 | 6 16 |
| beth | 11 | 2 3 | Vezouzière . . . | 8 | 0 17 |
| Excellentsissime | 4 | 1 16 | Vicar | 16 | 2 0 |
| Flemish Beauty | 20 | 1 13 | Winter Nelis . . | 3 | 1 2 |
| a Fulton . . . | 2 | 0 12 | | | |

Those marked a are American varieties.

Let me add, in closing, that there are in the

above list only six varieties that can be well dispensed with in any collection of fine Pears. These are Beurré Benoit, Belle et Bonne, Beurré Duval, Coffin's Virgoulouse, Dunmore, and Laure de Glymes.

C. M. HOVEY.

Boston, Mass.

PRUNING TO CONCENTRATE FERTILITY.

WE have already seen how top-pruning tends to secure this most desirable and profitable result. The influence of the pruning-knife on the tops of trees is, however, far less certain and powerful than the knife or its equivalent among their roots. The more we know of the character of roots, and the better their functions are comprehended, the more we may be assured that in root-pruning we possess a panacea against sterility, for the latest teachings of science clearly prove that the vital functions of the roots are discharged by their final or ultimate extremities or infinitely small subdivisions—fibres or hairs—the analogy between vegetable and animal nutrition, which is finally consummated by the ultimate tissues of the body, being far closer than had been suspected. Practical men, though comparatively ignorant of the structure or modes of feeding of roots, to put it popularly, had long since cut their way to the conclusion that small roots favoured fertility and large ones sterility. This fact, linked to a second of equal or more importance, viz., that by severing one large root several smaller ones were produced, laid a sure and certain basis for the practice of root-pruning. Neither is the soundness of the principle of root-pruning nor the success of its practice threatened by the latest revelations of root structure and function afforded us through the discoveries of science. A glimmering of the truth of some of these discoveries had already dawned on practical root-pruners, who contended that not only was the amount of food controlled by the size of the roots, but that its quality was affected, and that the smaller the absorbing or carrying or transforming roots the more potent for fertility the food conveyed. Now, we know that the extremities of roots are neither horse leeches nor sponges, but simply inert or impervious borers or diggers, caps or shields placed in advance of the true roots to clear the way and protect them from injury; we know, too, that roots have no open mouths, but that water passes into them by a process something akin to capillary attraction called osmosis. Water and air, with minute portions of saline and other matters in solution, are probably all that thus pass through the fibres or leaves of plants. The old idea of plant food of any sort being, as it were, bodily absorbed from the soil and at once converted into structure or produce must be relinquished. It is not until after the passage of the moisture of the soil into the tissues of the petals that the process of plant food making begins. There are two theories about the making of plant food by no means contradictory, and possibly both work in parallel lines. The one credits the roots with manufacturing their own food from the crude elementary matters without or within their tissues; the other supposes that special orders of plants (microbes) of simple form are appointed to perform these vitally important and delicate functions. Either way the results are the same. At touch of the bacteria, or microbes, or tips to the proper roots or fibres above the inner caps, the insoluble inert nitrates or mineral matters in the soil are converted into soluble nitrates—stones being virtually converted into bread—the food of plants either by acid exudations from the roots or by the agency of invisible germs. The prepared food is said to

be consumed as fast as it is produced, and just as the gastric juice in the stomach is only secreted when food is present; so it is supposed the roots only exude this solvent fluid when brought into close or direct contact with suitable matter. When all this is better understood, it will probably greatly modify our present systems of manuring and enriching the soil; but the one point I wish to emphasise here is the incalculable importance of multiplying these root fibres, as it is possibly the only means of preparing sufficient food of the right sort to concentrate and intense fertility to the uttermost possible limits consistent with the health and life of the tree. The new theory of plant nutrition almost converts into absolute truth the earlier speculation I and others have indulged in with regard to small roots forwarding more fertile food than large ones. When read in the light of past experience which reads uniformly that the more numerous and smaller the roots of plants, the more fruit and flowers, and *vice versa*.

The dominant power of root-pruning on the growth and produce of the tops of plants is also the more easily explained in the light of this new theory of nutrition. Granted that the size of roots must regulate the amount of water passed through them, and that the presence of possible or potential food in the water within or moist earth without controls the amount of solvents or food manufacturing force produced by the plant, it follows almost as a matter of course that the quantity of food and its quality must depend on the number and size of the roots. It may be contended that the same root force would produce the same result, whether exercised by three roots, thirty, or three hundred, but that is to take a very gross view of the organs and functions of plant nutrition and is contrary to everyday experience. I have already contended that the greater fertility of old trees left unpruned arises from the multiplication and subdivision of the roots. Root-pruning enables us to reach the same conditions in an incredibly short period of time, but in perfect harmony with the same laws; hence it is not opposed to Nature, but the knife on the roots quickens the pace, and is as the mail express to the old-fashioned wagon. Fertile and foreign stocks, double and multiple grafting or budding are but different means of reaching the same results as by root-pruning. Instead of pruning the roots into a fibrous condition we mount the scion on the Paradise, Quince, or other stock already furnished with the character of roots desiderated; and as the roots, for a time at least, almost wholly control the growth of the top, the trees become and continue more fertile in less time than if own-root plants had been pruned into fruitful ways. Even the foreign stems not seldom enhance fertility. They, especially in the case of double worked or multiple grafted trees, introduce foreign cylinders of growing tissue between the roots and tops, and thus resent or accelerate the conveyance of food in the exact ratio of their dissimilarity to either or both. Generally the effect of vital cylinders of a foreign character is to check or partially cut off or reduce the supplies of food, and so accelerate and heighten fertility.

Another effect of root-pruning and its various substitutes must not be overlooked and that is the tendency of fertility to reproduce itself, on the broad principle that runs through the vegetable kingdom of like producing its like. There are many exceptions, fortunately, and these often lead to new departures of the highest interest and importance. But after all these but confirm the rule just stated, which has a potent influence on practical horticulture. And although the practice of root-pruning is based on the converse

proposition that the character of the roots largely controls top growth and produce, yet is the converse also true; hence fertility, once established, is easily maintained, unless the trees are overburdened with fruit or ruined by an excess of interference. The caution to let well alone is much needed by large classes of cultivators, as the most difficult of all arts to learn is to know when to stop. If it be true, and it is, that nothing succeeds like success, it is even more true that fruit-bearing is the surest preparation and the most solid basis for perpetual fertility.

D. T. F.

GARDEN FLORA.

PLATE 53A.

THE GENUS AGONIS.

(WITH A COLOURED FIGURE OF A. FLEXUOSA.*)

AUSTRALIA is exceptionally rich in plants belonging to the Myrtle family, the genera Eucalyptus, Eugenia, Metrosideros, Beaufortia, Melaleuca, Callistemon, as well as many others being either limited to the Australian continent or largely represented there. Some years ago many of these plants, owing to the beauty of their Bottle-brush like flowers, were much more widely cultivated in gardens of this country than they are now, when, if we except Genetyllis, Beaufortia, and Callistemon, and a few of the Eucalypti, these handsome flowering shrubs are totally neglected. Unlike a large proportion of the Australian plants, the members of this Order are as easily cultivated as an Azalea, and under intelligent treatment they will flower as freely. We have seen large bushes of Callistemon, Metrosideros, Beaufortia, Bæckia, and Genetyllis a perfect blaze of flower in a few old gardens where such plants are still grown. Probably Australian plants will in time return to popularity in gardens in the same way as single Dahlias, single Roses, and other once despised plants have done recently.

The genus represented in the accompanying plate by *A. flexuosa* does not appear ever to have found its way into notice in England, although it and another species, viz., *A. marginata*, have been cultivated many years at Kew, where they may be seen flowering now and again in the summer. They bear a resemblance to the genera *Melaleuca* and *Leptospermum*. There are ten species known in Australia where they are limited to the western regions, growing on rocky wastes, in gravelly soil, or in muddy swamps. They form shrubs or small trees with alternate leaves, and the flowers in clusters in the axils of the leaves, or on the ends of the young shoots.

A. FLEXUOSA.—This grows to a height of 40 feet in Australia, but it may be limited to the size of a small pot shrub. The branches are thin, woody, flexuose or zigzag, and are clothed with lance-shaped Willow-like leaves, smooth, dark green, the margins tinged with purple. The flower-heads are all axillary, and are surrounded by broad bracts, which, along with the numerous long white stamens, are the most attractive features of the inflorescence.

A. MARGINATA.—A shrubby plant with numerous twiggy branches, the youngest ones covered with silky hairs; the leaves are leathery, slightly hairy, in other respects much like those of the common Box. The flower-heads are axillary or terminal, about twenty flowers in each head; the petals small and white, and the stamens are long, hair-like, and pure white. The above are the

* Drawn by Mrs. Rowan in Australia.



only species known to be in gardens in this country.

For their cultivation the above two species of *Agonis* require to be potted in a mixture of turfy loam and peat, with a liberal addition of sand. As they have fine roots they should be potted firmly and kept only moist till they commence to grow, when water may be frequently given so as to keep the soil wet. During winter very little water is required. In autumn the plants may be placed in a sunny position out of doors, which will ripen the wood and induce the formation of flower buds. An ordinary greenhouse temperature is sufficient for them. In the south of England in favoured localities it is probable that these plants would thrive out of doors.

KENNEDYA COCCINEA.*

THE Kennedyas form a genus of perennial climbers or trailers, with trifoliate leaves and racemes or umbels of large Pea-shaped flowers, which are usually some shade of red. There are nine species described, all of them being natives of Australia, from whence at some time or other they have been introduced into English gardens, and at one time were favourite plants for growing along rafters or upon trellises in greenhouses. One of the most beautiful kinds, viz., *K. Marryattæ*, will be found represented by a plate (No. 501) in THE GARDEN of July last year, and along with it the details of the treatment required by Kennedyas generally, to which the reader is referred for cultural information on the species herewith figured.

K. COCCINEA is one of the prettiest of the Australian greenhouse climbers belonging to the Pea family, and is as easily grown as the common Sweet Pea. Liberal treatment as regards soil and moisture will cause it to cover a large space in one season, and to flower most profusely during the whole summer. The value of the Kennedyas is found in their prolonged flowering season, for under favourable conditions they have been known to flower from January to December; in fact, they did not cease till they were cut back to induce them to make new shoots. As an instance of this we may point to the plant of *K. Marryattæ* in the greenhouse at Kew, from which the plate above referred to was made, and which has been in flower without intermission since the summer of last year, and is now still in beautiful condition. A few years ago we had plants of *K. rubicunda* and *K. coccinea* flowering just as freely and as long as the above. There is a variety of the last-named species with very long flower-stalks quite a foot in length, and which is known in some gardens as *K. longipedunculata*. The type is a quick growing climber or trailer with silky branches and leaves and long-stalked umbels of bright scarlet flowers, about a score flowers being included in each head. It produces a good crop of seeds, which may be used for purposes of propagation in preference to cuttings, and the same remark applies to all the kinds which seed freely in gardens. The following plants, known in gardens as Kennedyas, are now referred to the genus *Hardenbergia*, viz.: *K. monophylla*, *K. ovata*, *K. longeracemosa*, *K. cordata*, *K. Comptoniana*, and *K. macrophylla*.

Palms flowering.—There is now a most remarkable Fan Palm of the *Brahea* section on the point of flowering in Mons. Camille Dognin's garden at Cannes. The flower-spikes are fully 5 feet long, curving like an ostrich feather round the head of the Palm and entirely surrounding it as with a glory. If, when open, the small flowers are golden or creamy

in colour, this will be the most beautiful of flowering Palms; and as it is said to be monoecious, it is to be hoped that fertile seeds may be gained from this unique specimen, which is about 8 feet high. As far as can be judged in such a climate, this Palm, the origin of which is unknown, is as hardy as the *Chamærops*, and so may ere long be found in English gardens.—E. H. WOODALL.

NOTES.

IN THE GARDEN.—Mr. E. P. Roe, the American novelist, is also a farmer and fruit grower—in fact in some ways a western representative or counter-part of our own Mr. R. D. Blackmore, of "Lorna Doone" celebrity. "When we come to co-work with Nature," says Mr. Roe, "all we do has some of the characteristics of an experiment. The labour of the year is a game of skill, into which also enter the fascinating elements of apparent chance. What a tree, a flower, or a vegetable bed will give depends chiefly upon ourselves; yet all the vicissitudes of dew, rain, frost and sun have their part in the result. We play the same with Nature, and she will usually let us win, if we are not careless, ignorant or stupid. She keeps up our zest by never permitting the game to be played twice under the same conditions. We can no more carry on our garden this season precisely as we did last year than a captain can sail his ship exactly as he did on the preceding voyage." The truth of Mr. Roe's statement is of course self-evident, and it points to acute observation as being one of the chief factors in the making of a good gardener. He must needs be an original observer and experienced enough to turn his quick power of seeing to practical account. Gardening is like chess—inexhaustive as an amusement; but then it has the infinitely greater merit of being a useful and profitable game.

OLD VINES.—Travellers with tastes artistic tell us of the magnificent effects produced in North America by the Vines of different species as seen growing naturally over trees in their native haunts. Even in Italy, where the Vine is grown for use more generally than for beauty, fine grouping is often seen, especially when it flings its slender arms over deep-fronted terrace walls, or clambers up slim Poplar stems, or spreads itself fruitfully over the shady pergolas of that sunny land. One of the features of Chiswick in old times was the gracefully festooned American Vines on chains near the old council room, and as ornamental climbing plants we have few which rival them in beauty during eight months of the year. In the inner court of the grand old Musée Plantin at Antwerp is a noble specimen of the Black Malaga variety which has great gnarled stems, and extends fully half way around the courtyard, and it is said to be from three to four hundred years old. Even in London gardens the Vine is one of the best plants for a sunny wall, and further south some kinds fruit well in the open air. For fruiting the Black Cluster and Royal Muscadine are two of the best, while for foliage *Vitis purpurea*, *V. vulpina*, and *V. amurensis* deserve notice. The Grape Vine is so beautiful and so useful withal, that it would be interesting to hear of the finest kinds—that is to say, of those which are most fruitful and those the leaves of which are most beautiful in the open air.

SHRUBS NOW BEAUTIFUL.—Rosemary for its old associations, for its deep green sprigs, and for its pungent odour. *Erica carnea* for its fresh spray-like growths, bespangled with its deep pink bells. *Skimmia oblata* and *S. japonica* are spreading masses of scarlet berries; so, too, the Hollies of many kinds are most beautiful, and the Ivies which drape the brickwork or the old

grey stone walls. *Rhododendron præcox* is not quite so happy as usual, but bears its lilac Azalea-like blossoms freely thus early in the year. *Berberis nepalensis*, *B. japonica*, and the varieties of the common bronzy-leaved *Mahonia* are amongst the most handsome of hardy foliage plants. A good large bush of *Daphne Mezereum* is quite a picture, each grey shoot being covered with purple buds and sweet-scented blossoms. How rarely one sees the old white-flowered *Mezereum* now! We have but few spring blooming shrubs more lovely, and its crop of orange-yellow fruit later on in summer is almost as pretty as the flowers themselves. Of three things which went to make old-fashioned gardens attractive, the most noticeable in their seasons were *Mezereons*, *Rosemary*, and *Sweet Lavender* as they luxuriated amongst *Carnations* and *Moss Roses* in the sun. The dwarf *Periwinkle*, both blue and white, is in flower, and the soft woolly Almond buds reveal their rosy lining.

GARDEN PICTURES.—How very rarely do we see a really good painting of a garden, or of flowers even, except as arranged in the "still life" manner of the schools. In the Luxembourg Gallery (No. 212) is a picture by Quost—a group of *Rhododendrons* in the tall bush *Grasses* of a neglected lawn. It is called a "New Season," and the natural beauty of this cloud of rosy pink *Rhododendrons* is past all words. Another good picture (No. 154) is the "Embarquement des Fleurs," by Georges Jannin—a whole boat or puntload of *Pæonies*, *Roses*, *Musas*, and *Palms*, very strongly and naturally shown. There is also in this gallery (No. 189) a picture of Dante and Matilda in a hillside garden that is most real and poetic. It is by Albert Maignan. Cherry and Almond trees in full blossom are so truthfully painted, that one forgets the interpretation, and seems to gaze on Nature itself. Students of flower painting should, if possible, see these pictures for themselves. All three of them are very true, but those fond of garden flowers will best appreciate Quost's grassy lawn as seen in the freshness of a dewy morning. The Grass is exquisitely painted with its tangled masses of Meadow Sweet and Ox-eyed Daisies and golden Daffodils. It is a true picture of living flowers as they grow and have their being. Of course, Fantin and Leclaire are past masters of the "still life" method, but Quost and Maignan have given us real garden pictures.

FERRARIAS.—On my table is an old quarto, by J. Baptista Ferrarius (A.D. 1633), entitled, "Florum Cultura," and on page 171 is figured the first *Ferraria* I can find in botanical picture books. The species may be *F. undulata* (*Bot. Mag.*, t. 144), but Ferrarius himself called it "Flos indicus e violaceo fuscus, radice tuberosa." If there is an earlier reference to this genus, I have failed to find it. There are several species, and I allude to them now because it is by no means a usual thing to meet with them in gardens. I had, however, a flower of *F. antherosa* sent to me the other day from Straffan, a fugitive blossom with crisp-edged, black-shaded perianth, at first sight not unlike the Florentine Iris tuberosa. These *Ferrarias* are nearly allied to *Tigridias*, almost as ephemeral in their duration, and not by any means as showy, so perhaps their scarcity in modern gardens is thus accounted for. Being from the Cape and blooming thus early in the season, pot-culture in a sunny greenhouse or frame is essential. *F. antherosa* is figured and described in the *Botanical Magazine* (t. 751), and it seems to be the same plant as that called *F. viridis* in other works. About half a dozen species are known. Although by no means useful from the ordinary decorative point of view, these quaint and sombre flowers are worthy of a

* Drawn by Mrs. Rowan in Australia.

corner wherever curious forms of vegetation find a home.

FILMY FERNS.—When I was in Edinburgh last autumn, Mr. Lindsay very kindly took me to the Pilrig Model Buildings to see a collection of these beautiful Ferns formed by Mr. Anderson. There were in all twenty to thirty species and varieties, perhaps more, growing in sunk frames, in a herring barrel covered with corrugated glass, and in other contrivances. I saw five or six forms of *Trichomanes radicans*, one a very distinct erect-growing free-fruited variety I never saw before. *T. alabamense* was also healthy and in fruit. A pan of *T. reniforme*, 15 inches across, was in perfect healthy vigour; so also *Hymenophyllum demissum*, 2 feet in diameter. There were also good plants of *H. asplenoides*, of *T. crispum*, *T. javanicum*, *T. pilosum*, and the feathery *T. angustatum*. There are many other kinds represented, and some of these are rare and in the healthiest state. This most interesting collection has been formed during the last ten or twelve years by Mr. Anderson, who told me that he walks on an average twenty miles a day as a letter carrier; and his taste is to some degree hereditary, since he is the son of a gardener. His first success was with coloured-leaved zonal *Pelargoniums*; then *Todeas* took his fancy; and now his collection of Filmy and British Ferns is a rare and valuable one, and its owner has obtained many prizes for his pet plants at the Edinburgh exhibitions. Mr. Anderson's success with choice Ferns not far from the centre of "Auld Reekie" ought to stimulate others in the growth of these fairy-like plants.

DOUBLE YELLOW WALLFLOWERS.—Amongst old-fashioned garden flowers the double yellow or Golden Drop Wallflower always had a place, along with its rich crimson-brown counterpart; but there is another double yellow now in flower, and its golden rosettes, borne on short stout spikes, are very bright and fragrant in the early sunshine. We had it from an old garden under the name of the old Double Rocket Wallflower, and although decidedly smaller and less showy than the summer blooming varieties above named, yet it deserves culture for the sake of its perpetual blooming habit. It seems a pity that the double German Wallflowers, heavy and unrefined as most of them are, should have to a great extent supplanted these old favourites in our gardens. Another reason for their decadence is the fact that their propagation must be effected by cuttings, and if this is neglected for a year or two they soon die out. This, of course, is equally true of many other fine old garden flowers, including the true old double Rockets, purple, lilac, and white, and the rare old double Primroses, all now, alas! too rarely seen happy in our modern gardens.

SNOWFLAKES.—The spring Snowflakes are peeping up through the wet soil here and there, but never seem to be so thoroughly at home as are the Snowdrops. What I mean is, they are slow of increase, and so one can never have lines or masses of them except at great expense, besides which I find many of the imported bulbs fail to appear the second year. There are two varieties of *Leucojum vernum*, as also of *L. aestivum*, and I find that these have been recognised as distinct for the last two or three centuries. In Besler's "Hortus Eystettensis" all four varieties are figured, as also is *L. autumnale*, which blooms along with the autumnal *Colchicums* and *Crocus speciosus*. I wish someone with whom *L. vernum*, its twin-flowered form, does really well would tell us how to manage it. What soil and aspect does it best enjoy? *L. aestivum* and *L. pulchellum* or *L. Hernandezianum* are far less capricious, since they soon form strong clumps and flower

freely both in sun and shade. Clumps of these last, lifted now or a little later and potted up for a cool house or frame, flower well, and are useful as indoor decorative plants along with *Dielytra spectabilis*, Solomon's Seal, *Spiræas*, *Saxifraga crassifolia*, and *Daffodils* of various kinds. Wherever hardy plants are grown in quantity many of them lend themselves to pot culture, and thus bloom earlier indoors.

DONDIA EPIPACTIS.—Now that the perky little winter Aconite is on the wane, the golden green flower-heads of this pretty little plant are increasing in beauty day by day. It has the true spring freshness about it, and contrasts very prettily with purple *Crocus*, or the flower of *Bulbocodium vernum*. Its correct name is *Hacquetia*, but it will be a long time ere the old garden name *Dondia* is superseded. The beauty of the plant consists in its fresh, golden green colour, which is very pleasing thus early in the year. There are other plants of this style well worth a place for their warm-coloured leafage, even although in their case the flowers are as yet absent. Of these *Hemerocallis graminea* is now pushing up its plumes of yellow rushy leaves, and *Valeriana Phu aurea* and the golden *Stonecrop* (*Sedum acre aureum*) contrast beautifully with the deep blue of the Siberian Squill. A good, strong plant of *Dondia* is very effective if surrounded by either purple *Crocus* or deep blue *Scillas* and *Snowdrops* mixed together.

BASKET FERNS.—Seeing that a great many Ferns are epiphytal in their habits abroad, it follows that basket culture is one of the best methods of growing them in our gardens. The distinct Elk's-horn Ferns or *Platyneriums* are never seen to better advantage than when on blocks or in baskets. In the Tropics I have seen *P. grande* wedged into the collar of an Orange tree, from which its fertile fronds depended to the ground from a height of 7 feet. *P. alcicornis* makes an effective mass if it is wedged tightly into a pot and allowed to establish itself for a few weeks, after which the pot and its contents may be suspended upside down. Treated in this way, the barren fronds curve up the pot sides very prettily, and the pot soon becomes entirely hidden from view as young plants make their appearance here and there on the roots. *Adiantum farleyense* is one of the best of basket Ferns, as its great fronds are naturally drooping, and it really enjoys more sunshine than any other Ferns, the young fronds having a lovely rosy salmon tinge when so grown. The Squirrel-foot Fern (*Davallia bullata*) is another distinct and effective plant for wire baskets, which it soon covers with its rich brown velvety stems, from which its feathery pale green fronds branch out in all directions. *Asplenium flaccidum* and *A. dimorphum* are both distinct for this purpose, and for a large basket in a cool house, *Woodwardia radicans* or, better still, its proliferous form, *W. r. orientalis*, are worth a place. But for the moist back walls of a plant stove nothing is more noble than the different *Platyneriums* fixed on boards with a little peat and Moss. [So grown, they are seen to advantage, and young plants are freely produced by their roots.

JAPANESE MAPLES.—The conservatory never looks better than during the early months of the year when filled with Azaleas and flowering bulbs intermixed with these graceful Japan Maples. Even when grouped along with the choicest of Palms, Ferns, and the rarest of tropical Orchids these *Acers* are most beautiful. They are perfectly hardy, and in some localities form beautiful masses of elegantly cut foliage from spring to late autumn, but it is as pot plants that they are most valuable to the largest number of

cultivators. After their leaves fall in autumn they may be wintered in a cold frame, and if placed in gentle heat in February and syringed once or twice daily, they soon develop their leaves of green, brown, rose, or deep red, as the case may be, for the varieties are numerous and all are beautiful. They are as graceful as Ferns and are more easily managed, so that they are especially useful to amateur gardeners. They are propagated by grafting or inarching, and to this fact (as also is true in the case of the *Clematis*) may be attributed their being rather expensive plants to purchase. These plants have long been favourites with the Japanese gardeners, to whose skill we owe the numerous varieties of these plants. Of all greenhouse foliage plants, I consider these at once the most beautiful during all their changes from spring to autumn.

VERONICA.

INDOOR GARDEN.

COVERINGS FOR GLASS.

IF our winters were uniformly severe, we should, I imagine, attach more importance to covering glasshouses in frosty weather than we now do. When we get a hard winter or two the value of outside protection becomes apparent, but hard winters are sure to be succeeded by mild ones, which cause the lessons taught by them to be forgotten. In some parts of the Continent gardening under glass would be almost an impossibility without a regular system of covering it in some way. Not only is frost so severe as to render it a matter of some difficulty and very expensive to maintain the requisite temperature, but the amount of snow which frequently falls in a night would break in the glass if entirely unprotected. In many parts of Germany and in Switzerland it is only iron roofs double glazed with 21-oz. glass that can be relied upon to bear the weight of snow without cracking the squares. All houses and frames glazed in the ordinary way are nightly covered with boards, and in a general way these go on the top of straw mats, so that they are doubly protected. Each board has a slip nailed on one side, which, overlapping its neighbour, keeps out rain effectually. The straw mats are only put on in severe weather, as the boards alone will keep out 10° of frost.

FRAMES ARE PROTECTED in a similar way, only that instead of 9-inch boards shutters a yard across are employed, on which as much litter as is necessary can be put without danger of breaking the glass. In a large establishment in Germany all the *Cinerarias* were wintered in cold frames thus protected, and although the winter I passed there was exceptionally severe, not a single leaf was injured. In almost every garden cold frames are used for the wintering of plants more or less tender; indeed, in many places a great majority of the bedding plants can find no better quarters, and in such cases I can strongly recommend the method of covering above described. And here, I may remark, that a most important point in connection with wintering tender plants in cold frames is to cover sufficiently to keep frost from the glass, as when this is continually freezing and thawing a great deal of drip is thereby occasioned, and damp, I need scarcely say, is almost as great an enemy as frost in glass structures, which are unprovided with the means of driving it out. The expense of providing a glass house with a covering of boards and mats such as are here described is, of course, considerable, and there is the daily labour of putting on and taking off to be reckoned with, but the primary cost is soon compensated for in

a reduced coal bill, and the work which stoking involves is also much reduced.

AS TO COOL HOUSES, a covering of some kind that can easily be put on is very valuable, as it not only guarantees the inmates against severe frosts which often come without previous warning, but it enables the grower to maintain them in a more complete state of rest during the dark winter days. Fire heat, however judiciously applied, is sure to have an exciting influence, and the arid atmosphere which it engenders is apt to act prejudicially. This is, however, most marked in the case of warm houses, the inmates of which require a more or less moist atmosphere the year through. In their case a covering, however slight, will do much towards preserving the temperature and atmosphere in an equable condition while giving ease to the grower. We have here a small lean-to greenhouse, in which, although furnished with a hot-water apparatus, we do not care to have more heat than is absolutely necessary. I find that by matting up the ends and covering the top with bast mats I do not need to make a fire for 8° of frost. The mats last three years if stored away in summer, and I am sure that their cost is saved in one year. In severe weather, such as that lately experienced, the fire is not lit until eight in the evening, and is banked up at ten o'clock, which nicely maintains the required temperature through the night. Before I used any covering I had, in a time of hard frost, to fire up at six o'clock, or perhaps earlier, and could not leave it in safety till midnight. This shows to what an extent an outside covering economises time and fuel. Even a thin canvas blind, such as is commonly used for shading, has much value, especially if it can be so arranged as to leave a space of several inches between it and the glass. A stratum of air between the covering and the glass materially increases its protective power.

COVERING MATERIALS.—Common scrim canvas soon rots; if exposed all through the winter it will not last more than a year in good order; but there is rot-proof scrim which is now coming into use, and which is said to last indefinitely. I should advise that this be employed, as, although dearer, the primary cost is soon compensated for. It is a great mistake to be niggardly in the matter of protecting material. There should always be an abundance of this to fly to when hard weather sets in. Bast mats of very good quality can be bought at 9s. per dozen of the London mat merchants. They are somewhat soiled, which renders them unfit for the retail trade generally, but in other respects they seem to be quite as good as those commonly sold at double the price. I fancy that they have been used for packing some kind of imported merchandise, but in any case their durability does not seem to be thereby affected. Straw mats are most excellent; they are worth, when new, two bast mats for keeping out frost. A well-made straw mat will exclude 10°, that is, when the sides of the frame or house are wholly brickwork. The clumsily made straw mats that one often sees in use in English gardens are not good; they are so loosely made and so much straw is used in them, that they absorb and hold a deal of water in wet weather, and become extremely heavy and soon rot. The neat little mats so much in favour on the Continent are quite another thing, and those who once have them will never care to be without them. A friend who saw mine was charmed with them, and begged for a lesson, which I gave him, in their manufacture, and he never afterwards used any other kind of covering. Where Potatoes and Cucumbers and other things are brought along by means of fermenting material

these straw mats will be found serviceable. Some of your readers may be anxious to make this kind of straw mat; I will therefore describe the method which I employ, and which is most common in France and Germany. A framework of wood, 2 inches wide by 1 inch thick, is made to the required size. In forming this the top and bottom pieces should be nailed on the side pieces, and in these short nails are to be driven at regular intervals. If the mat is to be 4 feet wide, eight strings will be necessary; less would do, but the greater the space between the strings the more likely is the straw to bulge out. A well made mat should present a quite even surface. The two side nails, both at top and bottom, must be driven in exactly opposite the side pieces. The strings are firmly fixed to the bottom row of nails, and are stretched as tightly as possible round those at top. If they can be as tightly stretched as a harp string, so much the better. An improvement on nails for the top are smooth iron spikes, as the strings can be more tightly wound round a perfectly even surface. The most suitable string is the ordinary laid cord, which costs at the mat merchants 7d. per pound, and rather more elsewhere. The next thing is to procure as many pieces of wood, about 5 inches long and 1 inch thick, as there are to be strings to the mat. Leaving the ends intact, these pieces are to be pared down, so that they bear some resemblance to a common cotton reel. These are to hold the twine which will fasten the straw to the strings.

THE CHOICE OF STRAW is an important point, as the durability of the mats naturally depends upon the quality of the material employed in their manufacture. Rye straw is the best, because it is tougher, but wheat straw makes very good mats if hand-threshed material can be obtained; but herein lies the difficulty; very little corn being threshed out otherwise than by machine, the stalks are so broken that the rain soon penetrates, and the mats therefore more quickly decay than when a more perfect material is used. As a fact, a first-class mat can only be made from straw grown expressly for the purpose, as it should be cut just before the grain becomes ripe. Straw cut in this stage of growth has much more endurance, and not being so brittle does not break away in pieces so much as fully matured straw does. If I could do so, I would certainly grow all my straw for mat making, and the loss of the crop of grain would be trifling as compared with the increased durability of the mats.

A mistake often made is in using the straw without any previous preparation. Every portion of it should be combed, which is done by firmly fixing a large wooden rake horizontally, with the teeth upwards, and drawing the straw through them by handfuls. This takes out all the short stalks and fluffy refuse matter, which adds but little to the efficiency of the mats, and which absorbs and retains a great deal of moisture in damp weather. The mats are then composed solely of strong, straight, clean straws, which, if properly tied in, will shoot off wet like the thatch of a cornstack. Having prepared the short pieces of wood above described and tightly wound several layers of twine around them, bring the end under the last layer and fasten it to the bottom of the string fixed to the nails on the frame.

THIS ARRANGEMENT allows running the twine out as required whilst keeping the pieces of wood in position. Having the straw in readiness, take five stalks in the left hand, seeing that the butt ends are even, and lay them across the strings, so that about 2 inches of straw project from the outermost one. Then, beginning at one end, pass the "reel" of twine round behind the string, bringing it back to the front under the

twine, so as to form a kind of running knot, which can be drawn as tightly as required. Do not be tempted to take more than five straws together with the idea of making a more frost-proof mat, as when this number has been exceeded the mats retain so much moisture as to become exceedingly heavy, and do not dry out quickly. Fasten the straw to half the strings only, and then commence on the other side in the same way, which will result in the formation of a firm mat of uniform thickness throughout. The finishing-off operation consists in trimming off all pieces which may project from either surface and in cutting the sides off evenly. This is best done by placing the sides of the mat between two pieces of tolerably thick board, so that about an inch of the straw projects from them. By laying one board flat on the ground and pressing firmly on the other, the uneven ends of the corn-stalks can be shaved off neatly with a sharp knife. A mat made and finished off in this way has a very neat, serviceable appearance, and will, with care in storing away dry when no longer needed, last several winters. For covering frames when mats are not used there is nothing so good as the common Bracken, which has a cleaner appearance than straw, which in blowing about creates litter, and lying lighter keeps out more frost. Moreover, it more quickly dries, which is in more than one way an advantage. Bracken should, however, be cut before it is quite matured, as then it is tougher; if allowed to become quite brown before doing so, it is so brittle as to soon crumble to pieces when used for covering.

J. C. B.

Iris reticulata.—This *Iris* is a real gem amongst early flowering plants, requiring, as it does, no artificial heat to bring it into bloom by the 1st of February. In August last I potted a quantity of it in 4-inch and 5 inch pots, putting from three to five bulbs in a pot, and using soil similar to that employed for Dutch bulbs. I set them on a shelf near the glass in an unheated orchard house, and did not give them any water until they had started freely into growth. During the severe frost which we had there were several degrees in the house, but being hardy no harm occurred. By the end of January they began to unfold their blooms, and they have been most conspicuous ever since, their brilliant purple and orange-coloured flowers being the admiration of all who saw them. To those who have heated structures, this *Iris* must be invaluable early in the year. That it is hardy enough to brave our winters quite unprotected and bloom with the earliest of spring bulbs is well known, but nevertheless it well deserves a place under glass. For supplying blooms for cutting it may be grown in boxes, and when the season is further advanced, set out of doors to complete its growth and ripen off its bulbs.—J. G., *Hants*.

Frame for Cyclamens.—"Kindly inform me," writes a Burton-on-Trent correspondent, "in what position a frame for growing Cyclamens should be pitched." It is an excellent plan, and one that facilitates the culture of Cyclamens, to have two sets of frames, one in full exposure to the sun, the other on the north side of a wall or hedge. What Cyclamens so much dislike is a hot sun and a dry atmosphere, and when the frames are in the full sun the plants are apt to suffer from aridity during the hot summer months. Shading and damping down will, of course, correct this, but in a north aspect there will be far less trouble in maintaining the correct balance of heat and moisture. The position must not, however, in any way be shaded, for Cyclamens cannot get too much light when growing, and if grown in the shade they draw up and become too weak to bloom as they should do. From the beginning of September they should be where they can get full exposure to the sun, as by that time they should have fairly filled the pots with roots and will take plenty of water, and the abundance of light and air imparts great substance to the foliage. It is to be understood that the two sets of frames are not

absolutely necessary, but when grown through the summer in a sunny position from the beginning of June to the end of August, they should not get the sun on them from 8 a.m. to 4 p.m.—J. C. B.

Forced Lily of the Valley.—"S. W." states that if flowering roots of this Lily are subjected to light whilst being forced early they will run to leaf; but those who require flowers of it early do not attempt to start the roots under the influence of light, for the simple reason that they are aware they would not get them at the time wanted if they did. "S. W." asserts, moreover, that Hyacinths, Tulips, Daffodils, and other plants of the same kind forced in a high temperature in the light run to leaf, an occurrence that would doubtless happen; but experienced flower forcers do not treat them in that way. Besides, Lily of the Valley will bear much more heat than the plants just named. With as much show of reason might it be asserted that because hardy Azaleas, Rhododendrons, and Laurustinus will not bear forcing in a temperature of 90°, with an atmosphere reeking with moisture, Lilac would not succeed so treated, yet most of us know that it will. Mr. Elphinstone's Lily forced in a temperature of from 90° to 110° and pronounced to be as fine as it possibly could be, had not run to leaf; and if this was not hard forced, perhaps "S. W." will tell us how hot plants are to be kept before they will bear the name of being hard forced. Mr. Elphinstone's practice is instructive, inasmuch as the temperature to which he subjects the plant is higher than it has been supposed would answer, and the time—twenty-one days—correspondingly shorter than most growers expect to have their plants in flower after being placed in heat.—T. B.

Neapolitan Violet.—I notice that Mr. Allan, of Gunton Park (p. 199) sends you a bunch of the old Neapolitan Violet, which he affirms is equal to Marie Louise, and being so much later, it comes in most usefully in succession. I have had many opportunities of confirming Mr. Allan's statement of the superb character of the old Neapolitan and the double white Neapolitan, Comte Brazza, Swanley White, as grown by him. They leave nothing to be desired, either as to size, fragrance, substance, or colour. I think Mr. Allan has described his mode of treating the Neapolitan to bring about these perfect results, but its repetition would doubtless prove most useful to many readers of THE GARDEN, old as well as young. From the running habit of the Neapolitan Violet it is, I believe, constantly stopped back, and the strength thrown into one or a cluster of crowns, to bring about those plants bristling all over with fat buds, ready to contribute their sweet harvest of bloom as the flowers expand more slowly, and last altogether longer than those of any other Violet. While still adhering to my oft-expressed view that, take it for all in all, the Marie Louise is by far away the best Violet in cultivation, there can be no question that the Neapolitan, well managed, forms a very good second.—D. T. F.

SHORT NOTES.—INDOOR.

Salvia boliviana.—This has a vigorous habit, and ranks first amongst Salvias now in flower. In the greenhouse its bold spikes of scarlet flowers are much admired. It attains a height of about 3 feet, and should be grown by all lovers of Labiate plants.—H. W.

Salvia lantanæfolia.—This is a dwarfier plant than *S. boliviana*. The foliage, as its specific name implies, resembles that of the *Lantana*. It bears purplish flowers, and has a good habit for pot work.—W. H., *Cumbeis*.

Winter flowering Pelargoniums.—Charles Smith, Vesuvius, and Wonderful are the best I have grown for flowering in winter. The first has been in bloom since October in a temperature never above 50° or lower than 38°. By keeping too high a temperature the blooms are not so good, nor do they last so long, either on the plants or in a cut state, as when grown comparatively cool.—W. A. Cook, *Holme Wood*.

Calla æthiopica.—An interesting article appeared in THE GARDEN a short time ago from "North Cheshire" respecting the culture of this *Calla*. Would the writer kindly say whether or not he shakes the old soil away from the roots when planted out in the Celery trench, and in what kind of soil he plants it out in the trench? Does he put saucers for water under the plants when brought into the greenhouse, and what winter temperature does he keep his house at? Lastly, does he find any top-dressing like Clay's fertiliser of benefit to them?—J. F. C.

STAPHYLEA COLCHICA FORCED.

Of the many hardy deciduous shrubs available for forcing and flowering in pots the least known, but in my opinion the most valuable, all things considered, is the Colchican Bladder-nut, or, to be more correct, *Staphylea colchica*. About four years ago I saw quantities of it in various stages of growth, that is to say, a good proportion in full bloom, with others to follow, in the houses at Ashton Court, and since that time I have neither met with it elsewhere nor have I heard any one speaking favourably of it. After three years' experience with it I may, however, safely assert that no hardy deciduous shrub forces so easily, while the same plants annually improve in floriferousness, the reverse very often being the case with Lilacs and other forced plants. This season we introduced, as usual, a few plants of it into an early Peach house, where, as may be imagined, a comparatively low temperature for forcing was maintained, and we commenced cutting bloom from them by the middle of February, this being well in advance of all but the double Plum. Under the treatment I shall briefly describe every plump bud, or on an average three pairs, on a well-ripened strong shoot produce a strong drooping panicle of pearly white and very sweet-scented flowers, in which the yellow anthers are plainly discernible, and are accompanied with two or more pale green Elder-like leaves. Each panicle can be cut with a short length of young wood attached, a by no means unimportant consideration, seeing that if it were necessary to cut a portion of the old wood with the flowers, these would last but a short time in water, the soft young growth more readily absorbing moisture. After flowering the treatment much resembles that given to Deutzias, with this difference, instead of pruning hard back to encourage the formation of sucker-like growths, we merely cut back to good wood buds, these developing into the strong growths that are to flower the following spring. After being pruned the plants are still kept growing in a gentle heat, and when breaking afresh, if rooting in exhausted soil, much of this is pricked away from the roots, and they are then returned into pots of the same size, or rather larger than those they were in previously, any fairly rich loamy soil suiting them. When they have formed and partially matured the fresh growth, the time has arrived for gradually exposing them to the full sunshine and all weathers. We have tried them plunged in their pots, and also planted out during summer with no perceptible difference in the results; but where labour or water is scarce they may well be planted out, as although they form no fresh top growth the roots are active and the plants doubtless derive benefit thereby. At any rate, when planted out and mulched they are less liable to suffer from neglect. They may be potted up at any time after the foliage has fallen, and placed in sizes into which they will comfortably go. Thus we have some in 7-inch, more in 8-inch, and the largest in 9-inch pots, one plant in the former size being about 18 inches high, and at the present time bearing twenty fully expanded panicles of bloom. Such a plant would be much appreciated in a dwelling-house or conservatory, while in a cut state the blooms are attractive either in vases, bouquets, or wreaths. I have not flowered this *Staphylea* in the open, nor attempted to propagate it, but it flowers freely in a greenhouse, and is increased by layering the ripened wood. Very probably it is not very free flowering when growing constantly in the open, as I have observed that our forced plants invariably flower most strongly the following season, owing doubtless to the early and thorough maturation of the young wood. W. I. M.

5461.—**Heating a small greenhouse.**—If "Fix" has any valuable plants in his small greenhouse, I would recommend him not to use a spirit lamp. Having had considerable experience in heating apparatuses, I have invariably found that any apparatus whose fire is in the house is decidedly injurious to plants, and that nothing is so easily regulated as a hot-water apparatus. Flues I regard as a gardener's foe and the friend of none but red spider. Could not "Fix" contrive to fix an apparatus to his kitchen fire to be used when needful? It is always difficult to

advise unless one has seen the house that is to be heated.—W. MORGAN, *Horeham, Sussex*.

NARCISSUS CALATHINUS.

My object in writing this is to endeavour to show that De Candolle applied the name *N. calathinus* to the large-crowned variety of *N. triandrus* through a misunderstanding, and that the name was really intended by Linnæus for a large-crowned variety of *N. odoratus*. The name *N. calathinus* has, therefore, at present a confusing ambiguity. I can get no evidence that the large-crowned *N. triandrus*, found in the Isles of Glénau, was known to botanists, until one M. de Quimper, about the year 1807, sent a dried specimen to De Candolle, which is figured by Redouté in his "*Liliacæe*" (tab. 177). De Candolle



Narcissus ix. angustifolius l. (Clusius, page 158)

who wrote the descriptions for Redouté, thought that he recognised in it *N. calathinus* of Linnæus. The following is extracted from Redouté's work:—

"THE GREAT-CROWNED NARCISSUS (Linnæus, *N. calathinus*.—Spathe many flowered, crown campanulate, somewhat indented, nearly equal in length to the divisions.) (Rudbeck Camp. Elys., vol. ii., p. 60, fig. 5. The yellow narrow-leaved Narcissus with the large crown.) (Clusius Hist., p. 158. *Narcissus ix., angustifolius* l.) In the gardens in which this plant was formerly cultivated its native place was unknown. This is the first exact information of its habitat. Clusius says that the crown is larger in proportion than in any other species of *Narcissus*, a particular

which agrees with our plant better than with the figure which Clusius gives."

In this same year, 1807, there was published in *The Botanical Magazine*, tab. 934, a coloured figure of *N. calathinus*, "the great yellow Jonquil," accompanied by a description by Mr. Gawler, who gave the same references as those given by De Candolle to Linnæus, Rudbeck and Clusius, and, in addition, one to "Parkinson's Paradise," p. 89, fig. 5. About six years later, in 1813, Redouté figured another (tab. 410) variety of *N. triandrus*, which he still calls *calathinus*, and which differs very slightly in colour from tab. 177. The dried specimen from which it was taken was sent from a garden near Paris by M. Vilmorin, one of the earliest, but never a successful cultivator of the Gléan plant. In describing this, De Candolle remarks upon the different opinion about the plant of Linnæus held by Mr. Gawler. He says, "he is informed that Rudbeck's figure, referred by Linnæus, resembled Redouté's plant, and that the characters (above repeated) given by Linnæus also agree with it. Still, he will not affirm that Mr. Gawler is wrong, but the herbarium of Linnæus ought to decide the question." Now on this latter point Dean Herbert (*Amaryll.*, p. 313) gives very full and minute information. Linnæus never had a specimen of *N. calathinus*, but described it from Rudbeck's figure, with a reference to it (*Camp. Elys.*, vol. ii., p. 60), and refers also to Clusius, from whose *Narcissus* ix. Rudbeck's figure is badly copied, the crown of the flower being exaggerated to make it, as he thought, suit better the description of Clusius. Salisbury, after careful examination, came, independently, to just the same conclusion as Herbert, and so did Haworth as regards the identity of the plant; but Haworth never could resist making a distinct species out of every old engraving of a *Narcissus* he could find. The enthusiasm with which he adopts this monstrosity of Rudbeck's creation, which, of course, he had never seen, as it never had any existence in Nature, is as characteristic of him as the Latin in which he described it, which I quote verbatim for fear of mis-translating it. It is a fair specimen of the method of this worthy botanist, whom some of our friends still hold to be almost infallible authority on the *Narcisseæ*:—

"PHILOGYNE CALATHINA (the greatest cupped) (same references to Linnæus and Rudbeck as above).—Species propria, corona maxima quæ non vidi vivam neque siccam, sed dubio sine bona; et precedenti (scil. Curtisii) affinis; a qua nihilominus differt quandoquidem magna corona. Forte affini Phil. heminali infra."

We have seen, then, that De Candolle refers his *N. calathinus* to the authority of Linnæus, Rudbeck and Clusius. Linnæus refers to the two latter, and Rudbeck to Clusius, whose figure he copied, but, as he thought, improved. We have, therefore, given an exact tracing of the figure in Clusius, and subjoin extracts from his description, literally translated from the elegant and clear Latin in which he wrote. It is found on p. 158, fol. edition. 1601.

"NARCISSUS IX. ANGUSTIFOLIUS i.—It bears on a slender stalk two or three elegant flowers larger and more lax than those of the other Rush-

leaved *Narcissi*, having yellow petals, and a crown larger than in any other kind of *Narcissus*, being half an inch long, with a crumpled edge, the colour rather darker than that of the petals, having six short yellow filaments with golden anthers (so it was not triandrus), and a yellow style thickened at the end. The flower is fragrant like all the Rush-leaved *Narcissi* (triandrus has no scent). I first saw this *Narcissus* in the year 1595 flowering in the University garden at Leyden in April. In that year I received bulbs of it from the curator of the garden, as well as from the Rev. Dr. Hille, of Rotterdam."

So much for Clusius. We now turn to the figure and description of Parkinson referred to



The great Jonquil with the largest flower or cup. (Parkinson, p. 89, fig. 5.)

by Gawler in *The Botanical Magazine*. Parkinson's figures are always original, and we recognise a form of *N. odorus* in this more easily than in that of Clusius, whose description, however, Parkinson borrows almost exactly ("Paradise," pp. 89, 90, fig. 5).

"THE GREAT JONQUIL WITH THE LARGE FLOWER CUP.—The leaves are thicker and broader than in the other Rush-leaved Daffodils. It bears on the top two or three very fair large flowers, with a large and more open cup than in any other of the Rush Daffodils, both of them of a fair yellow colour, yet the cup a little deeper than the flower, and a little crumpled about the edge, and hath a pretty sharp scent. We have this in gar-

dens only and have not heard of his natural place; it flowereth in April." We must observe that Clusius says nothing about the proportion of the crown, but says, absolutely, that it has the largest crown of any *Narcissus*, i.e., of those known to him. And so it has, for he entirely ignores *N. incomparabilis*, and so do Rudbeck and Linnæus, though it was well known to their English contemporaries; and the trumpet-crowned Daffodils, as well as the Hoop-petticoats Clusius treats as quite outside the pale of *Narcissus*. Excepting these, anyone who looks at the figures of *N. odorus* (var. *rugulosus*, for instance) in Burbidge's "Monograph" will agree that Rudbeck need not have magnified the crown of this figure of Clusius to make it agree with his description.

If, then, Linnæus intended by *N. calathinus* to designate the plant here figured by Clusius and Parkinson, it matters little what particular variety of *N. odorus* was intended. Haworth divides this section (Philogyne) into nine species, distinguished by the size of the crown, and if we are very precise in noting the proportions of the crown to the divisions, we may sub-divide as minutely several species of *Narcissus*. For example, in *juncifolius*, in *triandrus*, in *Tazetta* the proportion of the crown to the petals varies from about one-third to five-sixths. But we must bear in mind that the more species of *Narcissus* we make the more we shall have to make, as new intermediate forms continue to be found. Let us search for these forms rather with a view to join some species hitherto separated. If we do this, and investigate the origin of several doubtful species supposed to be hybrid, we may succeed in reducing Mr. Baker's twenty species to about six. But I am digressing too far, and will gladly leave the settlement of the limits of each species to experts in botany.

C. WOLLEY DOD.

Edge Hall, Malpas.

The Lotus of the Nile.—I am glad to corroborate Mr. F. Miles' statement as to the so-called Lotus of the Nile being, in truth, *Nymphaea cærulea*. In no instance have I seen in Egypt any representation in tombs or temples that could possibly be meant for the *Nelumbium*. When the royal mummies found at Dayr el Bahari, and transported to the museum at Boulak, were examined, there were many flowers of the blue *Nymphaea* found in the coffins, with blooms of the Sont (*Acacia nilotica*) and other flowers used at feasts and funerals, but no trace of any *Nelumbium* was there, or has any ever been found, as far as I know. Indeed, I doubt very strongly that the rose *Nelumbium* we call Lotus was ever cultivated in Egypt, or, if ever introduced, was so speedily lost, as not to have been handed down to posterity on the walls of the stone books we call temples in Egypt.—E. H. W.

Grafting Clianthus.—A question is asked in *THE GARDEN* (p. 182) respecting grafting *Clianthus Dampieri* on *C. puniceus*. This can be done and will succeed for a limited time; the wood of *C. puniceus* being of a much more woody nature than that of *C. Dampieri*, they will readily unite when in a young condition and grow till the stock becomes too hard for the graft; the latter will then disunite and be thrown off from the stock. I have been fairly successful by inarching; they have flowered well, but just as you get a good-sized plant and expectation runs high, disconnection takes place and all is destroyed in a few days. Though this is one of the most effective of greenhouse climbers, one seldom sees it well grown. I remember seeing a

house of it at Messrs. Henderson's some years ago, and thought it the most dazzling sight I had ever seen. The best way is to grow *Dampieri* from seed. Sow it about July or very early in spring. It wants very careful attention as to watering in all stages of its growth; the roots are very brittle and it requires the greatest care in potting, giving a few shifts as possible. Use for compost a good turfy loam, about one-fourth of hard dried cow manure broken up, and plenty of sand, well mixed together. Keep the plant well up in the centre of the pot, so that the water may run away freely from its base. Grow it in a minimum night temperature in winter of from 45° to 50°, and a day temperature of from 50° to 55°, with a rise of from 5° to 10° with sun heat.—W. B. LATHAM, *Botanic Gardens, Edgbaston, Birmingham.*

WORK DONE IN WEEK ENDING MARCH 2.

FEBRUARY 24 AND 25.

ON sitting down last evening to record my notes of the day's work, the task seemed so devoid of interest, that a very few minutes' thought led me to postpone the duty for a day longer, "Micawber"-like, hoping for something to "turn up." Certainly in respect to weather one might justly hope for a change; but no, it still continues bitterly cold and sunless, and our two days' labours have been the counterpart of each other, and that has simply been digging, trenching, carting soil and gravel, cutting *Rhododendrons*, and *Laurels* by margins of coach roads and woodland walks, and clearing up and burning the cuttings. There is plenty of other work awaiting a suitable state of soil and weather for its performance, and late though it is getting for planting shrubs and fruit trees, and for sowing some kinds of kitchen garden seeds, the best policy is still to wait. The sun will yet shine, and perhaps all will come right in the end, as was the case last year with several of our kitchen garden crops, as, for instance, Onions and Parsnips, we never sowed later, and yet they were as good as usual. They are likely to have a chance of showing whether they will be the same for two years in succession. Work in the houses, too, is much hindered. I have the strongest objection to undue forcing of anything, on the ground of its being injurious, and, finally, destructive to plant life; hence the most successful forcing is that which is helped most by natural means—daylight, and especially sunlight; for these we are waiting, and shall then strive to make up lost time, but meanwhile we will not court defeat by whipping the plants whilst they are in what is equivalent to a starved condition, i.e., lack of light. At present, Pines showing fruit cause us most anxiety, because the bottom heat has dwindled to from 60° to 65°, and as yet there is no prospect of our being able to remedy the evil, as it can only be done by taking off the lights and exposing the plants to the outside air, and if this were done for ever so short a time in this cold weather, the check would be ruinous; our treatment meanwhile is to keep the plants nicely moist—not wet—and the temperature of the house about 65° and the atmosphere inclining to dry. Our first succession plants require more bottom heat and space, too, as they are getting somewhat drawn, and airing being out of the question we do the next best thing, and that is, give as little fire heat as is compatible with keeping them just on the move; about 60° is ample so long as this darkness prevails. Tied Melons to trellis; the growth is weak in the extreme, and old Cucumbers have quite succumbed, and young plants are about on a par with Melons. They are treated as are other forcing plants in the way of artificial heat, that is, more or less of it, according to the external temperature; and overhead syringing is done but once a day, and that at 2 p.m. Put in cuttings of *Bouvardia*, *Plumbago rosea*, more tree *Carnations*, and *Chrysanthemums* for late flowering, and potted off all that were struck of the latter and shifted some of those first struck into larger pots.

FEBRUARY 26 AND 27.

Weather as usual, but, as if to assure us that spring was nearer, we have had a passing ray of sunshine on each of these dates. Being dry, we have been able to make headway with the same jobs that have been in

hand for some days past, and which are approaching completion, so that we are likely to be quite at liberty for garden work proper quite as soon as the weather is suitable for its performance. Trenched up half of our old plot of *Horseradish*, and, having no other suitable spot for it, a good dressing of manure has been wheeled on, and the ground is being trenched, and soon as done *Horseradish* will be again planted. Our *Rhubarb* and *Globe Artichoke* crops have, owing to lack of ground, to be served the same, but as the plan answers well enough there is no cause for complaint, except it be at the little inconvenience occasioned of taking up the roots and heeling them in whilst the ground is being trenched. Put a thick covering of manure on *Apricot* borders, and remulched all Pears on walls. Work in the houses is just now purely of a routine description—propagation and potting of bedding plants, stopping and tying down Vine shoots, disbudding Peaches and Nectarines, picking off ill-formed and surplus fruit from Strawberries, shifting flowering plants that have been forced to cooler positions and putting in others for succession. *Roses*, *Deutzias*, *Spiræas*, *Ghent Azaleas*, and *Rhododendrons* are our principal forcing plants; old plants of *Abutilons* and *Marguerites* that were lifted from flower beds at end of October and put in heat are now giving us abundance of flower and cuttings in quantity.

MARCH 1 AND 2.

More wintry than ever; a heavy snowstorm; outside work, snow clearing excepted, completely stopped. Plenty of time now to spread out seed Potatoes to sprout; we have arranged ours on spare shelves in fruit rooms and on floor of Potato house, and labelled them ready for planting. Examined all roots, Carrots, Onions, Beet, Salsafy and Scorzoneria, to remove decay; Apples and Pears the same; both of the latter keep splendidly, thanks to the large amount of sunshine we had in August and September last. The remainder of our work for outside hands has been making labels, washing pots, pointing and tying stakes in bundles, according to their various sizes; also pointed a quantity of Pea sticks, and cut up grub wood for firing. Indoor work has been plant cleaning, washing large *Camellias*, sponging the foliage of *Dracænas*, *Crotons*, and *Palms*, and replanting *Lycopods*, &c., underneath plant stages. Sowed the remainder of seeds for subtropical bedding, likewise *Sunflowers*, *Salpiglossis*, *Phlox Drummondii*, *Petunia*, *Amarantus caudatus* and *A. melancholicus*. The Parsley maggot canker, or whatever it is, is again fast destroying the plants, and we have, therefore, made a sowing on a slight hotbed; lime, soot, wood-ashes, rich ground, &c., have all been tried, but hitherto without success, and this is the fourth year of the plague. Previously we had not a moment's anxiety about obtaining enough and to spare.

HANTS.

FRUITS UNDER GLASS.

EARLY PEACHES.

THE most important work in the early house will now be disbudding and thinning the fruit. The first operation should always be performed by a skilful hand, as the beauty, and in a great measure the longevity, of a tree may be made or marred by the way in which it is manipulated by the finger and thumb. As few trees (*Figs* excepted) are so susceptible to sudden checks, the work should be carried on piecemeal, that is to say, little and often, from day to day, until each tree is denuded of all the superfluous growths that will not be wanted for producing fruit next year. Vigorous young trees that do not set so freely as old ones should be taken in hand first, but instead of entirely removing all the superfluous shoots it is a good plan to pinch a portion of them to two or three leaves and to allow them to remain for a time, when they can be taken off with a sharp knife, if fruit is not swelling at the base. Weaker and older trees which have been root-pruned or over-cropped, and have again most likely set freely, should be allowed to push into free growth, not only to save the fruit, but also to secure vigorous root action before they are divested of their leaves. When all the trees have been disbudded, and the base shoots have been neatly heeled in, a free and

abandoned growth should be allowed and encouraged by copious syringing and rather early closing with solar warmth until the fruit has attained a good size, and the best placed can be decided on for the crop.

Thinning.—When the trees have set a good crop of fruit, thinning may be commenced conjointly with disbudding, as there are, unless the pendent flowers have been rubbed off, a great number of Peaches which can never feel the influence of the sun except on their stalks, and as these cannot colour to the points they should be taken first. Then we have triples to reduce to one, and finally the thinning of the single fruits; these on extension-trained trees I always thin down to 12 inches apart, leaving a fair percentage for removal after the stones are formed. Thus a tree which made shoots last year averaging 2 feet to 3 feet in length is allowed two or perhaps three Peaches on each shoot up to the stoning stage, where, in the event of the crop looking too heavy, a further reduction is made. We often hear of trees carrying much heavier crops, but my advice and practice has always been to cultivate for pulp, not for stones, and my own trees, some of them a quarter of a century old, although they have had quite enough to do, are still grateful and produce as fine fruit as they did fifteen years ago.

Mulching and watering.—If old trees were not mulched before they were started, manure may be laid over the roots as soon as the fruit has commenced swelling freely, but young ones in good sound borders will not need stimulants until after it is stoned, and then it is questionable if warm, diluted liquid will not suit them best. Trees confined to internal borders of course require liberal supplies of water, not only when they are in growth, but occasionally through the winter, as it is during the dead months, when wall trees are at rest, that early trees, whose season is changed, require sufficient moisture to keep the roots progressing and naturally to feed the slowly swelling buds. If greater attention were devoted to the roots of early forced trees before they are shut up for what is termed "starting," we should hear less of bud-dropping, there would be less need for incessant syringing, and checks from a deluge just before the flowers open might be avoided. But when the fruit is swelling and young growths are pushing fast, water or diluted liquid, 10° warmer than the mean temperature of the house, must be given as often as may be found useful, and in sufficient quantity to moisten every part of the border quite down to the drainage.

Ventilation.—As days increase in length, and bright sunshine succeeds this dark, cold weather, checks from a sudden increase of temperature must be guarded against by admitting air early on fine mornings, and gradually increasing it until the maximum is reached, when reduction may be made in the same way. As it is always well to work on the side of safety, 50° to 56° will be quite high enough by night until we have a change, with a rise of 10° by day from sun and fire heat combined. When the long-looked-for bright, mild weather does come, a gradual rise by night and day may be made without distressing the trees, but a minimum of 60° should not be exceeded until the fruit has stoned.

STRAWBERRIES.

Where the makeshift system of forcing Strawberries in every house to which heat is applied is obliged to be adopted, it is more than probable early batches will have left red spider in Peach houses and vineries, where the mischief which will ensue may make the Strawberries an expensive luxury. From all such structures lose no time in making a complete clearance, thoroughly cleanse the shelves and walls, and, if possible, fit up pits for the remainder of the plants now in various stages of growth from starting to setting. When once set, the Pine stove or the hottest house at command will be found the most suitable structures for swelling and ripening off the fruit. Give successional batches of plants as much air as the unfavourable state of the weather will allow, do not allow the roots to feel the want of tepid water, and syringe well from beneath the stage to keep them free from spider. Keep flowering plants at the warmest end of the pit, turn the leaves down to prevent them from interfering

with the process of fertilisation, and thin out all weak blooms before the strongest open. Where British Queen, Dr. Hogg, and other high-flavoured varieties have been potted in quantity for giving a constant supply throughout the remainder of the forcing season, take in batches once a fortnight for the present, and look well to those left behind in cold and intermediate pits. If still plunged up to or slightly over the rims of the pots, allow them to remain undisturbed, as the material, be it leaf mould, old tan, or the favourite cocoa fibre, will keep the roots fresh and healthy and draw them up to the surface, where they will do good service when the fruit begins to swell and ripen. Throw the lights off for a few hours on mild days, and if water is needed supply it in a tepid state and in time for the foliage to become dry before the lights are shut down in the afternoon. If early forced plants are intended for planting out for giving a supply of fruit in the autumn, they must be divested of all old fruit-stalks and dipped in soapsuds or sulphur water as soon as they are removed from the stoves. They may then be placed in a cooler house and eventually in a cold pit, where they can be protected from frost and regularly attended with water. If space and time admit, it is a good plan to thoroughly soak the balls, turn the plants out of the pots, and after shaking out the crocks to place them in leaf mould or old potting soil in the cold pits, where they will require very little attention up to the time for planting out. Plants so treated soon pay for the trouble, as the balls do not readily become dry, while the roots and foliage remain fresh and healthy until mild weather in April admits of full exposure to the elements. The past winter must have been one of the most trying on record for the exponents of the stacking system, as we have had so much dry, frosty, weather, and of late, very little snow, at least in this part of the country, to shelter the crowns and prevent the balls from leaving the sides of the pots. Many successful growers say stacking ripens the crowns, but I prefer potting early and getting the plants thoroughly ripe before we store, *i.e.*, plunge the pots to the rims for the winter.

Eastnor Castle, Leicestershire.

W. COLEMAN.

HARDY FRUITS.

THE weather is still dark, dead, and cold, and will remain so as long as our Malvern Hills are covered with snow. We had bright gleams of sunshine of half an hour's duration to-day, February 23, but with this exception the sun has been entirely prevented from reaching the earth by a dark veil of vapour, and the external temperature has rarely exceeded 36° for some weeks, past. These conditions to a certain extent are favourable to a late bloom, but it is just possible that we may have too much of a good thing, as I have frequently observed that the blossoms of Apricots often fall from the trees shortly after they commence swelling when the circulation of the sap is kept in constant check throughout the month of February. Then, again, the wood and blossom buds, it is to be feared, are not over-ripe, as the fruit hung on the trees last season until August, and the foliage was quite green when we root-pruned in October. These unfavourable signs of immature growth must not, however, prevent us from being up and doing; a steady effort must be made to protect every perfect flower from injury, and as the change which we may now reasonably expect will most likely be as sudden as it has been tardy, everything must be held in readiness for protecting the trees when the blossoms begin to unfold. Every experienced man has his own method of warding off frost, cut-and-dry, so to speak, long before protection is really wanted; but, be it canvas, tiffany, fishing nets, or the primitive Spruce branch, he does not hasten expansion by applying it until shelter is absolutely necessary. To lay down rules or instructions for protecting wall trees would be sheer waste of time and space, as details have been written in the pages of THE GARDEN over and over again; but, for the benefit of the tyro in these matters, I may state that I depend greatly upon broad, projecting temporary copings supported by light Larch or Spruce poles let into the ground 3 feet from the foot of the wall. Three-fold fishing nets suspended from the edge of the coping boards to within 2 feet of the border are then secured to the poles, and we rarely

miss having a good set on walls in the highest part of the garden. Walls on the lowest level containing Peaches are fitted with home-made glass lights 2 feet in width, and frigi domo is used for front protection through the night and on bad days during rain or snowstorms. A set of lights made more than twenty years ago are apparently none the worse for wear; they are put up when the first flower opens and they remain until the fruit is safe from late frosts. Each light contains eight squares of glass, which fit into a groove at the top and are prevented from slipping out by a screw in the bottom rail. These squares butt close together at first, but when atmospheric conditions after the fruit is set admit of giving more air at the apex, one of the squares is withdrawn and the others are placed equidistant apart until the time arrives for removing the lights altogether. The difficulties, owing to the prevalence of strong winds, attending the protection of blossoms on the open quarters or borders are too great to be attempted with any degree of success, but something may be done with low bushes or small pyramids by the introduction of Spruce branches; and espaliers we protect with a breadth of canvas strained over a horizontal framework raised above the trellis.

Pruning, training, and cleansing of all trees, Peaches excepted, will by this time have been brought to a close; the latter I have unfasted in January, early or late according to the state of the weather, and keep them drawn away from the walls until the blossoms begin to show colour; they are then trained and poled ready for the coping and covering. Some Peach growers unfasten their trees much earlier, but Peach trees are not frost-proof, as those who remember the winter of 1860-1 can testify, when such a number of fine trees were killed to the ground or paralysed past recovery. What happened then may occur again, and as few wish to see the work of years sacrificed to a risky system, it is well to steer clear of danger, as the first two months in the year allow ample time for washing the trees and cleansing the walls—two operations which should never be neglected. Many people pay particular attention to the cleansing of the trees, but neglect the walls; as well might fruit forcers wash their Vines and Figs and neglect the trellis and roof of the house; but this is never allowed to happen, as it is well known that insects always secrete themselves in the woodwork and walls during the winter. A cheap and safe wash for garden walls is soapsuds from the laundry, and being in many places plentiful, it may be applied with the syringe over and over again from the time the leaves fall until the blossoms are ready to open.

Planting.—All arrears in every department should be brought to a close as soon as the weather breaks and the soil is in suitable condition. Trees that were purchased and laid in before the commencement of the severe weather must, of course, be placed in position, and others of home growth may be removed with perfect safety; but where buying in has been neglected it is questionable if this work will not be best deferred until the autumn. Many plants as late as April, and not unfrequently the trees do well, but all depends upon the spring and the way in which they are mulched, watered, and managed. Autumn planting not only obviates the risk of injury from drought, as the descending sap favours the formation of new rootlets before the earth loses its warmth, it also enables the planter to select his trees from a full stock, and to get them properly arranged before spring work becomes pressing.

Grafting.—All trees intended for grafting will now be headed back and the varieties with which they are to be worked decided upon. If the scions have not been secured, no time must be lost in getting them cut and laid in by the heels until the stocks are sufficiently advanced for their reception. American blight being such a troublesome pest, great care should be observed in the selection of clean wood from healthy trees, and then even the scions should be well washed with an insecticide before they are inserted. The trees that have been headed back should also be scraped and washed with soapsuds, soot, and lime to destroy Moss and Lichen, as cleansing can at this time be performed with a minimum of labour. If anyone doubts the soundness and importance of these precautions, let him examine a

two-year grafted foul tree, and he will find American blight has punctured the scions and laid the foundation of the worst form of canker. Old trees that were grafted two years ago should now be examined and thinned if necessary. We always make a point of putting three, sometimes four, grafts on all the large crowns, and two on the smaller crowns of old trees, as they afford numerous channels for the great flush of sap, and all the spray is allowed to grow the first two years to keep the roots in action. Trees of last year's grafting are now being cleansed, but grafts and spray will not be thinned until this time next year, when the superfluous growths taken out will make good scions and enable us to continue the system of double grafting. Conjointly with cleansing each crown is dressed with a mixture of clay and cow manure reduced to the consistency of thick paint with strong soapsuds for the twofold purpose of closing the pores of the wood and healing wounds at the junction.

Young standard trees in newly planted orchards must now be examined, top-dressed, and made secure to good stakes, with a handful of hay neatly inserted where they are tied to protect the stocks from chafing. If growing freely and shoots are sufficiently plentiful to form good heads, the removal of a cross branch, or the shortening of any that are making a prominent lead, will include all the knife work necessary. If, on the other hand, one-year-planted trees have made but little growth and look unkind and stunted, cut them back to induce vigorous young shoots free from blossom buds. When inexperienced purchasers go to a nursery to select trees they often think more of the tops than they do of the roots. They remove them from rich to a poorer soil, and perhaps to an inferior aspect; if the trees live they make little if any growth, but set an abundance of flower-buds. When this happens, cutting back at the end of the first year is the only remedy.

Eastnor Castle.

W. COLEMAN.

TREES AND SHRUBS.

TAXUS BREVIFOLIA (ADPRESSA).

REFERRING to the notes of "G. G. M." (p. 149) and Mr. A. D. Webster (p. 174), I consider it is, at this juncture, necessary to give the facts of the case, and these I am in a position to state are, as nearly as my memory will serve me, as follows. This Yew was discovered by my father, the late Mr. Francis Dickson, somewhere about 1838. It was growing in a bed of seedlings of the common English Yew. It is therefore undoubtedly a seedling sport. Being of slow growth, it was necessarily slow of propagation, and it took many years to get up a stock upon the grounds of the then firm of F. & J. Dickson, of which my father was the head. I well remember the value my father set by this plant, and his chagrin and vexation when, on his return home after a few days' absence, he learned that a representative of the late firm of Knight and Perry, nurserymen, Chelsea, had, in looking over the nurseries, purchased and taken away with him some half-dozen good-sized plants, as the result of negotiation with an inexperienced salesman who was presumably ignorant of the value of the plants. This enabled the Chelsea firm to propagate the plant, and, if I remember correctly, the specific name "adpressa" was given to it by Knight and Perry, but my father always adhered to the name he had originally given it—*brevifolia*.

The plants as they are grown in our Upton Nurseries quite bear out all that your correspondents have said in their favour.

It was not my intention to write upon this matter, but as Mr. Webster has rightly directed attention to the value and importance of correct information upon matters of this nature, and seeing your correspondent "G. G. M." has not

quite clearly put before your readers the earlier history of the Yew, I thought it needful to send on this note of further explanation.

F. ARTHUR DICKSON.

Upton Nurseries, Chester.

THE OLD SOPHORAS AT KEW.

AMONG the more remarkable old trees in the Royal Gardens at Kew are the venerable specimens of *Sophora japonica*, one of which is represented in the annexed illustration. According to Loudon, these Sophoras at Kew are among the oldest and largest in this country, but the finest tree in the neighbourhood of London was (about thirty years ago) at Syon. Loudon gives the dimensions of this tree as 57 ft. high, diameter of trunk 3 ft., and of the head 80 ft. About a year

ago, Mr. Nicholson, of Kew, furnished us with the present measurements of the largest tree now at Syon—in all probability the identical tree referred to by Loudon. Its height is 70 feet, circumference of trunk at 2½ feet from the ground 12 feet, and spread of branches 70 feet. The Kew specimen stated by Loudon to be 50 feet high is probably the one on the lawn. This specimen, at a few feet from the ground, divides into several branches of considerable size, some of which are now supported by strong chains. It forms a very picturesque object, and has been frequently sketched by artists and photographed. The height at the present time is 50 feet, circumference of trunk at 1 foot from the ground 13 feet 6 inches, and spread of branches 65 feet; the circumference of largest branch is 6 feet. The tree near the rock garden has a trunk 11 feet 6 inches in circumference at 1 foot from the

ground, and a spreading head 50 feet in diameter; the height of this was not taken, but it is between 40 feet and 50 feet. The tallest *Sophora* at Kew is near the Richmond end of the Holly Walk; tape-line measurements make this 75 feet high with a trunk of 7½ feet in circumference at 3 feet from the ground; no branches are given off below 30 feet from the ground, where the trunk measures 6 feet in circumference.

As regards the early history of the old Sophoras at Kew, an interesting note respecting it was sent to us by Mr. Nicholson, who gathered the information from the ex-curator of Kew, Mr. John Smith. It appears that five plants were at an early date procured for Kew (two of these no longer exist), and, under the impression that the species was tender, all, with one exception, were planted against walls. There is a fine tree be-

purple are especially attractive—so much so, that where placed in large irregular masses, each sort separately and in close contiguity, few, indeed, are the passers-by who do not care to linger for the parting look. As a foreground on extensive lawns, and when kept well back from drives and roads, these are excellent shrubs that, unfortunately, are but too seldom seen.—A. D. W.

Butcher's Broom.—This shrub would appear to be most "at home" in Essex, as I have never seen it so plentiful and fruitful elsewhere. At Christmas time, when living in Essex, I usually cut large quantities of strong growths beautifully fruited, and owing to the peculiar manner in which the large bright red berries are attached to the leaves they always attracted attention. Here we have one strong plant, but which does not fruit, and its principal recommendation is the fact that it grows and spreads freely in a position where little else will thrive.



An old tree of *Sophora japonica* at Kew. Height 50 feet, girth of trunk at 1 foot up 13 feet 6 inches, spread of branches 65 feet, circumference of largest branch 6 feet.

between the new rockery and the new range; a circular seat surrounds the trunk. It grew in the angle of the meeting of two walls, and in Mr. Smith's day the trunk pressed against them. With regard to the specimen in chains, it flowers abundantly, and when the flowers fall they whiten the ground, and are then much frequented by bees; you cannot even walk without treading on them. It thus appears that the bees cannot get at the honey until the flowers fall. This may account for the tree not producing seed-pods, the flower not being in a state for the bees to enter to disturb the pollen. A third specimen is still growing in the village of Kew against the house formerly occupied by Mr. Aiton, the first director of the Royal Gardens.

Willows in winter.—Nothing is at present more effective than well placed clumps of the various species of Willows. The pink or red barked and

Evidently "J. C. C." has no fruiting plants, or he would not have omitted mentioning such an important feature.—I.

Holly berries and birds.—"Veronica's" experience is so different from ours, that one longs to ask about his whereabouts geographically and ornithographically. But I must beg his pardon—he does supply the latter information, by stating that the missel thrushes and fieldfares have this season spared his, or her, berry-laden boughs of Holly. On the contrary, these and other birds made their usual raids on ours and cleared them wholly about a fortnight before Christmas. About a month on either side of Christmas, mostly a month before it, is the usual season for the birds to prey upon Holly berries, and after this season is past the birds seldom attack them again. Has "Veronica" noted the fact that birds seldom prey on fruit or berries out of season? Even Currants in this garden are mostly safe enough from the birds after the end of September; and I do not remember seeing Holly bushes

stripped of their berries after January. So probably "Veronica" may have a feast of berries until June, by which time the majority of Holly berries will probably wither or drop off. "Veronica's" glowing description of his many-coloured Holly berries—scarlet and crimson, orange and yellow, and fruitage of gold—suggests again, and with more force, the question that has often occurred to me, and that is, why more yellow and golden-berried Hollies are not grown. Foliage of every possible form, size, and colour may be had to order, but few seem to have any stock of the light or golden-berried Hollies, though they are so exceedingly beautiful in themselves, and heighten the effect of the scarlet and crimson-berried sorts by their contrast.—D. T. F.

THE SERVICE TREES.

THE description and illustrations of the true and Wild Service trees given on pp. 170-21 have read with much interest. From the engravings the difference between the two species is made very clear. Here in the south-west of England, *Pyrus torminalis*, or what I look upon as such, occurs here and there in the hedges. I do not, however, know it as a tree of any considerable size growing upon a single stem. Its habit here is more of a loose growing tree, dividing almost at the ground level as though grown from a stool. Although in some respects similar, on comparison it is easily enough distinguished from the White Beam, as there is considerable difference in the character of its leaf. In the Wild Service this is much more deeply indented than in the case of *Pyrus Aria*. With us it assumes more of the form of the Hawthorn than of any other leaf. From this, I take it, its name of *Crataegus torminalis* was derived. This formation is not well shown in the engraving, but it is very marked in the tree itself. With us last season both *Pyrus Aria* and Wild Service flowered and fruited, but during the winter I see the tree of the latter to which I directed my attention has fallen a prey to the axe. It had not, however, been removed when I passed the spot where it stood, and although some weeks ago, its large green buds at the time it was felled were very noticeable. As well as the difference in the leaf, there is an erect habit of growth about the White Beam which the Wild Service does not show. Hereabouts, the former is quite a remarkable specimen among fastigate trees. D. J.

RAISING FALLEN TREES.

THE query of "R. P." (p. 86) on this subject has, so far as I can see, elicited no reply. There are, no doubt, many readers of THE GARDEN who have had occasion to carry out such work. If, as I glean from the framing of the question, the Spruces respecting which advice is asked are not injured in their branches, they must still be inclined to the ground at an appreciable angle, and have a considerable amount of earth attached to their roots. Assuming this to be the case, the weight to be lifted will not be very great, and the trees may be again raised to the perpendicular by means of ropes and pulley blocks. If there are other trees standing within a reasonable distance of the fallen ones, the operation will be considerably simplified, as the raising tackle may be fixed to them. Two of these standing trees and the fallen one should form, as nearly as their respective positions will admit, an isosceles triangle—the fallen tree being the apex and the two standing trees forming the base. The ropes and blocks may be such as woodmen employ when felling timber to steady the tree whilst sawing it and to bring it down in any particular direction. The process indeed is practically the same, with the exception that two or more ropes and blocks and greater strength will be necessary to raise a tree than would be the case to bring it from a position not so greatly out of the perpendicular to the ground. The weight of earth, however, at the roots would be an aid, and

the tree to be raised would not be likely to be so large as the one which would require a rope in felling it.

D. J. YEO.

EFFECT OF WIND ON TREES.

THOSE who live in sheltered, or even comparatively sheltered, situations can hardly form an idea of the troubles of the planter arising from the force of the prevailing winds in high and otherwise exposed districts. From the appearance of the trees in the fields and the hedgerows in the vicinity of the sea one would be almost led to believe that in such places the effect is even greater than on the higher, and what would reasonably be supposed the much more exposed, table lands away from the coast. Whether the form of the trees by the seashore is entirely due to the force of the wind, or whether the salt particles it contains also contributes to the result, I cannot say, but certain it is that in many places by the seacoast the conformation of the trees forcibly strikes the visitor from the more inland districts. There are, no doubt, plenty of instances where this is seen; but the spot that prominently occurs to me on the moment as a good example of the effect of the prevailing winds on tree growth is the stretch of country on the northern side of the estuary of the Severn; it would, I suppose, embrace a part of the counties of Gloucester and Monmouth, and perhaps continue into Glamorganshire. Here the trees, more especially the Oak, which takes a stunted and scrubby form, seem to have grown entirely in one direction, i.e., all the branches are on one side of the tree and point away from the winds which are constantly sweeping up the Bristol Channel, and what makes it more peculiar is that they have grown away from the sun and light, in somewhat of a north-easterly direction. To one who has been always living in the inland counties and has been accustomed to seeing noble Elms and Oaks growing under the most favourable conditions, and fully feathered with branches on every side with a tendency to develop more on the sunny side, it is almost painful to come upon these trees less fortunately situated, and which appear to be in a chronic state of labour and ineffectual resistance to an overwhelming power. Perhaps it is the sturdy habit of the Oak which makes it most noticeable, and which ultimately causes it to fall a victim to the unceasing activity of its enemy. At any rate the Poplar, which also occurs in these places, but which bends to the blast, does not seem to be affected in an equal degree. From whatever cause the fact remains the same, and the traveller from any of the home counties into South Wales, if he has an eye to tree growth at all, cannot fail to see it.

This, however, is a mere illustration, and is not primarily the subject on which I intended to speak, viz., the difficulty the wind causes the planter. Somebody has recently argued that trees large enough to require staking should not be planted, but this advice is hardly likely to be followed. It is true that staking is unsightly, and, where there is a strong wind prevailing, not always effective, yet whether to abandon it altogether would improve matters is, to say the least, doubtful. A great aid towards planting exposed places is the formation of a screen of some kind to break the force and the constant pressure of the wind. With us the sweep comes from the south-west, and young trees, even if staked, if otherwise unprotected, are constantly leaning towards the north-east. This is very trying and unsatisfactory, and can only be overcome by planting a living screen of some tree or trees on which the effect of the wind is less powerful.

For this purpose trees of a bushy habit should

be selected, as if the wind presses them out of the perpendicular, it is not so much seen as is the case with standard trees. It is certainly a matter of time to raise it to a sufficient height. Otherwise amongst the most suitable subjects for this purpose is the common Cherry Laurel. This is so well known and so often spoken of, that it may appear almost unnecessary to again point out its usefulness, yet it can hardly be too widely known as thriving well where a great many other things fail. The Portugal Laurel, too, is a good tree for such screens, although I doubt if it is as suitable as the last. Among deciduous trees where the soil is suited to its growth the Beech will make a good screen; how it would resist the force of the wind in its earlier stages I am hardly prepared to say, but when it is cut down to a level of say 10 feet, it is a very effective fence and screen.

I lately noticed a Beech hedge formed of trees planted closely in a row, which well answered the purpose to which it was intended. The branches had been kept cut closely back except in the direction of the line of the hedge, and the tops of the trees had been cut off to a uniform level of 9 feet or 10 feet from the ground, the branches of course being clipped off to the same line. In different situations varying means must of course be adopted, but the result aimed at must be the same, viz., in places which are much exposed a living screen of some kind must be raised to windward before the better kind of trees can be successfully grown. SOUTH WALES.

THE WEATHER IN SOUTH WALES.

THE winter here has been the longest and most severe experienced during the last ten years. Severe frost has been very frequent since November, and last week we had 12°, 14°, and 17° on three successive nights. On March 1 snow fell to the depth of 6 inches, and some of it was blown into wreaths 6 feet deep. We had another fall on January 26, which injured a good many of our bushes, but the wind has saved them this time. In consequence of all this the spring is very late. Snowdrops blooming in the woods and pleasure grounds are about the only spring flowers we have had yet. In former years I have seen wild Primroses of different colours out in masses before this time, but none have yet appeared. From my note-book I learn that in 1878 our Apricot trees were in full bloom by the second week in February, and for several years they were in full blossom by the end of that month, but at present they do not show any signs either of bloom or growth, and it will be nearly the beginning of April before they are full out. I, however, prefer a late spring to an early one, as crops generally are always heavier and finer in the former case than in the latter. Early springs are as a rule followed by late frosts, which do much mischief, but the weather is generally genial throughout after a severe and late spring; therefore, although vegetation is backward now, I anticipate excellent results in the coming season. J. MUIR.

Margam Park, Port Talbot, Glamorganshire.

Zinc labels.—We find these very useful, having taken our model and mode of manufacture from those used by Mr. Lynch in the Cambridge Botanic Garden. They are easily cut out with shears, there is but little waste; and while it is as easy to write on them as on a wooden tally, the ink used is indelible, and the label itself practically everlasting. The main difficulty we have to contend with is the different qualities of the zinc supplied by dealers. Some kinds oxidise very quickly, and this ruins the appearance of the labels. At Edinburgh, where these labels are used extensively, a coat of sweet oil is given to prevent oxidation. At Cambridge Mr. Lynch finds a simple coat of varnish the best preven-

tive. If this should catch the eye of a chemist I wish he would kindly give us a hint as to the best way of preventing this oxidising process taking place. As I have said, some qualities of zinc—even some labels from the same sheet—do not suffer, while others become white in a short time. If once this drawback could be overcome, there is no doubt that zinc labels and tallies are far more economical and practicable in gardens generally than any other kind known to me, and I am sure many amateurs would be obliged if Mr. Lynch would figure and describe his form of label as used at Cambridge.—F. W. B.

GARDEN DESTROYERS.

RED LEAD V. MICE AND BIRDS.

In many gardens much difficulty is experienced in protecting seeds from mice and birds. Various methods of baffling these pests are tried with more or less satisfactory results, but we are well satisfied with red lead, coating the seeds with this being a simple proceeding, and apparently the only reliable preventive against either mice or birds. If the former exist in a garden, it is advisable to attempt their extermination, but this is more easily projected than accomplished. We are obliged to keep cats, though these in their turn have their enemy in the shape of a gamekeeper, and we are liable to lose them and be overrun with mice and, worse still, rats as well in a very short time. Peas and Broad Beans are soon discovered by mice, and in spite of figure-4 traps and poisoned seeds a very patchy row is generally the result. I have tried soaking the seeds in petroleum, but this is no remedy, being too volatile, and they must be coated with red lead, that is if we wish to feel contented about them. All that we find necessary is to damp the required quantity of seeds with water, and then well shake them up with powdered red lead, no mice interfering with them after being thus coated. A friend of mine finds it necessary to first moisten the seeds with turpentine prior to coating them with red lead, the seeds thus being literally coated with paint, and remain mice-proof till thoroughly decayed. In this case the garden is very large and in the midst of extensive game preserves, these largely encouraging vermin, while cats cannot be kept. Red lead is said to be tasteless, and why it should be avoided by mice and birds is a mystery, unless their natural instinct indicates the danger. It may be it is the colour that frightens them, this being especially the case with birds, who invariably pull up a few of the seedlings for the purpose of feeding on the only partially exhausted seeds. Before we used red lead we experienced the greatest difficulty in securing the requisite number of plants of Broccoli, Savoys, Kale, and late Cauliflower, while Turnips and Radishes were also much interfered with. The chaffinches are the greatest offenders, and it must be a very good net indeed that will keep these bold destroyers from the newly germinated seeds. Our plan now is to moisten each sort before sowing separately in a damp cloth (water sprinkled on them causing them to clog together badly), and then, if they are shook up in a tin or paper containing a little dry lead, they soon become sufficiently coated. Thus treated, they will not be much disturbed by birds, the remedy having the recommendation of being both simple and efficacious.

W. I.

Birds and Holly berries.—"Veronica" (p. 191) has certainly been favoured when he says that the birds have left his berries alone. I can only say I wish that they had not disturbed mine. We had two magnificent trees laden with berries, the

admiration of all who saw them; indeed, I never saw trees laden so heavily before. Well, they were left alone till about a fortnight ago, but when I went to get some berries to be used as seed there was, to my astonishment, not one berry left. These trees are in a sheltered position on a piece of ground set apart for a nursery. We have other Hollies on which the berries have been destroyed here and there. Can some of the berries be more palatable to birds than others?—W. A. COOK, *Holme Wood*.

MARKET GARDEN NOTES.

WE are now experiencing a sort of famine as regards green vegetables, nearly everything in the shape of Cabbage, Savoys, or greens having been cleared off, and the long protracted cold weather which we have had has thus far effectually checked any attempts at growth. In fact, young Cabbages and late planted green crops of every kind look smaller now than they did two or three months ago, owing to the outer leaves being withered up by cutting winds. The work of preparation for future crops is therefore now occupying attention. Sowings of Broad Beans, early Peas, Parsnips, and Radishes are being made; early crops of Potatoes are being planted on sheltered borders, and Onions, Carrots, second early Peas, Spinach, and main crop Potatoes, consisting of the early sorts, will follow as soon as the ground is ready for them. This season larger breadths than usual have been cleared, as Broccoli and other green crops for spring use are very much below the usual quantity. Planting at present is confined to Cabbages that have stood in seed bed all winter; they are put out moderately thick for cutting as soon as possible, so as to get the land which they occupy for other crops. Autumn-sown Onions are largely grown about here; they consist mostly of mild flavoured kinds, such as White Lisbon, for drawing green and tying in bunches. They are in great demand during all the early summer months. Large growing kinds like Giant Rocca and the Tripoli varieties are now being planted out in lines 1 foot apart to make large bulbs for summer use. Winter Onions, such as James's Keeping and others of that type, are not largely grown as market crops, owing to the seaport towns on the south coast being invaded, from France and the Channel Islands, by Onion hawkers, who bring over large quantities tied in bunches and dispose of them very cheaply. Seakale and Rhubarb are being forced extensively this season, as they find a readier sale now, when green vegetables are scarce, than they usually do. The old crowns of Seakale are reserved for planting out again, as they make good crowns by the end of the season; but Rhubarb is invariably thrown away after forcing, and young crowns from non-forced plants are put in order for next season's forcing.

Fruit trees and bushes that have been pruned are now being manured, and the soil between them lightly forked over. Where birds are attacking the buds they are being dusted with lime and soot for the last time, as a few days of genial weather generally push them out of danger from such depredations. The bushes are unusually late this spring in showing signs of growth. Apples of home growth are now getting scarce, and the American barrels are coming into requisition. Baldwins, bright-looking fruit that travel well, are now in prime condition, they keep so plump and fresh when the air is excluded from them, that we must take the hint and adopt something of the same kind of storage if we are going to supply our market with home-grown Apples late in the year. A good crop of Apples at, say, 4s. per bushel would, I should think, pay the grower well for his labour. The main thing

to provide is suitable storage, for if forced on the market in autumn, half their value would be lost.

J. GROOM.

Gosport.

Birmingham and Midland Counties Gardeners' Mutual Improvement Association.—We see by a programme which has been sent to us that this new association has made an excellent start. It now numbers about 180 members. It is intended to establish a library in connection with it, and it is announced that the following lectures will be given at the society's rooms, Albert Chambers, Paradise Street, during the year, viz.: March 3, "The Mutual Relations of Plants and Insects," by A. W. Wills, F.C.S.; March 17, "The Scientific Value of Gardeners' Experience," by W. Hillhouse, Professor of Botany, Mason College; March 31, "Leaves and Roots—their Relations to the Air and Soil," by J. W. Oliver, Professor of Botany, Midland Institute; April 14, "A Fifty Years' Retrospect of Horticulture," by W. Dean; April 28, "Practice with Science," by E. W. Badger.

OBITUARY.

M. Edouard Morren.—We have to announce the death of Prof. Morren, the well-known botanist, which took place at Liege on Feb. 28, at the age of 53. He was professor of botany in the Liege University, and in that capacity has rendered valuable service to garden literature. His special study was Bromeliaceous plants, his knowledge of which was probably unsurpassed by that of any other botanist. The horticultural journal (*La Belgique Horticole*) which he edited for many years contains more illustrations and information concerning Bromeliads than any similar work with which we are acquainted. The Botanic Garden of Liege, of which he was director, as a natural result, is particularly rich in Bromeliaceous plants, there being houses set apart for such large genera as that of Billbergia. M. Morren was a member of many learned societies, and numerous were the distinctions, both Belgian and foreign, conferred upon him.

LATE NOTES.

Imantophyllum (P. D.).—One of the best varieties of *I. minimum* we have yet seen, the flowers being large and of fine form, while the colour is also good. You should set high value on it.

Cinerarias (N. F.).—Blooms very large and doubtless extremely showy, being brilliant and well varied in colour, but they do not conform to the standard of a first Cineraria strain as laid down by florists in this country.

Galanthus Sharloki.—This singular Snowdrop is now flowering in the York Nurseries. It is about the size of the common Snowdrop, with patches of pale green at the tips of the three large petals. The two leaf-like spathes are very singular, being 2½ inches or more long, and standing almost erect above the flower.—R. P.

Galanthus Imperati.—Permit me to correct a *lapsus calami* in my note on this Galanthus which appeared in last week's GARDEN, and in which I should have written "Bertoloni and Parlatores" instead of "Tenore and Parlatores," as I have since remembered that Tenore does not notice this Snowdrop at all in his "Flora Napolitana." In the "Flora Italica" of Parlatores, Galanthus Imperati is placed along with *G. plicatus* under *G. nivalis*; but in Bertoloni's "Flora Italica" it is described as a distinct species. I may add that the specific name was given to this Galanthus by Bertoloni, to whom Imperati sent specimens of the plant gathered by him in the same locality in which, I believe, it was first discovered by Clusius.—WILLIAM MILLER.

Books (Young Gardeners).—You cannot have a better book on Orchids than Williams' "Orchid Manual," which will give you all the information you require. There is no weekly publication devoted to Orchids and their culture, but a department in each number of THE GARDEN is devoted to Orchid culture.

Red Roses for winter blooming.—"H. B." will find Reine Marie Henriette a most useful Rose for his purpose. It is bright red, blooms freely in a warm house and being a climber and very free growing it forms a suitable companion to Marechal Niel, with which it forms a pleasing contrast.—W. C. T.

Name of fruit.—H. S. S. C.—Name of Apple, Claygate Pearmain.

Names of plants.—E. Rosling.—Narcissus Bulbocodium minor.—W. E. Taunt.—Oncidium unguiculatum.—Y. A.—1, Asplenium Nidus-avis; 2, Centradenia floribunda.

WOODS & FORESTS.

TREE SHELTER FOR FARMS.

I FEAR that "R. T." (page 202) is, like myself, hopelessly behind the times, or, at any rate, the school of writers who affect to despise the use of trees for shelter purposes on estates. We may console ourselves, however, with the fact that there are many besides who have such a small eye to improvement, that they still believe in the preservation of trees for shelter. I am hardly certain, however, that the trees mentioned by "R. T." are the best possible selection. It is hard to say that this or that tree should not be used, as circumstances will sometime overrule what would otherwise be an objection. The Poplar would very often be a tree to be recommended, but the Chestnuts and Maples are doubtful. If the Spanish Chestnut is referred to in the form of poles, it may come into use, but, notwithstanding what has been proved about its value as timber, it does not sell very readily. The Maple would be open to still more objection in this way. There is one kind of wood, however, which has not been enumerated which I take it is valuable to grow for sale or use, and also for shelter. This is the Ash. I have before spoken of this as a timber tree, but it is not exactly in this sense that I now point out its claims. Grown in the hedges from stools, it will make good shelter, and also produce poles of considerable value, either for fencing or for working up into bobbins or similar uses. I have recently noticed a hedge of this description being cut down where a quantity of Ash stools had been allowed to grow on for a number of years between the plants of Whitethorn, &c., which ordinarily compose a hedge. Here was a shelter of some 15 feet high which effectually broke the force of the blast, occupied little room, and which, when cut down, produced wood of appreciable value.

The Ash poles being cut out, there was ample wood left on the Whitethorn bushes to be laid and make a uniform fence across the gaps caused by cutting out the Ash. Hedges of this kind coming on in rotation would answer a great many purposes on a farm, and where the holding is of any considerable extent it would be perfectly easy to allot a certain proportion for working out each year, and by this means a supply of poles would be obtained, the fences set in order, whilst the effect of cutting a single hedge would hardly be felt. Where the evil of high hedges comes in is not here. It is when they are composed of a lot of rubbish and allowed to grow as wide as they are high. It is not, unfortunately, a rare thing to see this class of fence surrounding portions of the farm. By growing Ash poles in them the advantage of their height to break the force of the wind without occupying a lot of ground would be obtained. Theoretically, it may be bad management to grow Ash in a hedge in this way, on account of the danger of its damaging the remaining part of the fence; practically, this amounts to but little in farm fences. These generally grow upon a bank of greater or less elevation and are flanked by a ditch, and the shoots from the Ash stools which ultimately grow into poles will, as a rule, be found to grow closely enough together to baulk animals from attempting to pass through them.

When it so happens that the natural growth does not completely effect this, a little ingenuity will supply the blank. I have weighed the advantages and disadvantages of this plan pretty fully for my own satisfaction, if I cannot claim space to state them here, and have come to the conclusion that growing poles in hedges of this

kind has more to recommend it than it has against it. This may not sound like unqualified approval, but if so the plan is by no means by itself, as it would be rather a unique system in any branch of wood management to which no objections could be found. Admitting all this, however, I am convinced that if the plan was first tried to a small extent, it would be found to be perfectly feasible, and would soon be extended.

D. J. YEO.

FOREST ROADS.

THE remarks I made upon this subject (page 153) referred mainly to existing roads, but as "D. T. F." says the question of the alignment of the new roads when fresh areas have to be planted is a most important one, and as well as the laying out in the matters of direction, and the higher or lower level of the ground, the form in which a road is made and kept will have much to do with its usefulness or the reverse. If it is perfectly flat, or, what is worse, approaches to anything of a basin-like shape in the centre, it is quite impossible for it to be in anything like a satisfactory condition for more than three or four months out of the twelve. Much will of course depend upon the season. That of 1879 was the most difficult within recent years that the forester has had to contend with. This season I have no doubt is firmly enough impressed upon the minds of many an agriculturist, and it is also upon mine, though for a different reason. With the former it was the effect of the rain upon the crops; with me it was its effect upon the roads. Even where they were metalled it was bad enough, but upon the turfed woodland roads the result produced by hauling away the timber was perfectly indescribable, and in the summer season too. Much of course depends on the soil and sub-soil as to how long a road will wear.

Where the soil is thin and the subsoil rocky the condition of the mere surface will not be everything, but with clays and similar soils the case is different, as when the surface is once broken, the soil and subsoil being of virtually the same nature, there is no limit to the distance the wheels will sink unless we place it at the point where the whole load rests upon the surface of the ground. The loss of power occasioned by such a condition of affairs as this, if worked into figures, would be perfectly startling, but it is, nevertheless, true. To minimise this loss, in laying out new or repairing old roads, the great point to be aimed at is to get them as free of moisture as is in any way possible. Other subsidiary matters have to be looked at, but however the object is attained the absence of water is the great essential. To make a road at such an incline that it would be of no practical value, because the direction thus given would allow of a better drainage, would, we know, be ridiculous; but at the same time I agree with "D. T. F." that it would be more satisfactory to so arrange the roads that the individual trees had to be drawn uphill for a short distance to a comparatively firm road than it would be to make the road in the bottom in boggy ground in order to get the advantage of drawing the trees downhill. With this, however, as with most other things coming within our province, any advice must be rather suggestive than definite, as what would apply in one case would be inapplicable in another. When once mooted, however, the practical forester will, without any great hesitancy, decide upon his plan of operations. The real fear in the matter is that when so many points have to be thought of, a thing at once so simple and so obvious is not accorded its proper weight.

It is perfectly clear that timber would never

be grown—I mean to any extent beyond ornamental purposes—if there was not some idea of it becoming a marketable commodity. Its value in proportion to its weight is very small, and the carriage a very serious item. Keeping this in view, the facilities for getting it to the place where it will be ultimately consumed will be seen to be the most vital part of forest management. Gold has for years been known to exist in certain districts in quantities sufficient to pay for working if there had been means of transit. If this is so with the most valuable of metals, what must be the facts with such a commodity as timber? If inaccessible, however good its quality may be, so far as the market is concerned it is worthless; therefore, the great thing is the means of removal at a reasonable cost. As a step in the ladder in this direction, the value of attention to the state and formation of forest roads can hardly be overrated.—WILTSHIRE FORESTER.

—In the remarks by "D. T. F." on this subject he proposes, in order to save the roads, light loads and more frequent journeys, and the result of that would be that the cost of transport would be greatly increased, while the roads having to bear two journeys instead of one would hardly be one whit the better in the end. We have here thirty or forty miles of forest roads altogether, and have eight or ten horses almost constantly employed leading timber. As snigging, loading, and leading will in many cases occupy a day for one journey, it follows, of course, that full loads are most economical, even if the roads be cut up. In many places the journey to the station or the purchaser's place is a long one; hence, more than one journey for the same quantity of timber means an increase in the cost sufficient, perhaps, to spoil a sale of timber at any time. Judging by "D. T. F.'s" suggestion to use sledges for dragging the trees, he has evidently never heard of the two-wheeled carriage or cut, to which trees are slung and moved with the greatest facility and ease where the four wheels cannot get to. Imagine the kind of sledge necessary to move trees two or three tons' weight, and then judge what an incumbrance a sledge to be dragged over the soft soil would be. I fancy our teamsters would think me mad if I suggested a sledge. Your correspondent writes: "Only those who have had considerable experience of the hardness of dry earth roads in woods can have any adequate idea of their strong carrying powers." When dry or frozen, such roads will bear good loads, but if they are the least moist, as wood roads generally are, the very hardest earth roads will sink into ruts a foot deep under the wagons, and there is no help for it when the time arrives for the purchaser to have his timber delivered. There is this to be said about such soft roads, however—the falls of timber do not, as a rule, come over the same roads year after year, and such roads are soon mended up again. If the ruts are not very deep, a good draizing with heavy branches lashed together and pulled by two horses will harrow them even, and if the roller is run over them last it will make them smooth, and by midsummer the surface will be almost as green and nice as ever. When the ruts are deep, a few men will have to fill them up before draizing, but that does not increase the cost greatly. The case of forest roads just stands thus: the margin of profit on English timber is generally so small, that the cost of mending the roads would soon swallow it all, and more if the work was not done in the most economical way. We are here better off than on many estates, because we have extensive sidings at three railway stations close to the woods; yet our cost of leading the timber to these sidings and to the local saw-mills, to purchasers, often amounts to £40

and £50 per month. The eminently practical nature of "D. T. F.'s" suggestions will therefore be apparent when it is stated that by his light-load system that amount might probably be doubled. It is the journeys that occupy the time, and if the wagons and horses could not be utilised to their fullest extent each journey, the charges would just have to be proportionately higher. For weeks at a time two of our four-wheeled wagons deliver daily, in one journey, from four to five tons of timber at the mills, which are fully four miles distant by the highway, and sometimes three miles or more of forest roads have to be traversed besides before the highway is reached. It costs 5d. per foot to deliver this timber, and not more than one journey of the wagons can be done in a day. And this is a common example of timber transport on all large estates.

YORKSHIREMAN.

DISPOSING OF HOME TIMBER.

WRITING on this subject, "Yorkshireman" (p. 106) says "no English timber merchant could supply pit props (which represents the bulk of colliery timber) of the uniform size of the foreign stuff, unless the woodman was to cut one or two out of every Larch or Fir he felled, and have the fragments left on his hands . . . I offered the latter also at a price that would have enabled the miner to halve or quarter them for props, as is sometimes done, but could not deal, the round props being better and more convenient." Now, it is evident from this statement that the cost of cutting up the larger sizes into half-tree or quarter-tree for props was to be defrayed at the expense of the seller, yet the miner would have none of it, round props being better and more convenient; consequently we are led, step by step, to conclude that such timber is unsuitable for his requirements, otherwise the miner must be prejudiced against it. "Yorkshireman" (p. 177) asks where I gather that the timber he spoke of growing above the pits here is not suitable for colliery purposes, and perhaps he may be enabled to glean from his own statement a correct answer. It is also evident that there is a demand for round stuff of a small size, but these cannot be supplied unless the woodman was to cut one or two out of every Larch or Fir he felled, and have the fragments left on his hands—not a very hopeful state of things in a district of the country where there seems to be a demand for such stuff. Had "Yorkshireman" a plantation of clean drawn-up poles for sale, I don't think he would have any great difficulty in finding a purchaser; at any rate I have never seen such stand for any great length of time in the market in the districts where I am best acquainted, and this is the size of stuff under consideration, and not heavy timber.

In discussing this subject the lesson taught is simply this—that if we are to compete with the foreigner for this class of timber, we must grow the trees in blocks or masses by themselves for that purpose. No doubt we have been all benefited for a long time back by "Yorkshireman's" valuable information about large timber, and he should now use a little toleration and not suppose that his teaching has been altogether lost or thrown away in that respect. I would now draw his attention to the utility of rearing timber in the vicinity of his coal pits that could be sold without a reduction in price, and that would enable him to supply an order without cutting out a piece here and there in his trees and having the fragments left on his hands. It appears to me that the timber of the writer in question as it stands cannot be profitably disposed of; but had he a block of clean drawn-up poles fit for pit props in the round state for sale, the case would be widely different. Such timber growing above coal

mines ought to be valuable, as the cost of carriage cannot be so heavy as when the trees are growing at a distance, and this is an important advantage in favour of the seller.

Prices of timber, like other commodities, has and will fluctuate in price, but it would not be too much to say that a crop of Larch on ordinary soil in the vicinity of the pits, and properly reared for pit-wood, and cut at thirty years' growth, would realise £4 per acre as ground rent to the landlord during that time; consequently the planter's object should be to grow his stuff as near as possible to meet the requirements of the miner, and in doing so he would only be consulting the best interests of his employer.

J. B. WEBSTER.

WOOD-PAVED ROADS AND PATHS.

"WILTS" article upon this subject is interesting, and if wood can be put to another use with advantage, I can see no reason why home-grown timber may not be used equally as well as foreign timber. In streets and other places where the traffic is light, wood makes an excellent clean roadway, but in thoroughfares where the traffic is heavy I fear it will never take the place of stones. I lately saw a portion of Buchanan Street, Glasgow, paved with wood on trial, and as the experiment is something new here, I took particular interest in the way in which the work was being carried out, as well as the capability of wood for standing tear and wear when used for such a purpose. I have occasionally examined this wood paving since the work was finished, but must say I am rather disappointed as to its efficiency. At the time of the formation the work was carried out in a very practical manner by laying down a substantial foundation of concrete, in order to prevent the blocks of wood from yielding by pressure. The blocks used were 11 inches in depth, by 3 inches broad at top, and in placing them in position a thin piece of lath timber about 1½ inches broad was placed on edge on top of the concrete and between every row of blocks as the work proceeded, when the void or empty place thus left at the top between the blocks was then filled up with hot pitch, and when the latter became cold and firm, the work really had a solid, substantial appearance. As the traffic here is rather heavy, the surface now presents a series of depressions, and I think I am speaking within the mark when I say that there is scarcely a couple of superficial yards which has kept its original level position as when finished. In cases, however, where the traffic is light, and where it is desirable to lessen the sound of horses and vehicles, I have no doubt but that wood may be used with advantage, and in this respect I think "Wilts" has done good service in calling attention to the fact.

J. B. WEBSTER.

5458.—**Timber of Cedar.**—I remember having read of a man who cut down a couple of Lebanon Cedars under the impression that he would realise a good price for them, but to his disappointment found that he had seriously damaged the ornamental character of his property, and could get no bid for the trees. His impression no doubt was that the Lebanon Cedar and the Cedar of commerce are identical. I fear that "A. P." will not realise much for his tree. If it was possible to raise it, it would be of much greater value standing. Loudon says of C. Libani, "Its wood is of a reddish white, light and spongy, easily worked, but very apt to shrink and warp, and by no means durable."—D. J. YEO.

—Curiosity may tempt some cabinet-maker to give "A. P." 1s. 8d. per foot for his Lebanon Cedar, but this is a "fancy price," as for economic purposes the timber of this tree is really of less value than that of

the common Larch. I have, however, sold it at the above price when of sufficient size for converting it into furniture.—A. D. W.

TIMBER IN RAVINES.

IT was the few words I said upon this question on p. 666 of the last volume of *THE GARDEN* which I presume has led to the expression of opinion now going on as to the reasons why trees in ravines so often grow taller and more rapidly than they do in other positions. I did not commit myself to any definite view, but remarked that I inclined to the idea that the greater richness of the valleys in the matter of plant food had something to do with it. This view I believe Mr. J. B. Webster has supported, and, so far as I have followed the discussion, nothing has been said to disprove the assertion. That this is the only cause is highly improbable, but that it is one, and a not unimportant one, is hardly open to serious doubt. If I recollect rightly, it was "Yorkshireman" himself who first mooted the subject some considerable time ago. What he says on p. 201 of the present volume I can hardly endorse to its full extent, as it is apparently implied that although trees do grow taller, that their cubic contents would not be greater if grown in valleys than would be the case in the open. My observations do not support this view, as they tend to the belief that as well as being taller the cubic contents of such trees would be more. The truth probably lies between the two views, or they may both be true under different circumstances. To argue that the condition of the soil would have nothing to do with the growth of a tree is going further than I am prepared to go, and on the other hand I cannot and do not wish to deny that the situation in the matter of light is an important factor. I have had occasion to deal with timber in almost every imaginable position, and have been from time to time much struck with the character of the trees growing in such places as those to which reference has been made. That such timber, though the tallest and straightest, is the best or most durable I do not assert; indeed, it is in these spots that I should look for unsound timber, especially if it had attained any considerable age. Even this, however, does not always follow, as I have sometimes found what to all appearance was better timber than any other in the immediate neighbourhood growing on such sites. If careful notes were taken of the surrounding circumstances in each case, no doubt an explanation could be found. It does not need much knowledge of the growth of plants to satisfy one that when unnaturally forced or drawn that their constitution is less substantial than when growing in their normal state, and it is equally obvious that with trees the conditions would be the same. The way to test the truth of what has been said about the trees being merely drawn up taller without an increase of size would be to employ the rod and tape. If it can be proved that trees growing on a rich soil in a valley do not attain a larger size in a given time than they would in a similar valley in a poor soil, then I think the theory of light must be adhered to, and the plant food theory abandoned. If it comes out that on the richer soil the trees are larger, the latter theory will hold its own, though, of course, it would not disprove the former. Common sense, however, should be enough to convince us that trees thrive more freely in good soil than in bad, as well as every other vegetable product.

FORESTER.

Durability of Larch.—Thirty years ago a staircase leading to the workshops where between one and two dozen workmen are constantly employed was wholly made of well seasoned home-grown Larch. The treads or steps are still found, and seem calculated to last as long again.—W. C. T.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

PLANTING RAILWAY STATIONS.

It will doubtless be generally conceded that there is much in the surroundings of country railway stations which is capable of improvement. At some points there has been a laudable attempt to ameliorate the dreariness of the average railway platform by the introduction of flowers, but these attempts are too often dwarfed by the untidiness which reigns supreme outside of the area allotted for the use of passengers. Where the goods traffic yard and the passenger approaches are conterminous, as in some places, a certain amount of confusion and untidiness must naturally be the result. Added to this, where the soil is clay of a nature fitted for the manufacture of bricks, the desolation of the ordinary brickyard contributes its quota to the general effect. To reconcile as much as may be these opposite conditions should be the study of the railway companies. At large centres where the passenger and goods stations occupy separate sites this difficulty does not exist, and the former are generally kept in a more or less satisfactory condition. That the traffic at stations should be inconvenienced for the sake of the picturesque I do not pretend to argue, but I do maintain that the passenger portion of the company's *clientèle* should receive its due share of attention, and that the approaches to stations and the outlook from the platforms should be made as little repulsive as possible. One way of improving them is perfectly easy and inexpensive, and could be effected by means of trees. At no inconsiderable number of places the plan has been tried, and generally successfully; groups or screens of trees effectually divide what are really distinct branches of the companies' business. Much more, however, remains to be done, and it is the travelling public themselves who must urge the desirability of such improvements upon the authorities. I am glad to see, however, this season that at some stations the companies themselves have taken the initiative and have fenced off some unsightly approaches preparatory to planting them with trees. Whether it is the practice of railway corporations to maintain nurseries at suitable points I do not know. If they do, they could be very properly extended; and if they do not, the establishment of such is worthy of careful consideration. In most cases amongst the staff of workmen employed in the vicinity of the different stations some could be found sufficiently acquainted with the work of planting to do it satisfactorily without incurring the expense of dispatching planters to the various points on the lines. This, of course, is a minor matter which circumstances would decide, but in whatever way it may be carried out it can hardly fail to bring about improvement. In what I said previously I strongly advocated the use of the Larch, and in some cases even where ornament is the first object it may be turned to account. For general screen-planting, however, it would not be the most suitable tree, as being deciduous during several months of the year it would not answer its intended purpose. On some soils where other evergreen Conifers will not succeed, the Scotch Fir seems to grow to perfection when once fairly started. I can recall several instances of this, and one in particular where some young Scotch Firs were planted.

For some time they appeared to grow slowly, but now they are making rapid progress. This was on a clay soil. In such places for screens the common Cherry and Portugal Laurels are hardly to be excelled.

Among the *Arbor-vitæ*, Thuja Lobbi seems to be the favourite for screen planting where the situation is at all suitable, and the most of what is said for it I can cordially endorse. I have noticed in some cases by the side of railways that the Wellingtonia has been introduced with success. In one or two instances which have attracted my attention in passing I have seen isolated trees of this Conifer planted in waste corners at the bottom of embankments, and they appear to be making capital growth. For station planting, unless the conditions are especially favourable to them, I should not go in largely for the Spruces. It is not always, however, that the planter has full power to pick and choose, so he must adapt himself to circumstances.

As an encouragement to the railway companies to move in these matters, a supply of surplus trees from the nursery of some lady or gentleman who uses the station is now and then offered, on condition of their being planted to improve the appearance of the station and its surroundings, and this is a plan worthy of more general imitation. It is not that the company would be put to any great cost in providing the trees themselves, but the fact of their being spontaneously proffered is a proof that a real interest is taken in the place. In a certain way one looks upon the condition of the railway station contiguous to an estate as being almost as important as the actual entrance to the estate itself, and to render it ornamental and distinctive from the majority of such wayside halting places there is nothing which gives better results for the labour and outlay involved than the judicious planting of trees.

J. D. W.

GARDEN SCREENS.

PEOPLE accustomed to visit gardens will not be surprised when I say that, considering the great number of plants available for forming screens and for being put to other useful purposes in gardens, trailing and creeping plants are more neglected than any other class of subjects we cultivate. I am led to write thus because, owing to the comparative neglect into which such plants have fallen, our gardens have suffered considerably. So much time and attention have hitherto been bestowed upon summer bedding plants, that the merits of plants available for other purposes have been lost sight of. Many unsightly objects have been obtruding in sight that might have been either shut out by a floral screen, or made slightly by means of a judicious use of trailing or creeping plants. The few instances with which we meet in which trailing and creeping plants have been judiciously employed clearly show how much variety and charm they are capable of imparting to our gardens. Many of us might indeed learn a lesson from the humble cottager, who, much more frequently than the professional cultivator, avails himself of this class of plants to form bowers and pillars, and trains them for the double purpose of forming a screen and making at the same time a floral display. Even with no better materials than Scarlet Runners or Vegetable Marrows, he will cover up unsightly objects in a way that does credit to his skill and taste. How much more then ought those to accomplish who have opportunities and better materials with which to work. As to the character and form that garden screens should take, the particular purpose for which they are required must decide. Ivy is unquestionably the best evergreen plant with which to form a permanent screen. It is not particular as to the character of the soil or the position in which it is placed, and it is very easily trained to wires, either vertical or horizontal. In positions where a large screen is required, and where its character must be somewhat informal, and yet possess a certain degree of lightness, I know of nothing else so suitable as Ayrshire Roses. These are capable of being made to form a screen up to a height of from 10 feet to 12 feet, and with careful management they will reach that height in the third or fourth year after planting. Not only, too, do they fill a space quickly, but they may be made to form a screen either heavy or light in character, according to how much of the growth the cultivator may choose to lay in. In good soil they are sure to grow vigorously, but they are so hardy that severe pruning does them no harm, and, when rightly managed, they flower abundantly. They should be allowed to grow as much as possible in their own way all the summer. In autumn as much of the old wood as can be spared should be cut out, and the strongest of the young growths laid in to take its place. If this advice is followed, there will be every year such a display of Roses as few would be prepared to expect. A screen of this description, when rightly managed, may be made to serve a twofold purpose, *i.e.*, to shut out an objectionable view, and to create a floral display such as cannot be obtained by any other means.

As regards other forms of screens, those partaking of a rustic character are much in favour, and I have nothing to say against them when not constructed in a stiff and formal manner, but it is too much the practice to form them on some elaborate design, which renders them unsuitable for many positions. I have not the least objection to a rustic screen formed of Larch poles or similar materials, provided it is erected in a plain, substantial manner, but, generally speaking, there is too much material by half used in the construction of such screens, and then, no matter how suitable the plants trained on them may be, they have no chance of showing their characters off to advantage; the whole affair is too heavy and cumbersome to be pleasing. A few upright poles and cross-pieces judiciously disposed are all that is wanted to form a groundwork on which to train plants.

The most suitable plants for covering screens of this description are Clematis Jackmanni and C. montana. The first is well known to be a striking pillar plant, and, with a little training, it may be made to festoon any prominent position. Montana has white Anemone-like flowers, which are freely produced early in summer, and the plant makes vigorous growth. Several of the Honeysuckles are admirably suited to this purpose, especially flexuosa, reticulata, and brachypoda, the last being evergreen. The common white and naked-flowered Jessamines are well adapted for this kind of work, as is also Kerria japonica, better known as the yellow Corchorus; indeed, there is no scarcity of suitable plants, if we care to look for them. There are also several half-hardy plants with a climbing habit that are capable of making many unsightly objects bright and cheerful during summer if trained against them. There are not many gardens in which there is not uncovered spaces on walls or fences which might be made presentable with one or other of the climbing plants just named. Even a few seeds of Canary Creeper planted at the base of a few feathery Pea sticks will grow up and climb without any attention, and would be better than bare spaces. This plant takes kindly to almost any kind of soil, and, as it produces great

numbers of yellow flowers, it is bright and effective.

Unightly low walls and fences could be made gay by means of the tall growing Nasturtiums. These, too, are indifferent about the quality of the soil. Stick in against the wall tops of a few Pea sticks and they will ramble over them very quickly, and for many weeks there will be a broken surface of brilliantly coloured flowers at a nominal cost. These Nasturtiums are also valuable for covering dry, sunny banks where few other plants would live. One has only to put in a few seeds early in spring, and in summer the plants raised from them will carpet the ground with blossoms of many colours.

Let me advise cultivators to treat the Canary Creeper in the same way as Nasturtiums; if they have a sunny border or a large bed which they can devote to it, I can promise them that they will have something different from their neighbours. Early in May sow the seeds in clumps of three 1 foot apart, and as soon as the plants appear above ground, get some feathery tops from the Pea sticks of various heights, and stick them in every alternate clump of plants. As soon as the latter begin to grow, they will ramble over the sticks, and quickly cover all the ground and the sticks too; when they come into flower, the undulating surface thus formed will have the appearance of waves of colour of the softest yellow. *Convolvulus major* is another plant remarkable for the variety and richness of its colouring, and it is not too much to say that it is not half as much grown as it ought to be. It is another of those plants that show in a marked degree the wonderful variety of habit of growth available for purposes of decoration. Given a fairly good soil and a few sticks to climb upon, this *Convolvulus* will make an agreeable change in any formal arrangement without further trouble. It may also be used with advantage to cover low walls or fences—that is, if given something on which it can entwine itself.

But it is when associated with other trailing plants that I have seen this *Convolvulus* most effective. I remember on one occasion seeing a large circular bed devoted to this class of plants, which made an impression not easily forgotten. The groundwork of this bed was a carpeting of Canary Creeper. The centre part had clumps of *Convolvulus major*, about 3 feet apart, to which were placed sticks 3 feet high. Of these there were two circles, and next to them were two circles of crimson Nasturtiums, the inner row being 2 feet high and the next a little lower. When I saw this bed, the Canary Creeper had covered the whole space between the other plants, and it presented a yellow groundwork of the most pleasing description, and one which contrasted strongly with the prevailing purplish flowers of the *Convolvulus* and crimson Nasturtium. I have seen many pleasing combinations with more expensive plants, but never one that afforded so much gratification. This bed clearly showed that it is not always the most valuable plants and laborious arrangements that give the greatest amount of pleasure.—J. C. C., in *Field*.

SHORT NOTES.—VARIOUS.

5462.—**Gooseberry bug.**—I might be able to give "J. T. M." the information he requires had I been born north of the Tweed, but as I was not I must admit I do not know what insect he alludes to as the Gooseberry bug. If he would kindly say what kind of an insect it is I will try and help him. —G. S. S.

Perpetual or Tree Carnations.—Will some contributor kindly describe the best way of growing these Carnations, and at what season of the year they should show most bloom? I allude to such varieties as *Souvenir de la Malmaison*, *Zouave*, *Alegatière* and *Empress of Germany*. Mine put out some buds last December, but these went off without coming to perfection. What would be the reason of this? Are these Carnations grown best in a cold house, or in

moderate heat? and at what temperature? Is it advisable to have them in pots and harden them out of doors during summer? —DIANTHUS.

PIERREPONT, FARNHAM.

THE Surrey residence of Mr. R. H. Coombes is as pleasant a place as one could find in all Surrey, which probably contains more pretty gardens than any other of the home counties. The place owes much to its natural situation, and advantage has been taken of this in making it what it is. The surrounding scenery is characteristic of the Bagshot sand districts, wide stretches of heath land and extensive Pine woods clothing the sandy hills. These are interspersed with fertile valleys of arable land, and in this particular neighbourhood of Frensham and Farnham an additional feature is the Hop fields and brick-drying kilns or oast houses. The home scenery, therefore, is diversified and pleasing, particularly in winter, when the Pine woods stand out in relief. Approaching Pierrepont from Farnham, it appears to lie in a hollow, but when on the spot one can see that such is not the case; on the contrary, on all sides of the house is falling ground, except on the park side on the north. You look down upon the valley of the Wey and straight away across to Leith Hill and Hindhead, some miles distant. It is near Pierrepont that the "chalky Wey, with rolling milky wave," enters the county on its way to join another arm of the same stream at Tilford, and on it flows through fertile meadows to Waverley Abbey and Guildford. It forms here the division of Surrey and Hampshire, and drains a wide tract of country. It is not sluggish, like its sister river, the Mole, but runs as briskly almost as a mountain brook. It is a great gain to have such a river running through one's garden, and it was no doubt on its account that the site on which the house now stands was chosen. It runs a few yards from the spot where our photographer took the view, but one cannot see it until one gets to the edge of the steep bank, more than 50 feet high, which overlooks it. Thus excluded from view, a stranger does not suspect the proximity of a river, and the suddenness of its sight enhances the surprise. By a winding path down the bank, which is carpeted with a dense growth of the common Polypody and wild flowers, you reach the water-side, a most picturesque spot and capable of being made a garden paradise. As it faces the south with the steep cliff behind, it is a perfect sun-trap, in which one would never feel even the keenest nor'easter. It is quite an invalid's walk during the prevalence of biting winds. It has been planted with numerous exotic plants, which have been left a good deal to themselves; here one may see growing in the greatest luxuriance such plants as *Bambusa Metake*, so different from that shabby appearance which such plants have in more exposed places. Other plants of a similar degree of hardness are growing in the same semi-wild way, and all by their luxuriance show how well they thrive in such a sheltered spot. The cliff is held up by strong tree and other growth, but in places it has broken away, and if these broken parts were studded with artificial rocks, they would not only serve to keep up the soil, but add immensely to the picturesqueness of the spot. At this point of the river is a pump house with an undershot water-wheel, by which the house is supplied with water from an adjoining well. A little further up the meadow is an old weather-stained bridge spanning the river, and this forms a pretty feature from the windows of the house seen through glades of plantations.

The grounds on the south side of the house are altogether charming, and the architectural

style of the house quite harmonises with the surroundings. The river slope, as well as the lawn, is studded with noble tree growth, most remarkable among which being the Scotch Fir, which more resemble the giants of a Highland forest than the produce of a Surrey soil. The girth of one of the largest is 8 feet at breast high. Most of them have boles as straight as a mast and free of branches, and all wear the characteristic "bonnet" of the Scotch Fir.

The park lies chiefly on the north of the house. It also is studded with fine trees—Oaks, Elms, Beech, Spanish Chestnut, and Lime. It is characteristic of this part of Surrey, that where a bed of clay crops up out of the sand Oaks appear and grow into fine timber. A spreading Oak in the grounds here has a girth of 16 feet at 4 feet up. An Elm is 14 feet, Beech 9 feet, and a Chestnut 10 feet. The park is quite of a different character from the south side of the house; hence the contrast is more noteworthy.

The kitchen and fruit gardens are on a scale proportionate with the importance of the place. There is a capital walled-in garden set apart entirely for fruit. The centre is occupied by bush and other fruits enclosed in a huge cage, 6 feet high, of wire netting, in order to preserve the fruit from the attacks of birds, which abound in the adjoining wood. The songsters, however, are able to take their tribute from the unprotected bush fruits that are outside the walled fruit garden. There are the usual vineries, Peach houses, pineries, forcing houses, and plant houses, all kept with the rest of the garden in capital order by Mr. Turner, the gardener. One of the Peach houses is noteworthy, on account of the trees being planted at right angles to the back wall against trellises placed 5 feet apart. This is an unusual arrangement, but it is found to answer well, and it considerably economises space, for instead of two trees in a 30-foot house there are six. Decorative plants are grown largely, and in the case of fine-leaved plants, such as *Dracænas*, Mr. Turner hides the soil on the pot surface by a growth of *Selaginella*, which has a neat and pretty effect. Double Violets just now are at their best, and Mr. Turner speaks highly of such as *Swanley White*, which is the same as *Comte de Brazza's* Neapolitan White, *New York*, *De Parme*, and *Marie Louise*.

W. G.

QUESTIONS.

5467.—**Moles.**—Can any of your subscribers kindly tell me how to get rid of moles, which destroy my lawns and burrow so deep that we fail to get at them? The soil is sandy. —SUBSCRIBER.

5468.—**Tuberoses.**—I have received some Tuberoses from Germany and want to grow them in pots, but am not certain what treatment to give them; any information will be thankfully received as to soil, position, time of flowering, &c. —NIPHOTOS.

5469.—**Straw mats.**—Would "J. C. B." kindly make clear how the string in the reels is fastened at starting to the tight strings, and what sort of a running knot is made round each little bundle of straw? I cannot understand his explanations of these two points. —F. H.

5470.—**Conservatory climber.**—I have a conservatory (without any heat) against my house; it has a direct north aspect. I am desirous of introducing some plant which would cover the wall. If any of your readers will kindly advise me what plants would be likely to thrive in such a position, I shall feel obliged. —RYDAL MOUNT.

5471.—**Hot-water pipes.**—Mr. C. P. Kinnell states that the low pressure system of heating is more economical than the high pressure system. Has this fact been established by careful experiment? I ask this because I so often hear of low pressure boilers giving out just when they are most wanted, and I know of a set of high pressure pipes which have been at work for years without a hitch. —F. H.

BOOKS RECEIVED.

"Proceedings of the American Pomological Society."
"Landlords and Allotments," by the Earl of Onslow.
Longmans, Green and Co.
"Flowers, Fruits and Leaves," by Sir John Lubbock, Bart. Macmillan and Co.

ROSE GARDEN.

MARECHAL NIEL ROSE FAILURES.

Few care to publish their failures, or we should hear many complaints about this popular Rose. It is very certain that there are more disappointments with it than many perhaps are aware of. My first acquaintance with it dates back to 1869, or about the time when it was first introduced. From one pot plant we rapidly struck three dozen more, every young shoot that was formed being taken off with a heel or tiny piece of old wood attached to it, dibbled singly into 2-inch pots, and quickly rooted in a close frame on a brisk bottom heat. The buds on several of these were preserved, and the plants, being given a small shift, actually developed into lovely blooms. It should be added that the cuttings were rooted in good loam and sharp sand, and little besides loam

was in a presentable state; why, I have yet to learn. They were not neglected in any way; on the contrary, they received the best of attention, being properly rested and then pruned in order to induce the formation of long shoots, but which never resulted. That was failure No. 1, and since that time I have had a good many disappointments with pot plants, but will content myself with describing what has happened recently. In 1883 we struck a number of cuttings, not in this instance young and very tender growths, but partially matured shoots from which a bloom had recently been cut. These were taken off with a heel dibbled singly into 2½-inch pots, plunged in a fairly brisk bottom heat, and kept covered with handlights till rooted. Before they became root-bound they were shifted into 5-inch pots, and still kept growing in a moderately warm house. Some developed one, the remainder two shoots, and these were kept properly staked up. When

our Rose house and trained inside, refused to grow to any appreciable extent, and that too in spite of being planted in borders properly prepared for them. Neither do plants worked on the Manetti stock thrive satisfactorily in pots, and the conclusion at which I have arrived is that we must treat Maréchal Niel as an annual as far as pot culture is concerned. I am not, however, so very much disappointed about this comparative failure in the way of pot plants, but the case is very different as regards

FAILURES ON THE BRIER STOCK. According to my experience, the Brier is the best stock for this Rose, and yet it is not reliable. For a time it makes satisfactory growth and wonderful crops of valuable blooms are produced; then comes a collapse, and the next thing brought disagreeably home to us is the fact that the tree is slowly but surely dying, the verdict passed being "death from strangulation." Sometimes the plant lasts



Lawn view at Pierrepont, near Farnham.

and sand were used at subsequent repottings. All the rooted cuttings, including those that had flowered, were kept growing in an intermediate temperature, the aim being to obtain one long and strong shoot from each. A few were shifted from 4-inch into 7-inch pots and the remainder were disposed in threes in 12-inch pots. During the summer the majority formed growths from 4 feet to 6 feet in length, and these were eventually neatly and carefully trained round three or more strong stakes. They were housed at the same time as the Chrysanthemums, and early in the following year small batches were introduced into an early vinery and quickly brought into bloom. A better lot of early Maréchal Niel blooms I have not seen since, nor do I expect ever to see any to surpass them. Not much of a failure that, some may feel tempted to remark; but have patience. At the end of the second season scarcely one of that much-admired, and in those days rather valuable, batch of plants

about 15 inches high they were placed in a span-roofed greenhouse along with a number of Teas, and when well rooted were finally shifted into 10-inch pots, the compost used consisting of three parts turfy loam to one of old Mushroom bed manure, with plenty of sharp sand and a little charcoal. During the best part of the summer they stood in a sheltered, sunny spot, and were eventually housed before being damaged by either rain or frosts. They were a capital lot of plants, and very early in the following year, without any hard forcing, they produced a fine bloom from nearly every joint, or on an average two dozen on every plant. Not one of those plants could be induced to push out strong young shoots, at least while they were kept in pots, but some that were planted at the foot of a sunny wall have since produced strong growths fully 9 feet long, the blooms resulting therefrom being proportionately fine. Two good plants that I gave away, and another that was planted outside

for ten or more years, but I have known cases in which plants have lasted a much shorter time. One of the first symptoms of a collapse is the disposition of the plant to imitate its brethren the Teas, yielding, instead of one good crop, a succession or it may be two or three lots of blooms. When I first came into this neighbourhood I was told I ought to take a trip to Warminster in order to see a wonderful tree of Maréchal Niel that covered the roof of a good sized house, and from which the proprietor, Mr. J. Scott, a noted Rose exhibitor, annually cut immense quantities of bloom. I did not see it at its best, but when I did pay a long-promised visit to it, strangulation had commenced and its glory was fast departing. The following year our own tree, which covered a roof area 36 feet by 8 feet, or the half of a span-roof, commenced playing us tricks. It is our practice—a common one, I believe—to cut back most of the long and last formed shoots directly after flowering, the

aim being to obtain the requisite number of fresh strong growths for the production of plenty of fine blooms the following spring. When the tree fails to respond to the knife, giving a second crop of bloom instead of young wood, it is an unmistakable sign of a breakdown, and the hint should at once be taken to plant a young tree to take the place of the old one. It appears that the Brier stem cannot keep pace with this Rose, and the consequence is a slow, but sure process of strangulation, the swelling at the union completely blocking the proper flow and return of the sap.

SOME BRIERS form better stocks than others and for a time swell fairly fast, though not fast enough, while occasionally we observe instances in which the Briars have not made any progress at all, and on these the *Maréchal Niel* is very short-lived indeed. Early this year I saw a large heap of good soil or compost equal to that in which Grape Vines are usually grown that had been wheeled out of a house, and this had for about three years been occupied by a *Maréchal Niel*. This tree had made an excellent commencement and soon covered a roof area 18 feet by 7 feet, but its collapse was more rapid still. It was the worst case of premature death from strangulation that has ever come under my notice. The plant had a long, clear stem of about 4 feet, and had rooted very well indeed. The owner, who is much interested in horticultural pursuits and who employs a good gardener, was positive that the tree had not suffered from want of water; I cannot, therefore, possibly conceive any other cause of failure than what I have just given, viz., strangulation. It may be asked, is there no remedy for this much-to-be-regretted breakdown? Well, one has occurred to me, though at present my experiments in regard to it are not far advanced. At the same time there is no reason why I should not state them and give others the opportunity of experimenting in the same direction. My idea is to leave every shoot, or a good proportion of them, that form on the stem of a Brier budded with *Maréchal Niel*, these to be stopped when about 6 inches long and kept regularly shortened back. They need not be unduly prominent so as to become unsightly, and their purpose would be to swell the stem so as to enable it to keep pace with the Rose budded upon it. Long naked stems of young Apple or other fruit trees, and even Vines, do not sometimes swell satisfactorily, a fact with which nurserymen are well acquainted, "stem-swellers" being no unknown term to them. W. I. M.

ROSE HEDGES, SCREENS, AND ARCHES.

HEDGES composed of the ordinary varieties of garden Roses, although far from being new, are, nevertheless, not so often met with as might be supposed. To some extent this may be accounted for by the unsatisfactory condition the plants, when so used, frequently soon get into through indifferent treatment. One of the first Rose hedges I recollect to have seen was in an old-fashioned garden in North Lancashire, separating the vegetable ground from a herbaceous garden. The varieties used were in keeping with the place; they consisted of the common Moss, York and Lancaster, Provence, and two or three other old sorts without names, but, like the kinds mentioned, they were low growers and straggling in habit, not so well suited for forming a hedge as many that might now be selected. With a view, no doubt, to make up for the inability of the sorts employed to attain the requisite height, the hedge had been planted on a raised bank some 2 feet high; a light wire fence was run on the top of the bank, and to this the Roses

were tied for support each season at the time they were pruned.

At one time or another I have had occasion to make several Rose hedges, varying in the height they were wanted to grow to, and, consequently, requiring the use of varieties differing in the height they attain. The Hybrid Perpetuals now in cultivation afford an all but unlimited number to select from; none but vigorous, hardy constitutioned sorts should be employed that can be depended on to thrive and bloom freely, otherwise unsightly gaps or weak places will mar the effect, so as to much interfere with the collective appearance of the hedge. The plants are better for being on their own roots, as then there is no trouble with suckers, which, in a hedge, are likely to escape notice until they have more or less robbed the plants they spring from. In common with Roses grown in any form, the ground should be well manured to start with, and there should be no stint in its use afterwards; to admit of applying it a space of at least 18 inches on each side of the hedge should be kept clear. The plants may be put in 18 inches or 20 inches apart, and will be none the worse for having their shoots little interfered with the first season unless they are more than ordinarily strong. All the strong shoots should be pegged down, which will cause the plants to push up stout growths from the base, which it is necessary to secure with a view to furnishing the hedge sufficiently at the bottom from the first. Nothing more will be required until the time of pruning, when the pegged-down shoots and the weak erect ones should be cut out—one half of the strong ones remaining to each plant should be cut down to within 9 inches of the bottom, the remainder left about 1 foot or 15 inches long, according to their strength. The following summer the plants may be expected to make vigorous growth from the shoots that were left longest, and also from those that were cut closer in. At the next pruning any weak growth must be removed and the strong shoots retained shortened to different lengths, varying from a little above where the lowest were cut back to the season before up to 2 feet. By allowing a corresponding increase in length to the shoots left longest for two more years, sufficient height for most purposes will be secured, continuing to shorten a portion of the shoots at different lengths, by which means the objectionable bare bottom that these hedges often present is avoided. The little extra labour that this treatment involves as compared with the usual clipping, or cropping the growth off evenly, like that of an ordinary Quick fence, is well repaid by the much better appearance the hedge will have. In all cases when a Rose hedge is to be formed, even where only of moderate height, it is better to have some permanent support in the shape of a wire, or wires, more or less according to the height of the hedge; and when a

HIGH SCREEN is wanted this becomes a necessity. In such cases strong wires secured to stout iron uprights let into blocks of concrete or stone, sunk into the ground should be used and the whole properly secured, otherwise the screen gets blown out of line by the wind so far as to have an untidy appearance, for although trim formality must be avoided, still it does not do to run in the opposite extreme of allowing the screen to get out of form. The advantage of using iron in preference to any form of wooden support is that it is less conspicuous and is much less perishable. In all such arrangements as this provision should be made at the commencement that is calculated to enable the plants to grow away freely so as to get the space they are intended to occupy filled without more

delay than necessary, and also to maintain them in a thriving condition afterwards. Roses are proverbially hungry plants, that like good soil, with plenty of manure, and although in cases such as under notice the object is not to get big fat flowers like exhibition Roses require to be, still it is necessary to bear in mind that the kinds to be used make an immense amount of growth annually, and unless the roots are well sustained the shoot growth becomes poor and unsatisfactory. The roots of rampant strong-growing Roses, such as the sorts that are required for the purpose in question, extend proportionately to the tops, stretching out far and wide to an extent that does not occur with the low-growing kinds; consequently the ground should be well prepared as far as the roots will reach. Where the natural soil is not good in quality and sufficient in depth enough should be added, and manure without stint; it is the more necessary that this should be done effectually at the commencement where the root-run will be principally under turf kept closely mown, such as often occurs where a Rose screen is employed. In addition to a good preparation at the commencement, where it is possible, a space of not less than 2 feet or 3 feet at each side of the screen should be left unturfed to which manure can be applied annually; where this can be done it has the effect of keeping the roots near home, as they naturally make to where they find the most food. Where the whole space is turfed right up to the stems of the plants, no matter how good the preparation in the first instance has been, the soil will in time get too poor to maintain the requisite growth, unless in such exceptional places where the land is naturally more than ordinarily rich, in which case it becomes necessary to take up the turf and apply manure. With a view to avoid this, some years since, when preparing the ground for a screen, where little space could be left unturfed, in addition to ordinary manure I had a quantity of half-inch bones dug in, and which in lighter soil than Roses like kept them going for a long time without further assistance. The bones were unboiled, a condition that it is now often difficult to obtain them in, but in which state they last much longer than when they have undergone the usual boiling process. They were used liberally, but not worked in deeper than 15 inches, as Roses are surface rooting plants, and it is not well to entice them far down. The necessity for making a good preparation for Roses when to be grown in this and similar ways can scarcely be too much urged, as unless the plants get sufficient support to keep them growing freely there is little beauty about them. As often met with where used for screens or continuous archways over walks, after a few years there is frequently so much of the bare, uncovered ironwork visible that the appearance of the place would be better if the whole arrangement was non-existent.

SELECTION OF VARIETIES.—Individual tastes will differ in the sorts to be grown for the purpose under notice, and there are plenty to choose from between the wild-looking Ayrshires and the scandent forms of the Hybrid Perpetuals. But it is best to select such varieties as are of a character in keeping with the position they are to occupy; and although the wild-looking Roses have always a charm about them, and most so when in positions where the surroundings have little of a cultivated look, still as Rose screens mostly come in for use in such parts of a garden as are subject to the ordinary course of keeping, it is best to choose sorts that are something in appearance between the semi-wildings and the more formal varieties. For a high screen a good effect is produced by introducing at intervals some of the extra strong growing Hybrid Perpetuals—such as *Glory of*

Cheshunt, crimson; Glory of Waltham, crimson; Red Dragon, crimson; climbing Edouard Morren, carmine—with lighter coloured varieties, such as Gloire de Dijon, sulphur; Madame Berard, creamy yellow shaded with salmon; Blairi No. 2, pink; the climbing form of Aimée Vibert, white; with here and there a plant of Boursault let to scramble along the top of the screen take off any air of formality. The plants should be furnished with several shoots, and care should be taken to train them well out right and left in something approaching a horizontal position, the effect of which will be to cause the plants to break out strongly from the base in place of running up and leaving the lower part bare, which will occur if they are left in an erect position. It is necessary to see to this in after years at the time of pruning, keeping the strongest shoots trained well down, by which means a continuous succession of young growths will be forthcoming from the bottom of the plants. To make room for these it will be requisite to cut out a corresponding number of the old branches annually. In this way the whole will be kept properly furnished from bottom to top, a condition that, after the first few years, is oftener wanting than otherwise with Roses when grown in this way. It is scarcely needful to say that Roses that make long growth like the varieties named will not bear their shoots being cut close in similarly to the bushy-habited sorts; if this is done, few if any flowers need be looked for. All they require is the weak growth, with some of the old strong branches already named cutting away, and the points of the shoots that are retained shortening a little. By exercising judgment in the way suggested an even distribution of young flowering wood can be kept up, by which a different effect will be secured than the patchy appearance resulting from the inconsiderate pruning which is often practised.

ROSE ARCHES.—Roses when grown to form continuous archways, or on the ordinary simple arches that span walks, are usually no better circumstanced in the matter of nutriment to the roots than when used for screens. It frequently happens that the root-run consists of a gravel path at one side with a piece of lawn at the other, and unless the soil receives an exceptional preparation previous to the plants being put in, they soon get so poor as to be capable of little more than affording food and lodging for the swarms of aphides and red spider that seldom fail in being more persistent in their attacks on Roses when in a starved condition than when strong and vigorous. And after all that is possible in the way of preparing the soil has been done at the commencement, it ultimately gets too poor to keep up the requisite vigour, necessitating, as in other cases where Roses are similarly circumstanced, additional applications of manure. Regarding the varieties best to plant when arches are to be covered, such as advising for screens will answer, and the treatment in respect to pruning and training should be similar, the object being to keep the whole space clothed with healthy young wood and foliage. If the bare appearance in winter consequent on the use of deciduous varieties for covering screens or arches is objected to, this can easily be avoided by using evergreen sorts; but these will not give flowers so effective as the kinds named or others similar in character, for there is a wealth to choose from. Yet for general effect it is better not to be tempted to use too many varieties, a few distinct colours generally being the most telling.

T. BAINES.

FRUIT GARDEN.

THE THEORY OF PRODUCTIVENESS.

"D. T. F." has said, in a late number, that the forces which produce fruit and robust growth are different and antagonistic. This raises a point on which I have often deliberated. I am aware that the results of some practices *apparently* corroborate this view to the superficial observer, but there are strong facts against it. I have myself, in years past, written in *THE GARDEN* that extension training was a method of running a tree out into fruitfulness, "exhausting it, as it were," and thereby utilising all its powers; but I did not employ these terms in the sense in which "D. T. F." holds them, as I lately explained. "D. T. F." says (p. 135) that "growth and fertility seldom or never run in parallel lines, but in diametrically opposite directions," a passage which seems to show that "D. T. F.'s" precept outruns his practice. The whole of my arguments in favour of free growth in times past went to show that the



One of the Bamboos (Bambusa Metake) by the riverside at Pierrepont.
See page 228.

two did run in parallel lines without any doubt; and I think both myself and others have proved as much in practice. In *THE GARDEN* (Vol. XVII., p. 510) will be found an illustration prepared from a photograph of a strong Nectarine branch from one bud, containing 16 feet of bearing wood, carrying eighty-six young fruit about the size of pigeon's eggs, and only two years old. It was a sample of numbers of trees I had, some of which were also figured. This branch was designed to show what could be done with an extra vigorous variety (Victoria Nectarine) permitted the fullest development under favourable conditions, and growing at its most rampant rate. Will anyone venture to assert that this was not vigorous growth and fertility running in parallel lines? If it was not that, what was it? I have often repeated the experiment on various subjects and always with the same result. The Victoria under glass is, without exception, the most vigorous variety with which I am acquainted, and also the most constant and abundant bearer. Take the Vine again. I never knew a Vine that was unfruitful because it was vigorous, provided the

wood was ripe; but who has not known Vines fail to produce a crop when they had been too heavily cropped the year before? Barrenness from that cause is proverbial. Here, then, we have poverty and barrenness running not in "diametrically opposite" directions, but in the same lines and *vice versa*. And who, again, has not, times without number, seen Apple and Pear trees bear a heavy crop of fruit one year and almost none the next? and is that result not constantly assigned to weakness or want of vigour? Such examples could be multiplied without number. If "D. T. F.'s" arguments had any force, the more abundantly a tree bore and the weaker it grew the more fertile it should become; but just the contrary happens. He confounds vigour with gross, immature shoots that under more favourable conditions of treatment would expend their energies in crops. It is clear to me that "D. T. F." takes a superficial view of the subject, but it is a common view too, I admit.

ROOT-PRUNING, thereby checking growth, may probably be cited as an example the other way; but is the fertility so produced caused by enfeebling the tree, or by inducing greater maturity in the branches by bringing the roots nearer the surface and causing growth that is more easily matured? It is quite certain that heavy cropping, in addition to root-pruning, means no crop for the following year. We have clearly a good deal to learn on this point, but let not your young readers run away with the idea that vigorous growth and fertility are diametrically opposed, or they will make great mistakes. I have long ago said, and I say it again, that the most rampant growth need not be necessarily infertile, provided it can be ripened. In the Nectarine shoot referred to above, if I had disbudded and pruned it severely in the usual way, it would certainly have been infertile; but instead of doing that, the more it seemed disposed to grow the more I encouraged it to grow, till the main limb became like a whip shank, and the other laterals thick, strong, and fertile, and able to stand cropping the year after they came into existence. By "D. T. F.'s" plan this shoot would have probably been treated as a gross shoot, and condemned as such; with me, acting on the belief that vigorous growth and fertility ran in parallel lines, it became a fruitful shoot. It is not the vigour of the shoot that renders it infertile, but some other cause.

The Apple bears, as a rule, not on the previous year's wood, like the Peach, but on the spurs of the two-year-old wood. Last year, however, I had Apple shoots sent me of extraordinary vigour, that bore abundance of strong fruit-buds the first year and fruited the second. The cause was the favourable climate in which they grew, and the remarkable thing about them was their vigour, as indicated by their thickness and their fertility, the two again running in parallel lines.

To return to the Victoria Nectarine, to the extraordinarily vigorous constitution of which I have several times alluded in *THE GARDEN*, it may be described as a living refutation of "D. T. F.'s" theory, *i.e.*, wherever it is found growing under glass. It is, without exception, probably the *strongest growing* variety in cultivation, and at the same time the *most fertile*; therefore it is a favourite here. Moderately young trees of it will make shoots about 6 feet long in a season as thick as one's finger at the base, and yet yield abundance of fine fruit the season following and go on bearing. A tree here that I planted about 1867 has never missed bearing a good crop but once, and the lengths of the older limbs still

testify to the rampant character of its growth. For the last three years it has borne forty dozen fine fruit each year, and will apparently finish as many this season. Previous to that time, in much less room, it constantly bore about twenty dozen a year on an average. It was never curtailed by the knife till it had filled its allotted space. Growing in a strong loam it was once transplanted, but never otherwise root-pruned; it has been encouraged to attain its utmost vigour, and has borne crops in proportion. It would doubtless have ripened a hundred dozen fruits a year, but they have been thinned down to forty dozen. If the extraordinary and constant fertility of this Nectarine is not due to its extraordinarily vigorous constitution, and if there is not here vigour and fertility running in parallel lines, I know not how otherwise to describe such matters. According to "D. T. F.," the Victoria Nectarine should be one of the worst fruit-bearers out, because it is one of the strongest of growers; but it is just the opposite. Can he match it with an example corroborative of his opposite theory on the subject? Let "D. T. F." be under no misapprehension regarding my meaning. When he asserts that fertility and vigour are "antagonistic," and that *fertility represents a lack of vigour, or suppression to growth*, I understand him to mean that vigorous growth, long and strong branches, and robust foliage are "seldom or never" found in conjunction with fertility, and I have attempted to furnish him with existing examples that completely refute that idea.

Lindley discusses this subject in all its bearings, and concludes with this "axiom in vegetable physiology, that the production of flower-buds depends upon the presence of nutritive matter in sufficient abundance for their support;" but this matter may be found in conjunction with vigorous growth, and hence any method of culture which encourages its production must be the best. "When a young seedling fruit tree," he continues, "is made to bear prematurely, by grafting it upon an old stock, the effect of which will apparently *not be to diminish its vigour*, it may be conceived that, in the first place, the seedling will receive a considerable quantity of nutritive (fruiting) matter from the old stock, where it had been already collected, and that thus the supply will be greater than the consumption, however large that may be." In other words, it is possible to render an extra vigorous shoot fruitful by charging it with fruiting matter in sufficient quantity, a result best gained by permitting free growth, expansion, and the perfect elaboration of the sap sent up into the branches, instead of forcing it back by severe pruning. This explanation clears up "D. T. F.'s" difficulty.

To summarise the matter, fertility is not a question of producing the largest quantity of fruit in the *least space*, but the greatest quantity of fruit in a *given time*, from the same tree, and there is only one way of accomplishing this, and that way is to utilise the tree's utmost vigour to produce the greatest number of branches and bearing shoots it is capable of producing, as the more and the longer the shoots are the more fruit will there be and the sooner will it come—a fact completely borne out in practice, as I have shown above. The wonder is that in those days intelligent gardeners should be found who would advocate any other method of culture than that which *utilises a plant's capacity and energies to the utmost extent*. To take the Nectarine again, I am aware that, by certain enfeebling processes of pinching, pruning, and root-pruning, a certain quantity of fruit may be got in a certain number of years; but without these processes, and by

letting the tree run out its strength in the natural channels, we get much more fruit in the same time, and thus fertility and vigour contribute to the same end—run in parallel lines. Some kinds of herbaceous plants illustrate even more clearly the fallaciousness of the doctrine that "fertility represents a lack of vigour," or that "growth and fertility never run in parallel lines." Take the Strawberry, for example. Who besides "D. T. F." believes that a Strawberry plant in a pot or in the open ground is more fertile in a weak than in a strong state of growth? In this plant, as in many others, I believe there is no exception to the general rule, that the plants with the finest leaves and the strongest crowns, and other signs of robustness, invariably produce the heaviest crops and the largest fruits, while weak plants go absolutely barren. The successful culture of the plant is indeed based on this idea. So much for growth and fertility being diametrically opposed! And, again, take other subjects—the Raspberry, for example. If it is not the tallest and thickest canes that produce the most berries, with the greatest number of pips and seeds, why is it the gardeners object to grow strong canes only? If growth and fertility are diametrically opposed, how comes it also that strong shoots of Currants and Gooseberries produce most clusters with most berries upon them? and how comes it that in weak bushes the clusters are fewer, and the berries too? These hardy fruits illustrate our subject well, because they never refuse to ripen their annual growths in our climate, and the higher the culture and stronger the shoots the greater the quantity of fruit produced, and *vice versa*. How any writer can assert that vigour and fertility are "never" combined with such familiar examples to the contrary constantly before his eyes, I cannot conceive. Where we can ripen the Peach, Pear or Plum shoots, in the same way all become just proportionately fruitful, no matter how gross they may be. Gardeners are fond of quoting the Fig as a plant that is often brought into a fruitful condition by checking and weakening it at the roots, but it is not the check or weakening that causes fertility, for strong Fig shoots are more fertile than weak shoots when they are equally well ripened. When Mr. Fowler, of Castle Kennedy, brought out his Fig of that name, he showed branches of it at the Edinburgh autumn show that were reported on as remarkable for—first, the strength of the shoots; second, the size of the fruit they bore, and the number of Figs on each shoot. On a weak shoot the fruits would have been smaller, and there would have been fewer of them, and had the shoots not been well ripened they would probably have been barren altogether. As it was, their unusually vigorous growth and thorough maturity was the cause of their uncommon fertility. These are only examples that occur to me contradicting as flatly as facts can do the notion that strong growth is diametrically opposed to fertility, and they are worth any number of unsupported assertions to the contrary.

J. S. W.

Apple selection.—"Being in London some short time since, I was struck with the fine appearance of the American Baldwin Apple, and examined it closely. My impression of it was that it had little flavour. *I did not taste it*, but it lacked the fine aroma of Apples of the best quality. I can send 'W. R.' an Apple handsomer, a better keeper, and better for table or cooking purposes, and I will challenge it in every way against the American, but it has no name." The above, in your last week's issue, is thoroughly characteristic of the English grower's view of American Apples. The italics are mine. He judges and condemns an Apple without even attempting to do the

one thing needful to judge of its quality and value. He and many others are living in a fool's paradise about American Apples. They are not particular about the kinds they grow; the Americans are very much so indeed, and know the quality and fitness of every Apple for every State in the Union. The British grower neglects his orchard, does not even prune it, and starves it. When he sends to the market at all, he very often sends rubbish that is not worth packing or buying, and that the salesman cannot get rid of. The American packs so well and selects so well, that the buyer and salesman are both satisfied, and can get rid of any quantity. Here is this Baldwin, which the English grower did not condescend to taste, being sent 3000 miles to our markets, to a country where the Apple may be grown in the greatest perfection if the same attention is given to it as is given in Canada and the Eastern States of America. I do not say the American varieties can, but our own British varieties. The state of the orchards of England, seen as one goes through one of the orchard counties, is disgraceful when compared with the state of good orchards in some of the States of America. Such men do not know even how to judge their own Apples. When they had an Apple congress, they gave the leading place of all Apples grown in England to the King of the Pippins, which is not even a third-rate Apple in point of flavour or texture.—J. H. H., in *Field*.

UNNAILING PEACH TREES.

IN again referring to this question in reply to "J. C. C." (p. 138) I should like to explain that it was my experience of the subject during the very severe winters to which "J. C. C." refers, as well as to those of 1852-3, which were also exceptionally severe, that caused me to hold the opinions I do with regard to the best means of securing well-ripened Peach wood. As I have already stated, I believe that when the trees are unnailed and the branches suspended away from the wall the free exposure may assist in some degree in the ripening process, but to be of any real value it should be done in the autumn while the leaves are yet on the trees, and not to be deferred till January, as he advocates, for the simple reason that if the branches are not ripened before the latter date, neither this nor any other operation will be of much practical value in securing that desirable result. As to the greater liability of injury to the trees by frost by this operation being performed in the autumn instead of in January, I believe that the greater risk, should there really be any, is not nearly so great as "J. C. C." believes it to be, not even in somewhat unfavourable positions. Like "J. C. C.," I have, I regret to say, also had painful experience of the injurious and destructive effects of frost on the young unripened wood of Peach trees, but never, I am constrained to say, have I had like experience when the young wood has been well ripened in the autumn. On one occasion, when the temperature descended to 6° below zero and continuous severe frost prevailed for some weeks, I had to deplore the partial or total destruction of many Peach trees, but a few trees that had been partially root-pruned early in the autumn, and whose roots had always been confined to a space within 4 feet of the wall, and whose branches were well ripened, not only passed through this severe period unscathed, but not a single shoot was found to have suffered. This taught me a lesson I have not forgotten, and although I have since had the management of trees in a most unfavourable locality and position even during the severe winters of 1860 and 1866, yet from Peach trees properly ripened in autumn I have never had occasion to prune off a frost-bitten branch. For these reasons I would not hesitate to unnailed such trees in the autumn if required, feeling assured that against a south wall in this climate they

would not be injured. I do not, however, attach that importance to the unnailing of Peach trees for the purpose of securing well-ripened wood as I infer "J. C. C." does, believing that the close contact of the branches with the warm wall exerts even a greater influence towards that end than does the somewhat freer atmosphere amongst the leaves and branches when they are liberated from the wall. There are three points in the cultivation of outdoor Peaches in unfavourable localities that I hold to be necessary in order to secure well-ripened wood in autumn, viz., perfect command and careful treatment of the roots, sound, but by no means rich soil, and, what is perhaps even more essential, the most vigilant care of the first growths in spring. For many years I have carefully attended to these three points in practice, during which time I cannot recollect having had occasion to prune off an unripe or frost-bitten shoot.

I unhesitatingly admit that I did misunderstand "J. C. C.'s" meaning with respect to winter-dressing Peach trees (p. 54), where he more particularly alludes to weak solutions of turpentine and soot, Gishurst and clay. I was under the impression that when he said, "I have never winter-dressed trees on the open walls," he meant dressings of any kind. But by his remarks at p. 138 it is quite evident that he intended only those mixtures whose chief uses appear to be to make the trees as unsightly as possible, and also seal, for a time at least, those pores in the outer bark whose office should on no account be interrupted, in which I quite agree with him.

W. C. T.

Are coal ashes of any value in fruit culture?—I find them, says an American orchardist, to be of great value after being sifted to remove the coarser portion which is useful for walks, &c. I apply them to fruit trees liberally, not a handful or a peck, but a barrowload or more, according to the size of the tree. Both thrifty growth and fruitfulness are thus promoted. Gooseberry and Currant bushes not only thrive with a free dressing of ashes, but the Currant worm is kept in check, while I have had no equal growth of Strawberry plants with no other application than just ashes forked freely into the soil. With Vines also, an admixture of ashes with the soil promotes vigorous growth. In light soils or in warm regions, probably less useful results would follow their application.

American Nonpareils.—The great practical question is, how can we cultivate fruit in such a manner as to produce the largest degree of profit from the transaction? We grow a variety in Nova Scotia called the Nonpareil. From my standpoint this Apple is not a very delicious or a very desirable one in any form, yet it has one quality of importance. Raised in the county of Annapolis, it can go to the London market and the great centres of the world at the latter end of May, and even later, in perfect condition. Is there any other belt in the world that can send an Apple to compete with it? This is a question which fruit growers should put to themselves. Because, if not, they may lay it down as an axiomatic fact that the teeming millions of this earth are bound to have Apples at all seasons of the year. I have been informed by a gentleman in Nova Scotia who was in London and Paris last season that he saw Nonpareil Apples, raised in Nova Scotia, sold in London at prices ranging from £2 to £2 10s. per barrel, and no competition whatever to meet. He traced these same Apples farther; he went to Paris and found there the Nonpareil, alone with no competition, sold at 5d. apiece. I have made an estimate in my mind of how many Apples a barrel of Nonpareils would contain. The Nonpareil being a small and closely packing Apple, I think 600 to the barrel would not be a large estimate for Nonpareils of average size. Now, if there are 600 in a barrel, and sold at 5d. apiece, it would amount to £12 per barrel. Bearing this fact in mind, I want to know why it is

that we are devoting our time and energy to the cultivation of Apples in which the whole world can compete with us when we have it in our power to grow an Apple with which we can defy competition, and with which we alone can supply the demands of the millions in the great markets of the world in certain seasons of the year. They can grow Nonpareils in England, in the United States, and in Ontario, but the Nonpareil Apples grown in England, the United States, and Ontario are worthless after the last days of April are past—worthless, as a rule, after the last days of March; but here in this favoured vale we raise an Apple that when the productions of other countries have ceased to have a commercial value has reached the point in which it is entirely king in the markets of the world.—C. E. Brown, in *Transactions of the American Pomological Society*.

PRUNING TO PROMOTE VIGOUR.

"J. S. W." adduces a good example of the invigorating effects of excessive pruning in the case of the old snow-riven Thorn trees in the park which, having been trimmed after being thus broken down, showed their latent vigour by pushing strong shoots immediately. Exactly; no stronger case in proof of our contention has yet been offered; no, not even "W. I. M.'s" Alnwick Seedling Vine, with its short-jointed rod 11 feet long, as the result of being cut down to the ground last winter. No doubt a good deal of the vigour is aided by the inherent and helped fertility of the soil, as this correspondent points out. But assuming that these are identical in two cases, we still contend that pruning promotes vigour, provided always the knife is wisely handled and that the cuts are neither repeated too often nor carried to excess. It would be interesting to follow "W. I. M." into another side issue—the uses to be made of vigour after it is obtained, and the wisdom or otherwise of his fruiting his vigorous Vine shoots, the products of his pruning, to their full length, those lengths being 19 feet, 10 feet, and 11 feet, and others probably as long. But this, as well as his reference to fruit trees and Roses, refers more to pruning in its relation to culture and fertility than as a means of promoting vigour, and for neither purpose would many of us be prepared to endorse the following advice:—

"Every well-established fruit bush or tree ought to have an annual heavy surfacing of manure, not from the frame ground, but straight from the farmyard or pigstye, and which still holds all its fertilising properties." Faugh; such dressings, indeed, might baffle the knife and send the trees over the garden walls, and surfeit the little pigs (theroots) and render fertility impossible. No doubt such Roses as Maréchal Niel and other Teas under glass on such diet as the above will grow freely and bloom, but we contend that the shoots would be stronger were there fewer of them. Whether the few would be practically better or more profitable is altogether another and a different question not under discussion. In his endeavour to assess the influence of pruning on vigour, "B. S." adheres closely to his text, and his cases are strikingly apropos to the point in hand, and are convincing evidence of the truth of our contention that pruning promotes vigour. This logical reasoner and clever writer will see that I thoroughly agree with him that in practice there is no such hard and fast line between pruners and non-pruners as many seem to assume; and that, in a word, pruning is a versatile agency, and may be used with equal wisdom and propriety, and to more profit to check vigour than to promote it. Before the discussion closes I trust that every reader of THE GARDEN will agree with experienced, practical men that pruning is the most potent means at our command alike for promoting vigour and concentrating and heightening fertility.

Meanwhile, I may be permitted respectfully to direct the attention of "W. I. M." to the importance not only for the next crop of Grapes, which would be safe enough probably, but to the ultimate effect on the vigour of his Vines by fruiting his long rods, as he proposes, along the whole lengths of from 10 feet to 19 feet next year. And this leads me to state that though, for the sake of perspicuity, it is very desirable to keep the two most important products of pruning—vigour and fertility—separate and distinct, yet in practice they are more or less mixed, and the pruner has to adapt his practice to suit either or both as circumstances demand—never, however, losing sight of the fact that within the domain of horticulture the ultimate end and use of vigour is fertility.—D. T. F.

— Pruning to promote vigour is calculated to convey an impression different from that which is intended by those who advise moderate pruning—that is pruning so far as is needful to bring the trees or Vines into the shape and condition that best adapts them for fruiting, and also for filling the positions they are to occupy. The latter seems to be a condition that is being lost sight of; but it is well to bear in mind that which I have before urged, that garden walls cost money enough to make it worth while to manage the trees on them in a way that will enable them to cover all the space as they should do from bottom to top. Vigour in its literal sense means strength, and no one, I should imagine, who knows anything of pruning would pretend that it could have any other effect than to reduce for the time being the powers of a plant to make as much growth as it would if left unpruned. Before anything in gardening deserving of the name was known or practised in our country the Chinese and the Japanese had proved that by persistent close pruning and a corresponding restriction of root room, plants that if left to themselves would attain a height of 30 feet or 40 feet could so far be reduced in strength as not to reach a height of more than half as many inches. Their imitators here, the growers of fruit trees in little pots, followed the same line, both affording an instructive example of what not to do. But the necessity for avoiding one inconsistency is not sufficient reason for rushing into the opposite extreme of throwing away the pruning-knife and letting wall trees and Vines grow as they will. Nor is such teaching likely to be followed by any but the unwary. "W. I. M." (p. 183) seems to be under the mistaken impression that I approve of the hard pruning of young fruit trees and the heading down of young Vines, a practice that used to be followed, and which is still pursued by some, but which in times past, as at present, was never universally adopted. So far from being a believer in hard pruning, especially in the case of young trees, I have never practised it, nor have I ever written a line that could lead to the supposition that I approved of it further than was needful where bush or pyramid trees were wanted, and when writing on the subject I have frequently urged that those who require trees of this description, and who confine their operations to shoot pruning, work at the wrong end, as it is the roots principally that require to be shortened. "W. I. M." is equally unjust to himself if he means to enrol himself amongst the limited school of non-pruners, as he shows by the opinion he expresses that he believes in a medium and reasonable course. He admits that the use of the knife at the commencement in laying a good foundation in the young tree is necessary, and this is as much as I have ever claimed to be requisite.

AS TO UNTRAINED MAIDENS of both Peaches

and other fruits, I can assure "W. I. M." that I have not given an opinion without having tried them and know what can be done with them. Such a were for walls I have planted in spare spaces, and also in the positions where they were to remain; in the latter case the check of a second removal, such as occurs with trees trained previous to being permanently planted, is avoided; consequently they get ahead of trees of the same age that have been subjected to a second removal. But let anyone who likes to try the experiment get some maiden Peaches, plant, cut back, and train them in the ordinary way, and then move them to where they are to remain, planting maidens at the same time in their permanent quarters. If ever the maidens overtake the trained examples, the result will be different from that which has occurred with me. Strong, healthy maidens often outgrow trained trees that in the hurry of taking up in a nursery sometimes have half their roots left behind; but this is a way of proceeding different from training them onesself and moving them with all their roots intact. It is well, too, to observe that there are trained trees and trained trees, even when procured in the ordinary way. Last spring I planted two Peaches, a Barrington and a Diamond, on the south wall of the house in which I live. They were not put in until some weeks after they had left the nursery; they were not touched with the knife further than taking the points off a few of the strongest shoots. Each tree has made a number of shoots from 3 feet to 5 feet long; they are now as full of bloom-buds as they can hold. In addition to which the bottom of the wall is covered as it should be, a condition not attainable with maiden trees unless their heads are sacrificed, which means waiting another year for fruit. Until "W. I. M." mentioned them I had forgotten the Peach trees at Longleat, that have come under Mr. Pratt's charge, and which, despite his ability as a fruit grower, will never half cover the wall unless he takes their heads off and starts them afresh. It would be difficult to point to a better illustration of what to avoid in furnishing a Peach wall than the trees in question afford. As to Peach trees not lasting more than a few years in the garden named, I think I saw enough to account for it; the supply of water seemed to be not more than sufficient for a garden one-tenth the size.

"W. I. M." appears to think that in urging the necessity for keeping old standards, in common with any other form of Apple trees, sufficiently pruned to admit of the fruit attaining the requisite size, that I attach too much weight to the influence of pruning, and am unmindful of the effects of manure. If he will kindly turn to what I said on Pear growing in *THE GARDEN*, January 16, p. 53, he will see that I am not forgetful of the necessity for keeping the roots sufficiently nourished, which is alike in its application to Apples as it is to Pears. At the same time it is necessary to bear in mind that different soils require to be differently dealt with in the matter of manure. I have had to do with land that was naturally rich enough, and with the addition of a heavy rainfall, so that if much manure was applied even to full grown Apple and Pear trees, the growth was such that the wood did not get ripened sufficiently in ordinary seasons to admit of their bearing as they should. In such places if "W. I. M.'s" advice was followed of giving "every well-established fruit tree an annual heavy surface-dressing of manure fresh from the farmyard or pigstye," it would do more harm than good. It is in such land, when Apples and Pears are grown in a heavily manured kitchen garden, that the large bush-shaped trees, kept well root-pruned, come in to do such good service. If "W. I. M." will take the trouble to go into

the fruit-growing districts of Kent in the Apple season, where he will meet with few orchards that are not regularly manured, and note the majority of them, where fully grown standards are not pruned, and see the small fruit they bear compared with that forthcoming from such of the neighbouring orchards where the trees are moderately pruned, he will see that what I have said about old unpruned trees producing small fruit of little worth is correct, especially in the case of the best dessert kinds.

The details of treatment with young Vines given by "W. I. M." are much on a par with what I have followed, only that however slender a cane may happen to be at planting time, if it is properly ripened I do not cut it down to the ground like the Alnwick Seedling he mentions, but at the bottom of the rafter or just below where the lowest spur is to be, shortening at the next pruning half way up if the roof is of ordinary length, and at the top the season following. The Vine in question now to be left 11 feet long will be a little over half way up the roof, but this is a very different affair from being left full length—a course which those who follow the usual method of getting the bearing wood in their Vines of equal strength from top to bottom are not likely to adopt. "W. I. M.'s" words of caution cannot be too often repeated about the temptation which strong young canes left long are to over-cropping, and which even now, when the evil effects are better understood than they once were, wreck many a promising lot of Vines. At the present day there is an indisposition to wait long for a crop, neither is it desirable to follow the slow course that used to be looked on as the only orthodox practice, when to give anything in the way of manure, except the slow decomposing bones, was considered to be fraught with no end of evils, and when consequently it took longer to get the requisite strength into Vines to enable them to bear a crop, with correspondingly less means of supporting them whilst they were carrying it. But in this, as in most other matters connected with gardening, any attempt to lay down a hard and fast line is a mistake—local circumstances require to be taken into account. I know places where there is not any soil within a reachable distance that will not become as effete as sand in the course of eight or ten years; in such cases there is sufficient reason for cropping harder as soon as enough strength can be got into the Vines to enable them to bear. But in places where the natural soil is such as Vines like, and will continue to thrive in for an indefinite time, it is advisable to tax their strength less in the early years of their existence.

I could instance a good many cases where old Vines keep on bearing in a way that can only be accounted for by their being lightly cropped in their early years combined with fair treatment since. One of the most notable instances that I have seen of the effects of accumulated strength through a more than ordinary length of time being allowed after planting before a crop was taken was the Vines at Claughton, Birkenhead, from which Mr. Woolley used to produce the grand Grapes that he was in the habit of showing at Liverpool and other places. So far as I recollect, these Vines were ten or eleven years old at the time I saw them, and I understood that nothing beyond a single bunch or so each was taken from them until the fifth season after they were planted; the Hamburgs carried ten or eleven bunches apiece that would average 4 lbs. each, as black as it was possible for them to be, and covered with bloom in a way that only few growers manage to secure. They, with the Lady Downes, Alicante, Barbarossa, and Muscats, in the same houses, were a sight such as anyone

fond of Grape growing was not likely to forget. It is many years since I saw them, and I have often been asked by others who have seen them how the Vines are doing now; doubtless there are many gardeners about Liverpool who will know.—T. B.

A REMARKABLE GRAPE VINE.

THE following account of an uncommonly fine specimen of the Grape Vine growing in the open air at Monticelo, near Santa Barbara, and which has obtained a widespread notoriety in that region under the name of Doña Marcelina's Grape Vine, occurs in Taylor's "Annals of California": "This Grape Vine, which is the pride and marvel of the neighbourhood, traces its origin to a slip brought by Doña Marcelina from a young vineyard at San Antonio Mission for a horsewhip, and, though it was nearly withered from the effects of the long journey, she determined to make the trial to plant it, after her husband should have obtained the commandant's permission to make a small garden at the warm springs near Monticelo. Notwithstanding this further delay, the sadly neglected slip took root, budded, and ever since prospered, proving itself the main support, a Fortunato's purse, for the large Dominguez family (there being seven sons and as many daughters, and, through them, upwards of a hundred descendants surviving the old lady at her death; she left a son José eighty-eight years old, who has grandchildren). Between the years 1850 and 1860 the Vine had been trained over an area of 80 feet in circumference, the stem measuring then 12 inches in diameter, and attaining a height of 15 feet from the ground. Some years it has borne over 6000 bunches (upwards of 8000 pounds of ripe and sound Grapes)."

Mr. Edward Vischer, in his "Notes on the Californian Missions," published by Winterburn and Co., San Francisco, also mentions this celebrated Vine, and informs us that "the owner of it, Doña Marcelina Felix de Dominguez, died in Santa Barbara in 1865, at the age of nearly 105 years. She was the widow of José Maria de Dominguez, a soldier in the Spanish service, who, having attained also a hundred years, died in 1845." From this it would appear that the climate of the Santa Barbara district is especially favourable, not only to the growth of the Grape Vine, but also to an unusual extension of the period of human life.

W. MILLER.

Obstacles to successful fruit culture.—First, may be named a wrong selection of varieties, the cure for which is simply local experience. Second, improper planting in ground insufficiently drained and prepared for trees, with subsequent neglect. It is not uncommon to see young trees planted in Grass fields, the sod wrapping the stem. To thrive, trees must be fed at the roots and the ground cultivated as far as the roots extend. Third, lack of pruning; the nutriment that would fill a due proportion of branches with productive fruit spurs is inadequate to supply a dense growth of wood; often the removal of all useless wood will ensure a productive tree in a couple of years. Fourth, neglect of insects and diseases, allowing these to feed and propagate unchecked. One may see Plum trees with more black knots than Plums; Gooseberry bushes stripped of their leaves by midsummer, or the fruit coated with mildew, and Apple trees starving through the attacks of bark lice.—*Transactions of the American Pomological Society.*

SHORT NOTES.—FRUIT.

Adam's Everlasting Apple.—In what estimation this Apple may be held by fruit growers I know not, but its habit is so peculiar, and its early productiveness so remarkable, that I am greatly interested in it. It is said not to be liable to canker.—B.

Neglected Apples.—Permit me to add Bess Pool to Mr. Coleman's list of neglected Apples. It is a really first-class kind either for kitchen or table use, and beautifully marked with red stripes. It is over the medium size and good in shape. The tree is of upright growth, robust habit, and very prolific; in fact, if my choice was limited to two kinds for use after Christmas, I should certainly decide on Bess Pool and Dumelow's Seeding.—S. T. W., *South Herefordshire.*

WHO ARE THE HARD PRUNERS?

I do not know who "S." may be whom "T. B." tackles (p. 136), but "T. B." makes some reflections on past and present pruners that need correcting.

No one is likely to defend the hard pruning; and if by hard pruning is meant the mischievous practice of cutting the shoots close in to the extent that used to be done in the case of newly-planted trained trees, or trees that had got established, I quite agree with the condemnation. But that kind of treatment has never been followed by those endowed with ordinary powers of observation and reflection, even in past times.

Oh! Just let us see. In a work revised and re-issued some few years ago, called "The Gardener's Assistant," by Thomas Moore, assisted by a staff, among which I find the names of Mr. Thos. Baines, Mr. Douglas, and others, I find a description and figure of a tree that has often astonished "people endowed with ordinary powers of observation," and which I do not believe any gardener in these days has tried to copy, or succeeded in copying it if he has tried. This tree—a Peach (fig. 277)—is, without exception, one of the most truly frightful examples of mutilation ever delineated by that class of practitioners with whom "T. B." has constantly identified himself, and the example in question may be accepted as showing generally the kind of ideas entertained and acted upon by the reflective minds he speaks of. Examples of fine trees grown up in good form to an abundant bearing size in two and three years by the modern system are now too common to be ignored; but this tree in the "Assistant" I have had preserved as a memento, and I shall here try to describe it. For some four or five years this tree, according to the instructions, is cut down to a mere stump a few inches from the ground in the process of what is called "originating the main limbs," the earliest bearing shoots apparently not coming into existence at all till after this time, and never becoming plentiful till ten or a dozen years have elapsed—a period during which those whom "T. B." opposes would have gathered about as many large crops of fruit and had trees of mature size. In this tree—the invention of "T. B.'s" coadjutors—you are directed to shear the whole of the fine annual growths off year after year for some four or five years, and after that the process is repeated on a scarcely less severe scale for an indefinite number of years, according to the denominatory letters and figures, which multiply in the directions given till they would puzzle a clever student of Euclid. And these instructions, and many more like them, are written and endorsed by those practitioners of "observation and reflection" whom "T. B." asserts "have never followed them, even in times past." They are founded, too, upon an entire misconception of the tree's habits constantly displayed before their eyes during the whole of their practice, but never apparently recognised by the "powers of observation" before alluded to. It is high time the saddle was put upon the right horse, and I for one shall not let "T. B." and his friends off with the plea that they do not share the responsibility of past practice.

J. S. W.

Pear President Drouard.—This comparatively new Pear is highly praised in the *Bulletin d'Arboriculture Belge*. It was distributed ten years ago by M. Leroy, of Angers, and appears to have already attracted the attention of Continental market growers. The fruit is rather above medium size, and golden yellow in colour when fully ripe. Flesh fine, very melting, juicy, and aromatic. Its season lasts from January till April. Unlike many new Pears, it is remarkable for vigour of growth, whether on the Quince or on the free stock, naturally forming a pyramid. This would seem to be a really meritorious fruit.—J. C. B.

Zinc labels.—"F. W. B." will find that the best zinc for labels, and indeed for any other purpose, is that bearing the mark "Veille Montagne." He should, after cleaning the surface with emery cloth, write on them (first of all damping the surface) with one of the lunar caustic pencils to be purchased at any chemist's. To make the writing, and the label, too, very lasting, he should warm them and

coat them over with solid paraffin, a material very readily obtained by the sacrifice of a paraffin candle.—W. H. CULLINGFORD, 7, *Phillimore Gardens*.

FLOWER GARDEN.

ORNAMENTAL GRASSES.

GRASSES, though now used more than formerly in combination with other plants in mixed beds and borders, are hardly yet recognised to the extent which their importance demands. Few plants of an undoubtedly hardy character are better adapted for subtropical gardening during trying seasons than Grasses. They withstand early autumn frosts with impunity when plants of a more tender nature have to be placed under glass, or, in the case of annuals, destroyed. Even isolated on the lawn in large clumps they are very graceful in appearance, their long feathery panicles showing themselves off to advantage against certain kinds of background. Such plants as *Gynerium argenteum* (Pampas), *Arundo conspicua*, and in the vicinity of water *Arundo Donax* are well worth attention on account of the beauty of their inflorescence alone, which lasts all through the autumn and early winter



Panicum virgatum.

months. Panicums and Brizas are also very useful in many ways, some even admiring them when associated with cut flowers. *P. virgatum*, of which the annexed is an illustration, makes a good border plant, and one which will grow in ordinary garden soil and require no protection. It consists of numerous branched panicles, graceful in outline, and very effective—a description which also applies to *P. altissimum* and *P. bulbosum*, allied species of equal merit. *P. miliaceum* and *Crux-galli*, both of which may be gathered by the side of the Thames, the former probably an escape from some garden, are annual species, the seed of which may be sown with that of other annuals. *Stipa pennata* is also pretty, and so also is the common *Agrostis*, *Aira cæspitosa*, which forms fine loose tufts. Among the taller growing ones, *Erianthus Ravennæ*, *Hordeum jubatum*, *Elymus glaucophyllus* and *E. canadensis* and the *Polypogons* are useful.

K.

SHORT NOTES.—FLOWER.

Carnation leaves diseased (M. S.).—The disease affecting your Carnation leaves is caused by the attacks of a parasitic fungus named *Helminthosporium echinulatum*. Yours is an unusually bad case. At present no better plan is known for the prevention of the spread of the fungus than the destruction of all affected leaves by fire.—W. G. S.

SPRING FLOWERS.

THE poet who pathetically asks, "What lark can pipe to skies so dull and grey?" must have been at Bournemouth in early spring when the weather was something like it is just now. The skies are leaden—sea fogs have hidden the ocean from our gaze—often a cold rain mingled with sleet or drifting snow falls drearily. Nature still seems asleep. True, rare gleams of sunshine tell us that in that sleep there are signs of an awakening at hand, but yet in this first week of March there are few tokens of approaching spring. The public gardens here, extending for more than two miles and artistically laid out, are full of fine trees and shrubs. The Austrian Pine, for which this place is celebrated; many deciduous trees; then the bright Holly, still full of scarlet berries; Portugal Laurels; great bushes of *Laurustinus*, ready to burst into flower the first warm day; the *Arbutus*, full of buds, but sadly nipped by the frost; Bay trees, finer than any I ever saw before in England; *Rhododendrons*, in vast masses or planted as thick tall hedges, promising hereafter a blaze of fine colour; all these are waiting for the tardy spring. The birds are waiting too; the "blackbird's broken stave" reminds us that he, too, is hoping for fine weather to pour forth his louder, clearer notes; the rooks are cawing in the old Elms; and on sunny days the larks, mounting high in heaven and filling the air with melody, proclaim that the reign of winter is nearly over, and that a new order of things is about to begin. Just now, however, we are having snowfalls which are among the severest ever known. We may hope when once they are over for better days. When I left our midland garden a fortnight ago the Snowdrops were coming out, and in sheltered parts of the shrubberies which escape the gardener's cruel spade "the Aconites did make a golden floor," but here I have seen no spring flowers except in the gardeners' shops. What different floral years we have witnessed. Sometimes, even in our bleak midland county in mild seasons, we have had brilliant Anemones from all shades of crimson and scarlet down to white and pink, violet, and many hues of mauve flaunting in the cold sun of January; while a month later, as I once remember writing in *THE GARDEN*, we had Hepaticas, Crocuses, Snowdrops, Primroses of different tints, with spikes of golden flowers covering our *Berberis* bushes.

We naturally love spring flowers more than any others, because they come at a dull time when days are short and the weather is dull, and because they are the heralds and advance guard of the glorious summer, who we know "shall be king hereafter."

Woodland flowers are always particularly interesting at this time of the year. Later on we have the "well-attired Woodbine" (as Milton calls it), the purple Heather, the gay Gorse, and the royal Foxglove; but now, while it is still too early to look for Violets and Primroses, and it will be long before blue Hyacinths and wild Anemones carpet the glade, we have the yellow Aconite. I know a wood, small in extent, but lovely. To reach it there is a gentle ascent of a mile, through green lanes overgrown with Brambles, Honeysuckles, and big Thorn bushes. When you approach the confines of the wood, you look down on a wide and fertile plain. Far away in the distance rise the Yorkshire wolds. They seem to melt away into the clouds. You catch from time to time a silver thread, which is the winding Trent, dividing the two counties. Towns there are none of any importance, excepting there on the left the smoke, faintly visible, marks the quaint old town of Gainsborough—George Eliot's St. Ogg's. The villages are few and so sparsely

scattered, that the broad plain seems hardly peopled by human habitations.

Within the wood, even at this early season, all is beauty. As you tread the carpet of dead Fern strewn about in tangled masses you disturb many rabbits which run madly into their holes at your approach; bright little squirrels leap from tree to tree, while here and there a fine cock pheasant gets up before you with a whirr. Long trails of Ivy clothe the wintry trees in lieu of their foliage, and when I visited the spot a week or two ago, coming upon a space which had been partially cleared, a blaze of colour met my eyes—a broad patch of Aconites covered the ground; it was a “field of the cloth of gold.”

Some of these tiny flowerets were still in bud, bright yellow balls rising out of their case of brilliant green; others had opened fully and were like stars. It was one of the loveliest floral sights I ever witnessed. But I cannot think why this first born flower of February should not be more extensively grown. I know several wild gardens where they flourish undisturbed for years—“things of beauty.” Perhaps the rage for having every corner tiresomely neat and proper may have banished them from more formal pleasaunces, for these children of spring do not need the gardener's care or interference; indeed, they are far better without either; they love to grow in their own way, untended and untouched. Surely in most gardens some room might be found for such lovely blossoms; some spaces under trees, where nothing else will grow; plant them there, never disturb them or dig about them, and they will repay this kind neglect by giving you something to look at and love when all around is bare and lifeless; they will relieve the gloom by masses of soft colour bursting forth from the dark earth, to proclaim that winter days will not last long, but are to pass to make room for the joyous spring. M. N.

Stocks.—These are quite indispensable, as, besides being so very sweet and affording so many shades of colour, they make splendid beds, either planted in distinct colours in rows or mixed; but, when grown in the latter way, the seed should be commingled before sowing, as then the plants are generally planted more regularly, and blend better when they come into bloom. The dwarfest sorts are the Ten-week, which grow about 1 foot high, but the most showy are the grandiflora or large-flowered varieties, and these attain to a height of about 18 inches or so. To have them good, the ground should be heavily manured with rotten manure and deeply dug, and the seed sown in April in shallow drills and just covered with fine soil, or the plants raised in pans or boxes in a frame, and planted out when large enough for removal.—S. D.

Snowdrops, double and single.—The interest lately shown in the habits of Snowdrops is almost rivalling that which has grown up in regard to the wider question affecting Daffodils, and I hope to be excused if I add my experience, extending over forty or fifty years. I think the single form incomparably superior; but that is a matter of taste. My preference, however, has acted usefully in this respect, that I have studiously kept the double and single apart, and so can speak of the habits of each. I have observed them in the north and in the south. By Tweedside it would be difficult to say which was the more robust, or which made the more rapid increase. Both multiplied by root offsets, and the single from seed also; but I never knew the single to become double, nor did it ever happen to me to have a double from seed. In another part of Northumberland I have found thousands growing by the margin of a small stream, not near any house or garden, but to all appearance wild; there was not a double flower amongst them. In parts of Devon they may be found plentifully in orchards, and more or less frequently in hedges; in the latter position I never saw any double, and where they are double in

orchards they are unmixed with single, and other garden outcasts, such as Star of Bethlehem and garden double Narcissus, are mostly found with them. My own soil, old red sandstone, does not seem specially good for Snowdrops; all the new kinds die out, but the common kind (single and double) does fairly well; both increase by offsets, but although seed ripens I have not seen an undoubted seedling. I plant the double far back, and by doing so I have the benefit of the colour without the drawback of form. The singles have the better places assigned to them. After all I do not think that anyone who has seen the single Snowdrop growing under congenial conditions will anticipate its speedy extinction; but it has its fancies, and will not flourish everywhere.—T. H. ARCHER-HIND, *South Devon.*

SPRING TREATMENT OF PHLOXES.

OF all flowers which bloom in our gardens from the end of June until September is at an end, none are more showy or easier cultivated than herbaceous Phloxes. We grow some hundreds of them in the flower garden, shrubberies, and kitchen garden borders, and the display which they make in all three positions is striking in the extreme; indeed, the exclamation of all who see them is, “What magnificent flowers!” The very old sorts are slight in spike, small in individual bloom, and not very showy or rich in shade of colour; but the newer ones, such as those introduced during the last ten years, are remarkable for the extraordinary size of their spikes, their massive individual blooms, and, above all, their exquisite and endless shades of colour. March is a good time in which to buy new plants. Choice varieties will be received in small pots, and no attempt should be made to force them on in a hot place. The best way is to plant them out at once in beds or borders. If, however, it is thought that they ought to be kept in pots until they gain strength, place them in a cold frame. Weakly plants might also be transferred to larger pots, in which they should be grown on until May, and then planted out, but on no account should artificial heat be applied to them. They are as hardy as it is possible for any plant to be. When the new plants are small, we do not generally plant them with the old ones; they are put into a favourable corner for the first year, and put out for affect afterwards. This is a good way of getting choice sorts on quickly. Young plants which we bought in the spring of 1885 were planted on a snug border in the kitchen garden, and although they were only turned out of 3-inch pots, some of them produced stems 5 feet in height before autumn, and developed grand heads of bloom. These plants have lately been transplanted to a position where they will have to take the place of full-sized plants in the general display of the coming summer, and although young, I have no doubt that they will do this well.

A RICH DEEP SOIL Phloxes must have; without this they will never develop their full beauty. It should be deeply dug up before planting, putting the manure well down, and besides this when the holes are opened to receive the plants some more manure should be put in the bottom, in order that the roots may readily take possession of it. It is a mistake to plant Phloxes too near the surface; the crowns should be 3 inches or 4 inches below it when planting is finished. Thus far we have been dealing chiefly with young plants, but dividing large old ones is a good way of increasing their numbers, and it is at this season when this operation should receive attention. A crown 1 foot or more across may be cut into four plants, and each of these will make a good blooming specimen by the autumn. The roots cling firmly together and are not easily separated, unless a spade be used; but

cutting them through does them little or no harm. In cases in which the whole of the plants may be divided the best way is to lift all the roots, cut them up and replant; but before doing this the soil in which they are to be replanted should be deeply dug and heavily manured. Where only a small piece is wanted off any special kind the whole of the root need not be lifted; on the contrary, a slice may be taken from the side and the hole filled up with rich soil. In cases in which the plants have become established and there is no desire to increase the stock, a quantity of rich manure should be forked in round each plant, and if manure is plentiful a mulching on the surface will be beneficial. In order that the plants may not receive any very severe check in dividing or transplanting, the whole of the above operations should have attention before March is over, provided the weather is suitable. CAMBRIAN.

GARDEN FLORA.

PLATE 535.

EREMURUS BUNGEI.*

A FEW weeks ago we gave an illustration of *Eremurus robustus*, a noble plant which has long been cultivated in this country. Our plate this week represents a new-comer from the little known flora of Western Asia, viz., *E. Bungei*, a truly beautiful plant, and being different in growth from that of most other hardy flowers, it strikes the eye at once. When we saw it for the first time in Messrs. Paul's Broxbourne Nursery we thought we had never before seen a more graceful plant. Its tall and slender wand-like flower-stems were waving gently in the wind, and the clear yellow colour of the flowers on a bright day in July was truly charming. The stems rise about 1½ feet high, and altogether it is a smaller and more slender plant than its neighbour, *E. robustus*. Botanists say that its nearest relative is *E. aurantiacus*, also a beautiful plant from the same region. Our plate represents a full sized spike with flowers in full bloom, buds unexpanded, and flowers withering at the base. Any of our readers who wish for further information respecting the *Eremurus*es will find a good account of them, together with cultural notes, in *THE GARDEN* for January 30 of this year.

From what we have seen of *E. Bungei* it seems to grow with as great freedom as *E. aurantiacus*, which latter, however, seems to thrive best in a light peaty soil, while *E. Bungei* needs a rich light loam, in a dry, sunny situation. It requires full exposure to the sun and plenty of water during the growing and flowering season, but water should be withheld as the stem and leaves die off. Unfortunately, this species is one of the few that begin to grow early in spring, and consequently it requires a hand-light to protect it from the weather. The leaves are cotemporary with the flowers; they are about a foot long, taper to a fine point, and are a quarter of an inch broad at the middle. The flower-spikes are between 1 foot and 2 feet long, and about a third of the stalk is covered with flowers, each about an inch in diameter. These are produced about the end of June and July. It is a native of Persia, between Nischapur and Meshed.

Antirrhinums and Pentstemons.—“A Beginner” must not cut back these to the old wood during weather such as we are now experiencing, or they will probably die outright. It would be best to let them alone until they have made a decided start into growth; then they might be cut back to a live bud.

* Drawn in Messrs. Paul & Son's nursery, Broxbourne, in July of last year.



Old plants treated as above cannot be depended upon. The best way is to take cuttings in September or October, plant them in pots and boxes, and winter them in cold frames. We place them along with shrubby *Calceolarias*, and another plan is to plant them out in handlights. The glass alone affords sufficient protection, but a mat may be thrown over them during severe frosts. What they suffer most from is bitter frosty winds. An excellent plan in order to obtain a good display is to sow seeds of them on a hotbed in February, to prick out the young plants as soon as they are large enough to handle, and to grow them on freely; they will flower well the following autumn. In fact, I would never think of treating *Antirrhinums* in any other way but as annuals. *Pentstemons* are rather different, and should be annually propagated by means of cuttings, as I have described.—J. DOUGLAS.

NOTES.

ALMOND BLOSSOM.—I suppose the Almond tree is really harder than the Peach, seeing that while not much if aught more beautiful than the large-flowered Peaches, it is far more generally planted as an ornamental tree. Either on walls or as a standard the Almond is very lovely as a spring-blooming tree. How many varieties of Almond are there which may be so employed. Here we only grow the old rosy-flowered kind; but have I not seen a pale rose, and one nearly white, with a coppery red centre to the flower? The Almond is a type of the spring-flowering deciduous trees of which we can scarcely have too many in our gardens, lighting up the shrubberies as they do ere the Lilac and Laburnum or Syringa unfold their blossoms. *Pyrus floribunda* and the Siberian Crab, with double-blossomed Cherries and Peaches, should also have a place. They are bright and cheerful outside, but their use does not end there, since one can cut off branches of their buds and blossoms for arranging in big pots or vases indoors. The Japanese, with a similar climate to ours, are ahead of us in the culture and indoor arrangement of deciduous flowering trees. A good large bowl of Almond blossom is one of the fairest offerings of spring, either alone or garnished with the bronzy leaves of the common Mahonia. I am sure many besides myself would like to know of all the really good forms or varieties of the Almond tree now known in gardens.

THE TIME OF DAFFODILS.—The "winds of March" have scarcely as yet blown over our *Narcissi*, but during the past week they have lain under a snowy covering, and the frost king has checked the upward spearing of bud and leaf. Sir Watkin or Welsh Peerless is very strong and promising, so also Horsefield's Daffodil beside it, for these two appear together above ground. *N. moschatum* is so far neck and neck with *N. obvallaris*, but the latter is, as we know from former experience, sure to win. One of the earliest of the double kinds will be the silver and gold form of *N. Telamonius*, introduced some years ago by Messrs. Barnard and Son from Holland. I hope I may be able to send flowers of this to one of the meetings of the *Narcissus* committee, since I and Mr. Barr cannot quite agree as to its identity and position. Some of us were complaining that the Daffodils were later than usual this year, but "all things happen for the best." As it is, they are quite uninjured by the recent "cold snap," which dropped down on us so suddenly and stopped our "babbling of green fields" for a time. For this immunity from injury we may be thankful that snow came with the depression of temperature. *Iris reticulata* seems actually to have enjoyed its snow bath, the buds remaining quiescent; but no sooner had the icy covering melted away in the first gleam of sunshine than the flowers expanded fresh and fair

beside the golden *Crocus* buds and blossoms. The snow yet lingers even here close to the sea, but the moisture attending its departure will give strength to the stems and leafage of the Daffodils.

BIRDS AND BERRIES.—"Nothing is so certain to happen as the unexpected," and so our fond hopes of spring-like warmth have been suddenly checked by frost and snow. No sooner did the snow fall than the birds came by the thousand, and now one might offer a penny for every Holly berry in the garden. The raid has taken place much sooner in former years, but it may be that the hedge fruit on the mountains has been sufficient for the fieldfares and missel-thrushes thus far into the year. It has taken two days for them to clear our bushes this season, a piece of work they have easily accomplished in two hours in former times. They swoop down quite suddenly, clear every bush from the top to the bottom, and then they form gleaning parties and pick up every fallen berry, and when all is eaten they vanish as quickly as they came. Our own blackbirds and song thrushes do not mix with these democratic marauders, and I am sure feel most indignant at the behaviour of their uninvited guests. To-day I see the garden thrushes have made quite a raid on the large brown shell snails, and the blackbirds are scraping and tossing over the leaves and mulching material here and there in their search for a stray berry or a worm or two. Their singing, too, has ceased since the snow fell, but now the thaw has commenced the first sunny morning will not be a songless one.

FLORAL MEMORIES.—What a dreary world it would be for gardeners if our flowers had no associations beyond their names and habitats, for, as someone has well said, the garden ought to be full of old faces, and sights and sounds quite beyond the ken of the visiting stranger. There is, in fact, an inner life in all good gardens which give to their true owners an added zest—a greater charm, and one which they alone can reveal, if they will it so. A real garden is an unwritten romance, and not a mere arrangement of earth, water, stones, and plants. Those who will let Alphonse Karr be their guide in "A Tour Round my Garden" will know some of the infinite potentialities of a garden in its widest and best sense, if so be that this point has evaded them before. Of course there is much of hard work that must be done in even the smallest of gardens, and a little sound sense is at most times better than mere theory or fine thinking, but when one is weary with much serving—and well-earned rest comes to the gardener as to others—it is cheerful and pleasant to remember that the "blackest cloud hath a silvery lining," and that much of its brightness is due to floral memories and their associations. If you bring a Fern from Wales or from the Lake district, it is not merely *Allosorus crispus*, but also a link that marries your thoughts to the mountain or the lake, and reminds you of a hundred pleasant things. It has been written, "If we love those we lose, can we be said to lose those we love?" and so do many gardeners whom we have lost live on in our gardens. Before me is a spike of *Lachenalia Nelsoni* which brings before me a whole vision of delights and regrets. These yellow waxy bells remind one of *Phloxes* and scarlet *Anemones* and *Iris*, and a host of flowers, and so do these forced blossoms of *Doronicum draytonensis* remind one of him who also delighted in the fairest of garden blossoms.

REFLEXED DAFFODILS.—The reflexed *Narcissi* are well known, but I have to-day, for the first time, seen a flower of Haworth's *Narcissus* minor var. *cyclamineus*, a real Daffodil, with reflexed or *Cyclamen*-like perianth segments.

Haworth himself never saw the living flower, nor, so far as I believe, not even a dried specimen, he having obtained his knowledge of the plant's probable existence from the "*Theatrum Floræ*," an old folio of plates of hardy flowers, published in 1637. The earliest evidence I can find of such a plant's existence is in the "*Jardin du Roy*," another fine old folio of etchings of plants, published at Paris in 1623. The flower itself is a very curious thing, the cup or crown being about three quarters of an inch long, quite narrow or cylindrical, with a slightly spreading mouth. The perianth segments reflex as much as in *N. triandrus*, being narrow, lanceolate, and of a similar deep yellow colour to that of the crown. The ovary is very large in proportion to the size of the flower; and the tube, which usually intervenes between the ovary and the crown or trunk, is in this variety extremely reduced, being, in fact, scarcely more than a line in length. The insertion of the six stamens in one series with their filaments near the base of the trunk is similar to that of all true Daffodils. The slender scapes are one-flowered. Although not a showy variety, this is extremely curious, distinct, and interesting to all true lovers of Queen Daffodil. If, as one naturally hopes will be the case, this rare old Daffodil will cross with some of our finer kinds, such as *N. maximus* or *N. Horsefieldi*, what novelty of form may be obtained! Fancy Horsefield's Daffodil with its perianth elegantly reflexed. Haworth may have been wrong sometimes, but in this instance his instinct led him in the right track after all.

RUSKIN ON WEEDS.—Every gardener who can do so should get a peep at Ruskin's "*Proserpina*;" or a Study of Wayside Flowers." I picked up a stray copy in a library the other day and became so absorbed in the reading of it, that my notebook only just saved me from forgetting my real business there. Everyone knows, as a matter of course, that weeds are simply common plants out of place—that is to say, vulgar plants growing where they are not desirable, and this facility for going astray is, as Ruskin tells us, due to their "mere hardihood and coarseness of make," or, in other words, "A plant that can live anywhere will often live where it is not wanted." But he is also careful to point out the inner truth that there are gentle weeds and rough or malicious ones, that is to say, a plant may be a weed by being out of its place, as when a Snowdrop crops up in one's path, and yet be most lovely in itself. On the other hand, Thistles, or Couch Grass, or Nettles have no such redeeming quality—no fineness of make or tenderness, but, on the contrary, even oppose us in our work by their armament of spines or stings. Again, a Nettle on a wall is universally voted a weed, but who would think of so naming the little green *Tortula* that shelters itself in the crannies of the old bricks and stones? Moss on walks may be a weed, but Moss on the wall seems different; in a word, we forgive it for its freshness and fineness of make when it grows up near the eye. All who are fond of their gardens will find much to please them in "*Proserpina*," much actual information on plants, and much food for thought likewise—the chapter on Moss, for instance, touching, as it does, the very threshold of plant life, being, as it is, the prince of turf builders, beautiful in life, and even in death not to be despised.

SNOWDROPS ON GRASS.—Wherever possible, these lovely flowers should be induced to establish themselves on the Grass, where their pearly buds not only look fresher than when grown in beds or borders, but their flowers actually endure clean and serviceable for a much longer time. Another way of extending their blooming season is to plant them in all sorts of aspects and posi-

tions, both in sun and in shade. One would think the culture of Snowdrops an easy matter, but there are exceptions to the rule. Wherever they seed naturally, I would advise the careful collection and sowing of the seeds as soon as they are ripe. Seedlings may not vary much, but yet one may, perchance, obtain some little variety in this way. The other day a friend sent me three distinct forms of *G. nivalis*, viz., good, bold, long-stalked flowers of the type, another which was smaller and had also bloomed earlier, and a third with peculiarly long narrow buds and small narrow-petalled flowers. The last was, moreover, quite distinct in bulb growth from its allies. Last year I had bulbs sent to me in flower in April, so that if one could obtain the October blooming kind one might calculate on having some one or other of the Snowdrops in bloom for five or six months of the year. I have tried to purchase *G. Imperati*, but never yet obtained the true plant; and in a hundred bulbs of *G. Elwesi* you get seventy-five per cent. at least of poor weedy forms. The finest Snowdrop we have is *G. plicatus major*, which has buds and flowers like the true *G. Imperati*, but the leaves are very broad and plaited. The Snowdrop is such a useful garden flower, that the more information we can obtain as to its vagaries the better.

FLOWERS FROM FRIENDS.—One of the greatest charms of a true gardener's existence ought of course to be, and often is, the garden it is his especial privilege and duty to dress and to keep in order; but there is in human nature a deep-laid law which leads us to admire the successes and triumphs of others rather than our own. Hence the interest and delight which a few odd flowers and green leaves from a friend's garden can often give to us. We may, indeed, have exactly the same flowers growing around us, and yet this very familiarity has taken the keen edge off our full enjoyment of them. But when the postman brings a box to the door, how keen is the curiosity which possesses us until its contents are known. It may be a flower to name, or some sport or vagary of growth, or a new blossom or an old one, or twenty other of the pleasant moods and phases of plant life, all equally welcome, equally interesting. Before me now, in a common tumbler of fresh water, are a few long sprays of Rosemary, and in front of these four of five flowers and opening buds of *Iris reticulata*, and then, standing up above the velvet-purple *Iris* and backed by the soft grey-green Rosemary leaves, is one spray of a white *Freesia*, and the combination of colour, of graceful form, and of piquant and refreshing fragrance may not all be told with a pen. The *Freesia* has the largest flowers I ever saw, so large as to suggest the blossoms of *St. Bruno's Lily* as well in size as in purity, except for the faint blush of warm yellow on the lower petal. Then in an old brown jug is a great handful of golden Daffodils, big and little, sent for naming from the sunny south, and far in advance of our own Daffodils, which have been under snow rucks for a week. The parcels post must be one of the blessings of our time, since great are its potentialities in the distribution of garden favours.

NARCISSI IN POTS.—No plants are more effective than these for greenhouse or conservatory decoration at this season. Last September we potted up some good sound bulbs of the common double yellow Daffodil, and these are now flowering very freely and are much admired. A little warmth and shelter improve these flowers very much at this season, and as seen near the eye indoors the colour of this old yellow Daffodil is very fine, although in form it is, of course, excelled by the single kinds. *N. Horsfieldi*, *N. obvallaris*, *N. princeps*, *N. maximus*, and *N. Emperor* are other good sorts for pot

culture, and the wonder is that they are not seen wherever Hyacinths, Tulips, and Crocuses are grown. If something especially beautiful is desired, *N. cernuus* and *N. albicans*, or *N. moschatum* may be grown; and for late flowering, *N. bicolor* and the large yellow Hooped-petticoat, *N. Bulbocodium*, are perhaps the best. Choicer still are pots of *N. triandrus* and *N. Bulbocodium citrinum*, but, as above mentioned, even the common old Daffadowndilly of the orchards and cottagers' gardens acquires a new charm when grown and flowered thus early in the greenhouse. Wherever Daffodils are grown in quantity in the open air, a few should be potted in August or September for flowering in pots indoors.

VERONICA.

KITCHEN GARDEN.

ONIONS AND THEIR CULTURE.

I LIKE to sow Onions about the middle of March; if sown earlier, late frosts may injure the young plants as they come through the ground, and if sown much later they have not time enough for growth. This season, the land that has been exposed is in good condition for seed sowing, and for Onions the soil should be deep and rich. A point is generally made of making the Onion bed rather above the average, as the crop is an important one. I have seen Onions growing in cottage gardens year after year on the same site, but this is not right, as the system cannot be a profitable one that sets apart a particular plot for any crop that only occupies it so short a time. Usually with us the spring Cabbages follow the Onions, the latter leaving the land good enough for the succeeding crop, with a sprinkling of soot and guano and a deep hoeing when the Cabbages are planted in September.

IN PREPARING THE BEDS, land that has been exposed to the late frosts will require a good deal of firming; there is no better plan than treading it twice, going over it the reverse way the second time. Rake it smoothly, and draw the drills half an inch deep, and from 9 inches to 12 inches apart. The wider distance is the best for fine bulbs, and a foot of space gives plenty of room for hoeing and weeding, and, if requisite, a mulch. The old adage, "sow thick and thin quick," is, I think, a mistaken one. If the seeds are reliable in quality, thick sowing is an evil, wasting the seeds and increasing the labour, and causing an injurious and unnecessary disturbance of the permanent plants when drawing out the surplus. Sow just enough seeds to obtain the power of selecting the plants for the crop, as it is well to be able to discard weaklings. In covering the seeds, walk along the rows with a foot on each side of the drill, sliding the feet along the ground when they are moved, and drawing each foot across the drill in turn. This action fills in the drill and applies a little pressure to the seeds at the same time; the back of the rake will make all smooth.

THE ONION MAGGOT is most to be dreaded on dry, porous soils, and salt and nitrate of soda applied in moderate quantities are valuable, inasmuch as both substances, besides containing manurial principles, make the land more retentive of moisture. The Onion fly usually makes its appearance in May, and lays its eggs on the young plants. Large plants are not much affected by it. Onions sown in autumn are too far advanced for its taste. There is nothing that anyone can do to destroy the maggots and at the same time save the crop. All our measures must necessarily be of a preventive character. Thus we use salt and nitrate, because it stimulates the plant's growth, especially in a dry time,

and we dust with soot frequently during the month of May, because it hangs about the plants and makes them distasteful, and soot also invigorates and strengthens the plants. Mulching has been recommended as a remedy for maggots, and it acts just in the same way as salt and nitrate does by nourishing and increasing the growth of the plants. Whenever a bed of Onions is attacked by maggots all the affected plants should be pulled up and destroyed, as although this may not affect the present crop, it will destroy the maggots and lead to a reduction of the number of Onion flies next season.

VARIETIES FOR PRESENT SOWING.—The best varieties are the White Spanish and the Globe, and the best representatives of these old standard sorts at the present time are, I think, the Sandy Prize and the Magnum Bonum. Denver's Yellow is a very useful Onion, and the Silver-skinned to be sown thickly on very firm soil for pickling.

E. H.

NOTES ON SEED SOWING.

THOUGH gardening is not a business, the details of which can be regulated to an exact nicety, a suitable seed time always comes to those who wait and watch. The same natural laws govern the germination of seeds everywhere, but our interpretation of these laws may often be elastic without any serious consequences being the result. The character of the soil, the moisture which it contains, and the climate are all inexact and unstable quantities. The three essential requisites for the germination of seeds are moisture, air, and heat; except these are present in fairly well balanced proportions, seeds will not grow; and very closely connected, I may say, in direct association with the above three principles of germination is the question of depth of covering. Early in the season very many small seeds die through being buried too deeply. In a warm dry soil the depth of covering may be greater than would be prudent in a wet, cold situation. At this season 2 inches deep is quite enough covering for Peas and Beans, but later in the season 3 inches will not be too much, and all other seeds should be covered in like manner in proportion, making an allowance for the season and the character of the soil. Small seeds sown among rough clods must for the most part fail, but if the clods are broken down or even smoothed with the back of the spade and the seeds covered with a little light sifted soil, the growth will be full and strong. No respectable seed house sends out bad seeds; it would not pay; and it is so easy to ascertain beforehand the percentage of growth in any given sample by putting a hundred seeds of any plant in a pot of soil and placing it in strong heat, and though a weakly seed that will not make a plant in the open will grow under artificial conditions, yet the test is fair enough. In the case of small seeds if they produce 75 per cent. of plants no one ought to complain. Peas and Beans are hand-picked and all defective seeds removed, so that in their case a much larger percentage grows.

A FINE TILTH is of the very first importance in insuring the germination of seeds, and the importance of the preparatory work, i.e., the digging and exposure in winter, cannot be overrated. Seeds sown in wet sticky soil cannot do their best. A few of the strongest will struggle through, but in such cases the percentage of growth must be small. I may say, in passing, that mere growing force, although necessary, is not everything. Plants, like animals and men, have hereditary qualities, good or bad, according as the ancestral tendencies have been well or ill guided and governed. Many people have

suffered disappointment in the yield of a particular plot in field or garden from a neglect of this principle. The plants when growing were strong and healthy looking, but did not yield as they should, because they were lacking in "breed," or did not possess that conglomeration of good qualities which a long period of careful selection gives. There is no doubt, I think, that the aggregate produce of both garden and field would be much increased if more care was used in selecting seeds, and if quality was more considered than cheapness.

THICK SOWING under any circumstances is an evil. "Sow thick and thin quick," has been mentioned, but if we can depend upon our seeds, thick sowing is not only a waste, but if during a busy time the thinning should be neglected, the permanent crop may be sensibly weakened. Seeds enough to give a power of selection should always be sown, but I have seen in the case of Onions, Carrots, and other crops ten times more seeds sown than were needed; and besides the waste of seeds and the time lost in thinning, the loosening and disturbing of the soil made it less suitable for the crops. Pretty nearly all seeds and plants do best when firmly attached to the ground. The ground should be worked in winter and be well pulverised; but if light when the seeds are sown, the land should be rolled or trodden. It would be interesting if some careful observer with youth on his side would for twenty years or so carry out a series of experiments as to the growing powers of seeds of different kinds at different ages. We have, most of us, some knowledge on the subject, but we want that exactitude which only a carefully noted series of experiments extending over a long period can give.

OLD SEEDS of good strains should never be thrown away till their growing powers have been tested in heat. Seeds have often been thrown away because of their age when they would have grown vigorously enough. All the Brassicas, if kept in a dry, cool place will retain their vitality for a considerable time—six or seven years, or probably longer; but a great deal depends upon how and where they are kept. All vegetable substances, even seeds if kept in bulk, will heat and ferment, and this is injurious to life. Seeds should be kept dry and cool. Seeds that have been buried in the earth too deep to grow have germinated when brought to light many years after being buried. The seeds of the Cucumber and allied plants will retain their vitality for a long time, and some persons think that keeping the seeds a few years makes the plants more fruitful; but I should be inclined to say this is not proven. Seeds germinate best in the dark, and all choice seeds of flowering and other plants sown under glass may with advantage be kept in the dark till the seeds have burst their cuticles and are pushing aside the soil to come out into the world to begin their brief life.

SOAKING SEEDS in chilled water is sometimes practised. Seeds whose vitality has been weakened by keeping will grow better if soaked till the skins begin to swell before sowing. I have raised plants from Cucumber and Melon seeds that looked thin and weak by soaking in lukewarm water twenty-four hours that probably would not have grown if they had not been soaked. Indian Shot, or Canna seeds, or any others, such as Acacia seeds or seeds of the herbaceous Phloxes, which have skins or shells of exceptional hardness, will benefit by soaking, but in the kitchen garden generally I should leave the seeds to grow as Nature intended them.

E. HOBDAV.

Broad Beans.—Mr. Muir (p. 205) asserts that I have admitted that Seville Longpod was a week

earlier than Leviathan. I have done nothing of the sort. In a previous number of THE GARDEN I said that Seville Longpod was a week earlier than a variety which I termed a "rogue," and which I had found in the stock. Absolutely not the least reference was made to Leviathan in instituting the comparison. I have a selection of Leviathan, Seville Longpod, and other kinds of Beans with which I trust to be able to have an interesting trial this year. It is, however, fair to say that in carrying this trial out, I am far less interested in showing that this or that kind may have the longest pods or otherwise than I am in ascertaining which variety under similar conditions of culture is the best and most productive for all ordinary purposes.—A. D.

Gilbert's new vegetables.—I notice in THE GARDEN (p. 190) that "A. D." mentions Chou de Burghley as white-hearted and delicious, and in a previous number Mr. Iggulden is good enough to say it is most useful and fairly good, but it has been described as more like Seakale than Cabbage. Now we come to Gilbert's Universal Savoy, which Mr. Iggulden asserts to be of most excellent quality. Mr. Young describes this Savoy as being a great improvement on other kinds, inasmuch as it has not that strong flavour which is found in other Savoys. Mr. E. Luckhurst considers it better than other Savoys, and Mr. A. C. Southwell, of Stamford, told me the other day that he never ate anything so delicious in the way of greens. In fact, every day brings Universal Savoy a good word, so that after the hard things which have been said respecting these two vegetables have I not, Mr. Editor, solved the great problem of pleasing everybody? I admit, however, that there comes a black sheep among them occasionally, but there are few flocks without one.—R. GILBERT, Burghley.

MANURES AND THEIR APPLICATION.

As the season is now at hand when most plants start into active growth, and consequently require manurial assistance, a few words on the subject of manures and the way in which they should be applied may not be out of place. Those who are engaged in the cultivation of plants, either in the open ground or under glass, or even only to the extent of furnishing a window, soon become acquainted with the fact that in order to grow them successfully the roots must be sufficiently supplied with food, either present naturally in the soil to which they have access, or supplied to it in some form or other. One thing generally recognised is that the quicker and more growth a plant makes the more food in the shape of manure it requires. Plants that attain their full size in a single summer or less, like most of the ordinary kitchen garden vegetables, are well known to be not only capable of bearing, but require an amount of manure that slow-growing things would be injured by. Plants that push their roots deep into the soil, or that are liable to suffer from want of moisture in dry weather, like to have a supply of manure proportionately deep down for the extremities of the roots to revel in when they have reached their full extent. But there is little doubt that, with the intention of making this provision, there is often much waste through the essential elements in the manure being carried down by rains to a depth that places them as far out of the reach of the roots of the plants intended to be benefited as if they were at the antipodes. To feel satisfied of this it is only necessary to consider the affinity that the principal element which ordinary manure contains—ammonia—has for water, which in its downward passage carries with it the plant food contained in the manure thus deeply buried. In speaking thus it is well not to lose sight of the fact that the soil also is an absorbent of ammonia; hence the benefit which the earth derives from the ammonia which it gathers from the descending rains, especially in summer, when

it rarely happens that so much falls as to sink deeper than the roots of ordinary plants reach. But the heavy winter rains pass deep down, carrying with them not only the elements of fertility which they possess, but also much of what is contained in any manure that happens to be present in the land. In digging in manure for far the greater number of things, if it is well mixed with the soil to a depth of 9 inches or 10 inches, there is less waste in the way named, and consequently more goes to sustain the crops it is intended to benefit than when put deep. There is frequently an equal want of judgment in the way that manure is applied without discrimination to light and to heavy soils alike. Most cultivators know that an application of manure is more lasting in its effects on soils that are strong and heavy than such as are of a light and sandy nature, the obvious cause of which is that heavy soils absorb and retain the manurial elements, whether applied in a solid or a liquid form, to an extent which light land is not capable of. Hence it follows that it is wasteful to apply more manure at once to the latter description of land than is sufficient to meet the requirements of the current season's crop. Whereas in manuring heavy soils if more is given than the ensuing crop requires it is available for those that follow. Yet even where the conditions are such as most favourable to the retention of the unexhausted manure, there is little doubt that it is better economy to give moderate applications often than very heavy ones at longer intervals.

THE ROOTS OF MANY PLANTS will not bear coming in actual contact with fresh green manure such as comes direct from the stable or farmyard, and on that account it is requisite to use for them such as has become rotten and has lost its rankness; whereas the roots of vigorous-growing, strong-rooted plants will bear fresh manure, providing it is not in a wet, close condition, such as green cow manure, which, if applied in large masses, no roots will enter until it has become somewhat mellow. Through a knowledge that green manure will not answer for some plants, the opposite mistake is frequently committed of allowing it to become too far decomposed, with half the strength wasted by fermentation before being used. The loss in the fertilising elements that follows severe fermentation, particularly in stable manure, is generally understood, yet few take means to avoid the mischief. One of the best and most successful farmers I ever met with, and who kept a very large stock of animals, always took means to prevent any fermentation in the manure. As fast as it was made it was mixed with ashes obtained from a neighbouring town, ditch scourings, road scrapings, or anything available. These were always allowed to get fairly dry before the manure was mixed with them. In this way it was used alike for Corn and root crops and for Grass land. When manure is so managed, not only is the waste that occurs by fermentation avoided, but there is much less loss through evaporation when it is mixed with a powerful absorbent like earth or ashes. It often happens that gardeners have little choice in the matter, and are only too glad to get the manure they require in any condition. Yet where it could be had fresh and mixed with material from the refuse heap, consisting of such things as old tan, charred weeds, old potting soil, leaf mould, or anything of a like nature obtainable, half the quantity that is often used would be found to give results equal to those which follow the application of the heavy dressings of manure in the half effete condition that it is frequently used. Of this I have had ample proof. Much the heaviest crops I have ever had of such things as Celery, Onions, and Lettuce—plants that revel in an abundance of rich food—have been when it was applied quite fresh. There

can be little doubt that where slow decomposing manures, such as bones, hoof-parings, horn-shavings, or hair are used, there is less loss through the fertilising elements getting washed away. But, on the other hand, such fertilisers as these, unless dissolved, do not decompose quickly enough to sustain quick-growing plants such as most culinary vegetables; hence it is that such manures are most suitable for using to crops of a more permanent nature.

LIQUID MANURE.—Manure given in a liquid state to plants when in active growth is necessarily the most potent and the quickest in its action, for in place of the roots having to extend in search of what they want it is thus brought to them ready for being taken in by their hungry mouths in the condition best suited to supply their wants without having to wait. But it is only when a crop is growing freely, or just about to start into activity, that manure water can be given with a view to obtaining the best results and avoiding waste. Plants, like animals, do not want feeding when they are not hungry, or in a condition to consume that which is given them, and when little or no root or top growth is going on they do not require food, and if manure in a liquid state is applied at a time when the roots take little or none, from the state it is in it is much more susceptible of being carried by the rains deep down out of reach of the roots than if it was in a solid form. Hence it is not only useless, but wasteful to apply manure water in the autumn after a crop has ceased growing, or in winter before it begins to move.

PLANTS IN POTS.—Respecting the vast number of plants now cultivated under glass, with their roots confined, as they usually are, within a very limited space, they are even more dependent on the manure given them than such as are out in the open air with room for their roots to stretch out far and wide in search of the sustenance they require. When plants are potted the soil given them is usually more or less enriched by the addition of manure. The rotten manure for mixing with potting soil—generally advised on account of so few making any other provision—answers well so long as it lasts; but soil to which highly decomposed manure of this description is added does not continue to give the sustenance required by plants so long as when manure in a fresh state has been mixed with it; but in which case previous provision needs to be made by mixing the manure with the soil long enough before use to admit of the manure becoming mellow and in a state such as the roots will bear to come at once in contact with. Still, however well the soil may have been prepared, the constant use of water necessary to keep up the requisite moist condition washes out the essential elements contained in the soil, leaving the roots on short commons at the time when the top growth going on needs the most assistance, in the absence of which a process of semi-starvation goes on. The result of which is that untold quantities of plants thus subjected to pot culture never attain a condition more than half equal to that which they would if the requisite support was given. This can easily be done by the use of manure water, or by applying concentrated manure to the surface of the soil, whence it gets taken down to the roots in the ordinary course of watering. But it often happens that neither of these means are taken soon enough to give the necessary support at the time it is wanted, or that the applications are not sufficiently frequent to keep the plants going as they should.

THE ADVANTAGE OF STIMULANTS of this kind is generally recognised, but the extent to which they are required by many plants that have their roots confined in pots, particularly strong-rooted,

quick-growing kinds, is not sufficiently understood; in the case of these, the stereotyped advice about not giving manurial assistance of this sort until the pots are full of roots is wrong. Such things as *Cinerarias*, herbaceous *Calceolarias*, and *Chrysanthemums* require to have it regularly, from the time their roots have got fairly at work in the pots they are intended to flower in. For a long time I grew the plants in question with manure water, and none else, from the time the roots began to reach the outsides of the balls. So treated, *Cinerarias* in 6-inch pots attained a size and produced heads of flower equal to any I ever saw when more room was given them; whilst *Chrysanthemums*, similarly fed, kept their leaves fresh and green down to the bottom of the stems, yielding quantities of flowers, such as they only do when unusually vigorous. It is scarcely necessary to say that judgment is required in the use of manure water both as regards the quantity, and also the strength at which it is applied. Slow-growing, delicate-rooted subjects will not bear its being given them at anything like the strength or in the quantities that the plants named and others of a like nature enjoy, and the same applies to the use of concentrated manures; but there are few plants grown in pots that do not require manurial assistance, particularly from the time they approach something near their full size, and occupy pots as large as they are intended to have. Hard-wooded *New Holland* and *Cape* plants, including *Heaths*, are no exception to this, although, possibly, not one in ten of those who grow more or less of them ever think that they need assistance of this kind, though much the larger portion of the soil contained in the pots they are growing in has been occupied by the roots for, not unlikely, ten or a dozen years, during which time between what the roots have extracted from it and the water passing through has washed out of it, the whole mass has become impoverished to an extent that to those who give the matter a thought is a cause of surprise that the plants can exist, much less thrive in it. Slow-growing, fine-rooted plants like those named, though requiring assistance of this sort, need to be treated with caution. It will not do to give them everything that comes under the name of manure, whether solid or liquid. Of the many things that I have tried none answer so well for the class of plants under notice as some of the artificial manures applied in the usual way to the surface of the soil at the rate of a large tablespoonful to a 15-inch or 16-inch pot twice during the season of active growth. At no time should this or any fertiliser, solid or liquid, be given to pot plants unless when growth is in motion, otherwise, except in the case of very strong growing things, it is likely to do more harm than good. And in the case of the strong growers it does not benefit them in the dormant season. Some of the trade and market growers whose plants in small pots are marvels of cultivation, use sulphate of ammonia; they have to a nicety arrived at the maximum quantity that the plants they grow will bear, and in a good many cases the amount given is more than calculated to promote a lengthy existence. The manure in question acts quicker, but is not so lasting as Standen's, which I find is the safest for plants of a delicate nature, and alike the best for such things as *Azaleas*, *Cytisus*, *Acacias*, *Clianthus*, *Pleromas*, *Statice*, and others with stronger roots than the generality of hard-wooded greenhouse plants.

REGARDING THE SOLID MATTER employed in making manure water, it used to be considered that nothing was so good as sheep droppings—an impression most likely to have arisen through the liquid made from this material being of a milder nature, and consequently less liable to do

mischievous in the hands of those who were not over-careful than when it was made from horse droppings, fowl's manure, or any of the strong concentrated manures, such as guano. These latter require to be used with caution, otherwise much harm is likely to result. Manure water that is made from horse droppings, with a little soot added, may be set down as better for general use than such as is made from the solid excrement of other animals. But in the amazing waste of manure so common in this country, we look after the solid, whilst often the vastly more valuable liquid excrement runs to waste. The urine from well-fed horses is immensely powerful, but even when highly diluted it is of too hot a nature for most pot plants; whereas that from horned cattle, diluted in proportion to the nature of the plants to which it is applied, promotes growth that distances anything I have ever obtained from any other fertiliser, liquid or solid. But in the use of this and other urines it is necessary to give a word of caution, if it is applied whilst fresh, or before it has become putrid, however much diluted, it will be likely to kill or injure the roots of the plants to which it is used. In summer the fluids in question sooner putrify sufficiently for use than in winter when the weather is cold; in the former season it will be in right condition when eight or ten days old; in winter it takes longer before the natural chemical change occurs that renders it fit for use. Allusion is often made to the uncertainty that follows a rule-of-thumb course of procedure in gardening matters, but until those engaged in the pursuit see the necessity for making themselves fully acquainted with the elements the plants they grow are composed of, with other matters bearing on the subject, and consequently know what to give in the way of manure, the cultivation will always be less certain than it otherwise would. Volumes upon volumes giving cultural details are written and read, but few seem to see the necessity for getting at the groundwork of cultivation—a knowledge of the constituents that go to build up the substance of plants. T. B.

INDOOR GARDEN.

PRIMULA OBCONICA.

THIS plant possesses the useful property of flowering perpetually when grown in a pot and kept under glass, and although it is not remarkable for brilliancy of colour or largeness of bloom, it flowers freely and is always gay. The approaching *Primula* conference will do much to bring into prominent notice a great many species and varieties of the *Primrose* genus, but we do not know of any which will compare with *P. obconica* in point of plentiful and continuous blooming and ease of cultivation. It has already been several times recorded in *THE GARDEN* that this plant has been known to flower for over twelve months without a break. Out of doors it thrives only when planted in a sheltered, sunny situation where the soil is sweet and moist, but unless in favoured localities, such as are to be found in southern counties, this plant is not to be recommended as a subject for out-door planting. It is therefore as a greenhouse plant and not as a hardy one that *P. obconica* is specially serviceable. It thrives best when allowed plenty of pot-room. When planted in a 7-inch or 8-inch pot with good drainage and a light loamy soil mixed with a little manure or leaf-mould, it forms a handsome well-furnished specimen similar to that here represented. It is of course healthiest in an unheated house or frame, except during severe weather; and we should think, judging by its sturdy accommodating nature,

that in the windows of dwelling-houses this species would prove quite at home and give much satisfaction. It may be increased by division of the crown, which is composed of a tuft of numerous growths, as in *P. mollis*; it may also be propagated from seeds, which ripen freely on cultivated plants. English-raised plants have given considerable variety as regards size and colour of flower, and it seems not unlikely that this *Primula* will be the progenitor of a useful race of perennial perpetual flowering kinds. It was introduced by Messrs. Veitch, through their collector, Mr. Maries, who found it in the interior of China. It flowered for the first time at Chelsea in 1880, when it was figured as *P. poculiformis* in the *Botanical Magazine* (t. 6582); this name, however, had to give place to that of *P. obconica*, which claims precedence.

WINTER-FLOWERING PLANTS.

THERE are so many plants which flower in autumn and winter that may be grown so much more easily when propagated early in spring and planted out in summer, that I have thought it desirable to mention a few of them, and at the same time to offer some practical instructions as to the kind of treatment which they require. Before I go further, however, it is necessary to say that the remarks hereafter to be made are intended to apply to such plants as are valuable for conservatory decoration. For this purpose there are no more useful plants than

THE *SALVIAS*; they are easily grown, and by cultivating a judicious selection of varieties they may be had in flower from October till February. The earliest to flower is *S. Pitcheri*, a kind which has long spikes of lovely blue flowers. In character it is herbaceous, and probably the hardiest of the whole family. Anyone having a sufficient number of old plants need not propagate young ones, as the old stools may be divided in May, and if planted out in good soil in a sunny border they will make good-sized plants by the autumn. Where, however, the stock is deficient, an old plant should be at once introduced into a gentle warmth to induce it to start into growth. When the young shoots have grown 4 inches long they may be taken off and propagated in the usual way. *S. splendens*, a wonderfully attractive variety, commences to flower in November, and if kept in a dry temperature of about 50° it will continue in flower for three months. *S. Bethelli* is more compact in habit than any of the others, but nevertheless, during summer, it should be allowed plenty of room in which to develop its side branches. It has rosy pink-coloured flowers that first appear in a globular head and then unfold in a pleasing way. *S. splendens* Bruanti is a dwarfier variety than the old *S. splendens*, and its flowers if possible are brighter than those of that kind. Its foliage has a Fern-like appearance. *S. Hoveyi* has flowers of quite a distinct purple colour, but it is not a plant that I can recommend. It is strong in growth and not a very free flowerer. *Mons. Issanchou* is an attractive variety both as regards flowers and foliage. Its habit, too, is good; it is undoubtedly the best white variety. *S. Heeri* resembles the old *S. gesneræflora*, but is more floriferous. Both are vigorous growers; therefore, only suitable for large conservatories, but they make a good display.

As to the management of *Salvias*, cuttings of them should be put in at once and brought on in a warm house, so that by the end of May they will have filled

4-inch pots full of roots. They should be planted out early in June in a warm but sheltered border, where the soil is fairly light and rich. They should stand 2 feet apart each way, and as they advance in growth they must be staked to support them and to prevent rough winds from injuring them. During summer they may want an occasional watering at the roots, but as regards root moisture in ordinary seasons they are pretty well able to take care of themselves. They should be taken up and put into pots not later than the middle of September, and kept in a shady, sheltered place for a few days.

PERSIAN CYCLAMENS.—Those who grow on year after year old corms of this *Cyclamen* cannot do better than adopt the planting-out system. Those who are favourably situated as regards climate may plant them out in the open; in less favoured districts it is desirable to devote a spare light in a pit or frame to them, in order to shelter them in cold, stormy weather. I know several who reside near the sea coast who plant them out early in June and pot them up again in September with the most satisfactory results. A rather light, sandy soil is prepared for them. Before being planted out, all the old compost

large specimens are required, it is best to deal with plants that are two or three years old. These should now be pruned into shape, and then they will have time to break into growth before planting-out time has arrived; when that time comes reduce the balls of soil about one half, and then proceed in the same way as is recommended for *Salvias*. Even young plants raised from cuttings now and grown on liberally under glass until the end of May, and then planted out, make useful material to occupy 6-inch pots during the winter. Lifting and potting should take place when the *Salvias* are moved. In a temperature of 50° this *Eupatorium* will flower for three months during the dark days of winter.

BOUVARDIAS.—I like to plant out a portion of the stock of this plant, especially such varieties as *Vreelandi* and *Hogarthi*, as much the largest plants are obtained in this way with a minimum amount of trouble; but the inexperienced should be told that the earliest to flower are those grown altogether in pots. Anyone can understand that lifting and potting must check growth considerably, but although they flower a week or two later, planted-out examples invariably give the largest heads of flowers. More-

over, a succession in many cases is desirable. For this purpose young plants are best when only moderate sized examples are required. No time should now be lost in getting cuttings rooted. Young tops strike pretty freely if placed on a good bottom heat and a bell-glass is put over them. *Bouvardias*, too, are easily increased by means of root cuttings about 2 inches in length; they should be laid on a pan of sandy soil, and just covered with the same description of compost. In other respects they want the same treatment as cuttings made of the shoots, except that a bell-glass is not necessary.

MAR.—Not many plants are so easily cultivated or more useful for winter flowering than these. If one has a few old plants to deal with, they can be grown on the planting-out system to a large size, and by striking a few cuttings now any number of medium-sized examples may be had in the autumn that will, if carefully taken up and potted, give plenty of flowers all the winter. We have just cut down our own stock of old plants which are in 7-inch and 9-inch pots. They will be bristling with young growth by the time when they are wanted out of doors. All the trouble they incur is giving them house room, and as the pots are full of roots plenty of water. Our stock of

cuttings, intended to make smaller plants, are already inserted and placed in heat; when rooted they will be grown on along with the *Salvias* until the end of May, when they will be planted out of doors.

HABROTHAMNUS.—In dealing with these it is necessary to have one-year-old plants, i.e., if any are required above the ordinary size; anyone in possession of such plants should now prune them back to a height of 2 feet. By the time they are to be planted out they will have started into growth, and then they may be dealt with in the same way as the others. A stock of smaller plants may be readily obtained from cuttings if put in at once and placed on bottom heat, and afterwards grown along with the general stock for winter flowering. No one will continue to grow the *Habrothamnus* in pots after they have given the planting-out system a trial.

BERRIED SOLANUMS.—It is unnecessary to dwell at any length on the treatment required for these, the details of their culture being well understood. If large specimens are wanted, a few old plants must be reserved for that purpose; get them together now, and after the berries are picked off then prune them



Primula obconica; flowers pale lilac.

is shaken away from their roots, and the bulbs are planted so as to just be buried under the surface; when planted in frames they require to be treated in the same way. The advantages of the planting-out system are that the root disturbance brings on an enforced rest that is beneficial to them. They rest during the hottest part of the summer, and are therefore prepared to start into active growth again as soon as conditions are favourable. These, in a general way, occur early in August, for I have seen *Cyclamens* in the middle of September with abundance of young roots and fresh-made leaves overlapping a 6-inch pot. Plants so managed and treated to a slightly higher temperature than that of an ordinary greenhouse after the beginning of November will begin to flower grandly early in the new year.

WHITE-FLOWERING EUPATORIUM.—Unless anyone has seen this plant treated on the planting-out system no idea can be formed as to what excellent growth it makes, and the heads of flowers are consequently much larger than when grown wholly in pots; the foliage, too, is much larger and of better colour than that of the most skilfully grown pot specimens. If

into shape, and then place them with those already mentioned, but at planting-out time Solanums should have the warmest position. Cuttings of them put in now will make useful plants for putting into 6-inch pots in autumn. J. C. C.

CELOSIA PYRAMIDALIS.

THE Celosias rank amongst the best of all annuals for pot culture. They may be grown to a height of 4 feet and as much in diameter. Two of the best known and most useful varieties are *C. aurea* and *C. coccinea*. The former is yellow or of that shade, the latter scarlet. They produce magnificent plume-shaped spikes of flowers, are both graceful and showy, and exceedingly well adapted for greenhouse, conservatory, or room decoration. I have seen them recommended for open-air culture, but I never saw them grown successfully in that way. They are easily raised from seed, and as they grow rapidly they become in a short time effective. Seed for the first lot of plants should be sown at once, and the plants from this sowing will be in full bloom by June. They will then remain in good condition for three months, and seeds, to produce plants that will come into bloom in October, and that will remain fresh and showy until Christmas or longer, should be sown early in July. Small stunted Celosias are not pretty; it is better to have half-a-score or a dozen handsome well-grown plants than some scores of poor ones, and therefore the seeds should not be sown thickly. Well drain two 6-inch pots and fill them with a light rich mixture of soil; let one kind be sown in each pot, and sufficient plants for every purpose will be sure to be produced. The seed should be covered about a quarter of an inch, and it will germinate in a temperature of 60° or 65°. The young plants will soon appear, and as soon as fairly up they should be kept quite close to the glass and light to prevent them from becoming drawn. This is important if bushy plants are wanted. A manure frame or low pit are good places in which to rear the young plants; as soon as they can be handled they should be lifted from the seed pot and be put singly into 2-inch or 3-inch pots. The compost for them now should be rich and sandy, and at all subsequent pottings a rich soil should be used, as they root freely and are great feeders. When newly potted they require shading for a few days from the sun and they should be placed near the glass as before. Until May and also until they are growing freely a pit in which Cucumbers luxuriate suits them admirably, as they delight in heat and moisture at first, but as the season advances they may be placed in an unheated house and with proper attention in the way of watering they will develop freely thus situated. Potting must not be neglected, and as soon as it is seen that they have filled one sized pot with roots they should be transferred to larger ones. From 3-inch pots they may be put into 6-inch ones, and from the latter into 9-inch or 10-inch ones, in which they may be bloomed; indeed, handsome specimens may be grown in 10-inch pots. As roots become plentiful abundance of manure water may be given with advantage, and in hot weather the greatest care must be taken that they do not suffer from drought at the root. Over-dryness checks their development quicker than anything, and it also favours attacks from thrips and red spider, but these do not readily get a footing on healthy free-growing plants. Until they come into flower they may be syringed frequently on fine days, but as soon as their plumes have become developed to any extent syringing should cease. The plants for late autumn flowering should be treated in the way just described,

but with this difference, that they may be raised and grown in unheated frames and require no artificial assistance in temperature until the end of September. Those who have grown Balsams well will find Celosias to succeed admirably under the same treatment, and of the two the Celosias are the most showy and useful, especially if a very feathery strain is secured.

CAMBRIAN.

Forcing the Laburnum.—Will some reader of THE GARDEN kindly inform me if the common yellow Laburnum can be forced successfully? If so, how? and is there any variety better adapted for forcing than others? I have heard that Laburnums are largely forced on the Continent on account of their graceful yellow flowers in early spring, and therefore any information on the subject will greatly oblige.—M.

*** "M." will find no difficulty in forcing the common Laburnum. I should recommend him to select the variety called Parksi or Watereri; they are much deeper in colour than the common kind. Trees with 2-foot stems and the same proportion of head are the best, as in that case the flowers are shown off to increased advantage. Plant them out in an exposed position and in not too rich a soil, and lift them every alternate year. As soon as they have completed their growth, cut round the roots at a distance of 1 foot from the stem with a spade; this will help to ripen the wood, and enable them to be lifted better for potting. When lifting, care should be taken not to disturb the soil round the roots, put them into pots or tubs in proportion to the size of their heads, making the soil about their roots firm. I find them to do best in a vinery started about the end of January. Slightly syringe them overhead till they commence to open their flower and leaf-buds. When in flower, remove them by degrees into a cool house. The blooms last about three weeks. After flowering harden them off, plant them out, tread the soil firm in order to induce fibrous roots, and prune back the following spring moderately hard. They will then make good flowering wood for next season.—A. CHAPMAN, Westonbirt.

SHORT NOTES.—INDOOR.

5466.—**Heating.**—I would suggest to "C. P." that slates covered with Cocoanut fibre would be preferable to brick-bats and turf; slates regulate heat better than anything I have yet seen used.—W. MORGAN, *Horsham, Sussex*.

Marie Louise Violet.—I quite agree with "D. T. F." regarding this Violet. I think it in every way superior to the Neapolitan, more especially for winter flowering. We have had good blooms of it all the winter, and have plenty now, while the Neapolitan has only lately commenced to flower, both being in the same pit. I find a good dressing of soot to be a wonderful help to them.—W. A. COOK.

—The Neapolitan Violet with me is not equal in any point, except in fragrance, to Marie Louise, which is a continuous bloomer. I am glad "D. T. F." (p. 218) gives it a first place, but I differ from him when he places Neapolitan next. In my opinion if a second is wanted, Marguerite de Savoie is the one entitled to that position. It has finer blooms of a deeper blue than Marie Louise, but it is not quite so free flowering or continuous. Comte de Brazza has not come up to my expectations.—J. R.

Eucharis mite (A. B.).—The leaf stem you inclose is unquestionably attacked by bulb mites (*Rhizoglyphus echinopus*); their presence quite accounts for the unhealthy condition of the plants. The mites are probably attacking the bulbs and roots as well as the leaves; if they are, the bulbs should be unpotted and any decayed parts removed; they may be soaked for an hour or so in 1 gallon of water with quarter of an ounce of sulphide of potassium dissolved in it, which has been recommended as a means of killing this mite. Be careful not to leave any of the infested soil about in the potting shed, but burn or bury it; any water used in cleaning the bulbs should be thrown down a drain.—G. S. S.

—(*Ellisboudon*).—I have carefully examined the Eucharis stem and leaf forwarded, but can find no insects on them, or any sign of their having been injured by insects; they are both wanting in the usual amount of green colouring matter (chlorophyll), but their outer skins are not broken. I cannot suggest the cause of their unhealthy appearance, unless the plant has been attacked at the bulb by the bulb mite, which is a very common pest among Eucharis plants. The bulb mite is a very small creature, and looks much like a grain of sand, but if looked at through a pocket magnifying glass it will be at once distinguished.—G. S. S.

Blotched Pelargonium leaves.—What is the cause and remedy, if any, for the white blotches which appear on the leaves of zonal Pelargoniums? The plants look as a rule healthy, but the newer leaves seem to come spotted.—W. E. G.

*** At present we are unacquainted with the cause of the well-known white blotches which sometimes appear in abundance on Pelargonium and Geranium leaves; nor is it certain whether the disease starts from an external or internal centre. The microscope at present reveals nothing. A renewed search over and within your leaves has been quite fruitless, although the examples sent seemed to promise good results.—W. G. S.

WORK DONE IN WEEK ENDING MARCH 9.

MARCH 3 TO 9.

THE severity of the weather continues, and we had other falls of snow on the 5th and 6th; consequently my daily notes of work done are so meagre, that it is not worth while to give them under separate dates. There has been one redeeming feature in the weather, and that is bright sunshine for several hours on the 4th, 7th, and 8th, a great boon for our early forcing and to indoor gardening in general; but as regards its effects on kitchen garden green stuff the injury is great, as each night there has been from 6° to 14° of frost, so that what with sun and frost in combination, Brussels Sprouts, Kales, and Broccoli look as if they had been boiled—at any rate, they might as well be for any good they will be; and as all the grumbling in the world won't restore them, we are taking steps to get supplies of other vegetables as early as possible. Asparagus and Seakale we are preparing in quantity; of Cauliflowers and Coleworts another sowing has been made in heat, and those sown a few weeks since have been pricked out in a pit; and a veto has been put on the too free use of Carrots, Parsnips, and Jerusalem Artichokes. Turnips there are none, but the greens from those sown after the drought of last autumn will presently come in useful, as they are not a bit damaged; and yet the Swede greens on the farm are killed, which is another loss, as even when other green vegetables have been abundant we have found these highly appreciated by way of a change. Spinach, too, is scarce, and in this frosty weather none can be gathered. We made a sowing of summer Spinach when there were two or three days' cessation of frost early last month, and another sowing will be made the first day that is really fit to put in seeds; meantime, we are pushing on with whatever outside work it is possible to do—all our Pea sticks and stakes have been pointed, all mulching and carting of manure done. Of soil digging and carting we have a quantity on hand, but, unlike the manure, the frost stops the way here. The sun, by melting the snow, has favoured our shrub, Holly, Laurel, and Yew-clipping and knifing, a large quantity of which work we have to do annually, and being nearly over our hands will be at liberty for seed-sowing, planting Potatoes, dressing Vine borders, &c., as soon as the weather is suitable. Another very necessary piece of labour has this week had special attention, namely, the clearance of our refuse heap; by first burning up whatever would burn, and the remainder has been carted out as dressing for Grass land. The ash from the fires we preserve and use for kitchen garden crops; for Onions, Leeks, Turnips, and Carrots I have found it an excellent fertiliser. Work in the houses has been much the same as for the last two or three weeks past. Early Vines now take up considerably more time in the way of tying down and stopping the shoots; they are just coming into flower, and this will therefore be the last pinching they will have till the Grapes are set, not that I think that stopping whilst they are in flower does much harm; but it is but reasonable to suppose that the check causes a certain amount of it, and, therefore, it is well to avoid it. As regards Muscats, which are shyer of setting than Hamburgs, we scrupulously avoid pinching a single shoot when they are in flower. Now that they are in flower, during this severe weather 60° will be our night temperature, and by day 5° higher, and with sun-heat at closing time 80° to 90° won't be too much. Hamburgs always set freely without artificial aid, but somehow one has got accustomed to tapping the rods with a view of dispersing the pollen, which, if it does no good (it may in cold, dull weather), does no harm,

and there is a feeling of satisfaction that the proper thing has been done. Early Muscats are not quite so early, but they have been stopped the last time till they have set, and the shoots are gradually being spread out and tied to trellis-work that has to be done very carefully to avoid breaking them off. Our lowest night temperature for Muscats when in flower is 65°, but if these severe frosts continue 60° will satisfy us, and if mild the temperature will be raised in proportion. My experience hitherto has been that a good set of Muscats is best assured by a temperature higher rather than lower of the figures here given, and particularly during the day, which ought not to be less than 10° above those named for the night, and, of course, more with sun-heat. Rubbed off the smallest fruit of Peaches that had set in clusters, and pinched such shoots as were not needed for laying or tying in to trellis at the second joint from the fruit. Other thinning will be needed a few days hence, soon as it can be seen which fruit is likely to swell. Our early house is rather low and dark, so that some of the wood does not get well ripened, and this, I think, must be the cause of much of the fruit turning yellow and dropping off when about the size of large Peas, and it is on this account that we postpone thinning the fruit, except that which sets in clusters, till it is approaching the stoning period. Our second house is now in full flower, and the sunshine has done wonders towards a sure set of fruit. All the aid in the way of artificial fertilisation they have is a shake of the trellis at about 10°, and again at noon, or, indeed, at any time when the atmosphere is driest. Potted Calanthes and a few other stove plants, and potted off sundry kinds of bedding plants, and put in a quantity of cuttings of various kinds. Pricked off into boxes and pans seedling plants of *Salvia argentea*, *Solanum robustum*, and potted singly seedling plants of *Acacia lophantha* and *Chamaepeuce diacantha*. Split up the roots and repotted herbaceous *Lobelia*s, and placed in frames protected from frost. Brought out from their winter quarters all roots of *Dahlia*s and such kinds as were needed to propagate from boxes and placed in warmth, the remainder being packed thickly together in leaf soil in cold frames, from which frost is excluded by using mat and frigi-domo coverings, and here they will remain till planting-out time.

HANTS.

FRUITS UNDER GLASS.

FORCING ORCHARD HOUSE.

THE fruit in many early houses will now be set and fit for thinning, an operation which should be taken in hand as soon as the remains of the flowers have fallen and the trees have been well cleansed with the syringe. In the removal of the superfluous fruits from Peaches and Nectarines, the general if not entire occupants of this structure, two points should be held in view. The finest and most promising on the upper sides of the shoots should always be retained, as they naturally occupy the most favourable position for colouring to the apex when ripening, and those nearest home should be selected at the final thinning to admit of shortening back the shoots when the crop is safe. The great drawback to fruit from pot trees generally, and early forced pyramids and bushes particularly, being want of colour, too much attention cannot be devoted to this matter of thinning; therefore, when a good set is secured, no time should be lost in reducing triples and rubbing off every pendent fruit at the outset, as it is quite certain they will not be wanted. Having decided upon the number of fruit each tree is to carry to maturity, leave ten to fifteen per cent. to allow for dropping, and, no matter how tempting the others may look, remove them before they have time to jeopardise the whole by becoming a useless strain upon the trees.

Disbudding.—If the trees have been well ripened and not over-forced, the operations of thinning and disbudding may be carried on together, as there will be no gross wood to run away with the sap before the flowers open. The principal points to be considered in disbudding a pot Peach tree are symmetry and an even distribution of the sap from base to summit without producing a crowded mass of foliage in the centre, as this would shade and affect the colour and

flavour of the fruit. The better to secure these conditions, having shortened back the trees to keep them within bounds, select a good break from the base of each bearing shoot and allow it to elongate, as this will form the fruiting wood when that which is now carrying the crop has been cut away in the autumn. Also allow another young growth to start from the point of the bearing wood, and rub off or pinch all intermediate growths to form spurs when they have made three or four perfect leaves, more or less, according to the space at command and the strength or weakness of any particular part of the tree. When the shoots at the extremities have made 9 inches to 12 inches of growth, pinch and repinch as the season advances, for the twofold purpose of throwing strength into those which have started from the base, and at the same time to increase the size of the fruit. Let pinching and thinning be performed piecemeal. Always commence at the apex of the tree and work gradually downwards, as it is by this constant attention to gross shoots that weak ones near the base, which, by the way, rarely require stopping, can be strengthened.

Top-dressing, or mulching, and generous feeding with warm diluted liquid, are of course important items in successful management, and the syringe will now play an important part, as trees confined to small pots cannot be expected to produce fine fruit or remain healthy where daily details are neglected. The best time for the present to water forced trees is early morning, but later on, as the sun gains power and a greater quantity of this element is needed, a second supply may precede the afternoon syringing. This, however, is a matter which the person in charge of the house can best determine, as no one can lay down rules for watering; but one thing is certain, the trees must never feel the want of it, and the more frequently the food is changed the better will be the progress. Soot water, diluted liquid from the frame ground, and guano water occasionally or alternately, weak and often, are perhaps the best stimulants that can be applied, and soft water should always be used for application through the syringe.

Ventilation.—As days increase in length and the sun gains power admit a little air early on fine mornings, or as soon as the temperature begins to rise, and gradually increase it until 70° is reached on bright mild days. Allow this to be the maximum as long as the sun will support it, then gradually reduce, and finally close with plenty of atmospheric moisture to swell the fruit and foster fresh healthy growth of wood and foliage. As fire heat will still be needed, warm the pipes in time to favour the admission of a chink of night air, and allow the temperature to range from 55° to 58° through the hours of darkness. If Strawberries have been introduced, let them occupy a light airy place near the glass, keep them well watered and syringed, and fumigate on the appearance of the first green fly.

Late houses.—The trees in this compartment, owing to a long continuance of dark wintry weather are unusually late, but they are thickly set with bold flower-buds and promise well. If the house is fairly furnished with hot-water pipes, the blossoms may now be encouraged to expand, as there will be plenty of artificial heat at command when the time arrives for setting the fruit. If, on the other hand, the penny-wise-and-pound-foolish system of trying to dispense with it is still in force, the flowering stage must be retarded by abundant ventilation until danger from spring frosts has passed away. Spring frosts are not, however, the cold house Peach grower's only enemy. We have cold, dark, foggy days, when the external temperature hardly touches 40°, and the sun never reaches the earth. Weather of this description is often more destructive than sharp frosts followed by bright days, as the blossoms never open properly, the pollen becomes pasty, and the delicate petals perish all for the want of a little steady fire heat. Hot-water pipes and small conical boilers are now cheap enough; they are quickly set, and if we may judge from present appearances there is yet time for them to do good service before we have done with this protracted arctic winter.

CUCUMBERS.

When March comes in the winter Cucumber grower begins to congratulate himself on having got

over his greatest difficulties. This year of Grace 1886 is, however, an exceptional one, the present month having come in with one of the deepest falls of snow and the most violent storms of ice-laden wind we have experienced for many pears. At the present time the external temperature stands at 26°, snow lies deeply on the ground, and the sun, when it does break through the gloom, seems to have lost its power. Thus situated, our mode of procedure must be steady, as it is of no use trying to forge ahead with the elements dead against us; indeed the wisest course will be for the present to hold the little we have already gained and wait for better weather.

It will, of course, be necessary to keep the fires constantly going to maintain anything like a growing temperature by day, and to counteract the baleful influence of so much dry heat by damping the floors and other surfaces when the houses are warm enough to admit of the introduction of atmospheric moisture. But this constant use of water, it must be borne in mind, is not the best, if it is not positively the worst, mode of producing moisture, as plants so treated soon become flabby, the fruits refuse to swell kindly, and mildew as well as spider attack the foliage. Moisture at any cost, however, must be constantly present, not in the form of steam from over-heated pipes, but from well-worked and frequently turned fermenting material placed in the pits, when it will keep the roots in action and throw up a never-ending supply of invigorating food which will keep the old leaves clean and healthy until new growths come on to take their place. The materials for producing this warmth and moisture are at every man's door, as those who cannot obtain Oak leaves can secure tan; but something more is wanted—rapid escape must be prevented and fire heat economised by the use of external covering placed over the glass roof through the hours of darkness. Suitable materials for this purpose are now plentiful enough, and can be obtained at a cheap rate. The best, however, are the cheapest provided they are properly cared for and put away dry when bad weather has passed away and covering is no longer needed. The old-fashioned mats are expensive and untidy. Frigi-domo is an excellent non-conductor, and can be obtained in any reasonable length and width. Canvas is suitable for attaching to rollers, and, being light, it can be used well into the summer as well as through the winter. But the best all-round covering material I have yet met with is a stout oiled canvas, made up into sheets of any size and furnished with short strings let into eyelet holes, by means of which it can be made secure when mats are skylarking in windy weather.

MELONS.

Never, perhaps, have the many advantages which the pot system affords been so remarkably prominent as they are this season. When our first dozen seeds were sown singly in small pots, frost and snow prevailed; when the plants were placed on the miniature mounds or cones formed in the centres of the fruiting pots, a cold, black, frosty fog hung over the earth and so completely intercepted every ray of sun, that we rarely saw the external thermometer registering more than 35° Fahr. Another heavy fall of snow has fortunately lightened the atmosphere, and although we have registered 21° of frost, and snow cutting has formed a heavy item in early March work, short bursts of sunshine now reach us every day, and we are truly thankful for this earnest of the splendid summer which is to follow a long dreary winter. Our early Melons have, however, had a very poor time, and but for the benefit which we derive from a steady bottom heat of 80° to 85° playing about the sides and up to the rims of the pots, it is questionable if they could have survived. As it is, they look weak and require a deal of tying and coaxing to keep their heads to the planet which the Melon loves so well. Knowing how difficult it is to get these early-sown plants to go on well, I have always suggested small compartments for successional crops, a constant supply of fermenting material for assisting and softening dry fire heat, sowing seeds once a fortnight, and throwing away early batches of plants in the event of their becoming spindly or pot-bound, as later sowings invariably produce better fruit, if they do not beat them in point of earliness. But assuming that modern appliances have enabled Melon growers to set the elements at defiance

and the first set of plants are going on well, I would advise patience, particularly through the night for the present, otherwise the vines will be long-jointed and the foliage will be weak and flabby and quite incapable of facing the sun when the plants begin to feel the strain of the crop; and stout healthy leaves are so important, that highly flavoured fruit cannot be secured without them. When growing freely and surface roots have found their way to the extremities of the pots, good fresh loam, rather liberally enriched with bone dust, may be used for top dressing, little and often from time to time until the fruiting pots are full of solid soil and roots and the vines are strong enough for stopping. Many people stop their plants when they have covered two-thirds of the allotted space, but pots well filled with roots really should be the guide, as the check predisposes them to throw out side shoots well furnished with female flowers, which, under rather drier treatment, invariably set well. Indeed, some Melons, notably the Burghley strain, still full of the true old Egyptian blood, show and set so early and freely, that I have frequently secured heavy crops without pinching out the leaders at all.

Successional crops.—Where Melon houses divided into small compartments are used for Cucumbers through the winter, a second should now be ready for the reception of another set of plants whose fruit will follow closely on the heels of the first; that is, provided they are grown in 12-inch to 14-inch pots placed on stout brick pedestals or inverted Rhubarb pots, for the twofold purpose of preventing settling and strangling the plants, not unfrequently the cause of canker at the collar, and at the same time to admit of turning and renovating the plunging or surrounding fermenting material whenever the bottom heat touches 80°. If it is inconvenient to destroy the Cucumber plants in this second compartment, the second set of Melons may be grown as duplicates in the first house until they are 2 feet or more in height, whence, securely trained to sticks, they can be transferred to their fruiting quarters as soon as the pit is ready for them. Free-fruiting, green-fleshed varieties are generally preferred by growers and consumers. Scarlet sorts, of which Blenheim Orange is one of the best types, do well on kerbs in Pine stoves, and give excellent crops of highly-flavoured fruit where head-room admits of training on wires strained over the passages. The pots cannot be placed too close to the hot-water pipes; if on them so much the better, provided evaporating pans filled with stimulating liquid intervene for giving moisture to the crock roots. When these are not at command each pot should be placed in a shallow tray made of wood for the reception of a few lumps of turfy loam and the retention of liquid when feeding becomes necessary. Scarlet Melons are good in proportion to the amount of strong sun and fire-heat which they receive, and for this reason the earliest sowings should not be ready for planting out before the beginning or middle of March.

The frame ground.—Hitherto the elements have been sorely against pit and frame culture, but gardeners who are obliged to depend upon fermenting materials alone for giving bottom heat, or perhaps for producing their earliest crops of fruit, should now have a good body of this in course of preparation. If a pit efficiently heated with hot water is not available for raising the plants in, a single light frame placed on a well lined hotbed will answer very well, provided airing, covering, and hourly details receive proper attention. Seeds sown singly in small pots or, better still, on small squares of turf when the fruiting bed is made up will produce strong, stocky plants by the time the heat has subsided and the hills are ready for their reception. If the beds are intended for frames, they should be just large enough to carry them, as new linings can then be placed close to the roots when the fruit is swelling and ripening. When the heat in the bed has subsided to 85°, let it be firmly beaten and levelled, cover the centre with thin sods of turf, grass side downwards, place a few drain pipes across, leaving their ends open to prevent the centres of the hills from absorbing rank steam or burning. Use good, stiff, friable loam intermixed with old lime rubble or broken brick for forming the hills or ridges, raise them to the full height at

once, and leave a chink of air on each light until the compost is warm enough for planting. When the trial thermometer indicates 80° transfer the plants, if in turf, with a hand fork, keeping the collars well up above the surrounding level, as earthing up the stems is one of the most common causes of canker, and water the roots home with water at a temperature of 85° to 90°. If the good old-fashioned hollow, or McPhail frames are used, external linings may for a short time be dispensed with, but so essential is a sharp, steady top and bottom heat, and so fickle is our climate, that it is questionable if this important protection should not be built before the hills are planted. Good external covering also plays an indispensable part, not only in spring, but throughout the summer, as it rarely happens that the hottest days are not followed by cold nights when some dry, non-conducting material is of immense value in preserving the temperature and moisture in an equable and steady condition.

Since the preceding lines were written I have read an excellent article by "J. C. B." (p. 216) on covering, and so thoroughly are we agreed upon this subject, that I cannot forbear directing special attention to his remarks. In his enumeration of covering materials he mentions "rot-proof scrim," which should be a great improvement upon straw or bast mats, to which I have already offered an objection; but whether the rot-proof scrim is identical with the oiled canvas of which I have also written, I am unable to gather. Many years have passed since we have had such a continuous strain on our resources or contracted such heavy bills for fuel, and although we are now entering the second week in March, the external thermometer is registering 24° of frost, our feathered friends are dying, railway trains are snowed up in the north, and famished travellers are driven to desperation. A visitation of this kind affects all classes, but, barring the poverty-stricken and hungry, none feel it so quickly and acutely as the horticulturist, who spends two-thirds of each night in doing battle with the elements. The modern heating apparatus is, of course, a host in itself, but it cannot be applied to every structure, and if it could, the arid atmosphere which it produces, often at great cost, would justify us in economising fuel as well as its exciting influence by the use of wet-resisting covering that will keep out several degrees of frost, and at the same time prevent the escape of moisture, so essential to the culture of a tender exotic like the Melon.

W. COLEMAN.

Eastnor Castle, Ledbury.

Spring-flowering Cyclamens.—

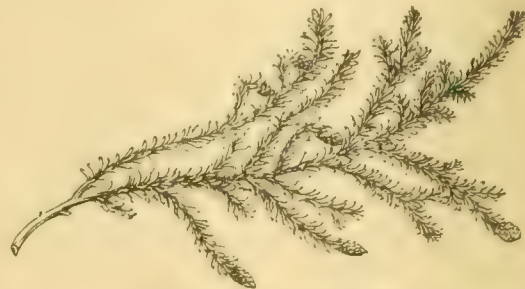
Nothing well can be prettier thus early in the year than well-established masses and spreading groups of hardy Cyclamens as seen nestling here and there amongst the mossy stones of a sunny, but sheltered, rock garden. *C. Atkinsi* and its rosy variety are two of the best and most floriferous, especially so the type with its short white crimson-blotched flowers. *C. ibericum* is also well in bloom on a sunny border, but in pure colour nothing approaches *C. Coum*—or *C. vernum* as it is sometimes called—as the sun catches its petals, and gives them a brilliancy like stained glass. All these hardy Cyclamens make pretty pot plants in a sunny frame, but in most localities they are perfectly hardy on dry rocky banks exposed to the sun. They like a well-drained position, and do not like to be often moved. In some gardens they bloom profusely and seed very freely, so that it is easy to rear seedlings by the hundred, and there is in this way always a chance of getting a distinct or superior variety. In planting the bulbs do not place them too deep below the surface. Some of the finest clumps, rows, and masses of these plants I ever saw had their great tubers half exposed alike to summer's sunshine and to winter's storm.—F. W. B.

TREES AND SHRUBS.

THE HEMLOCK SPRUCE.

(*ABIES CANADENSIS*.)

ALTHOUGH this Canadian Conifer cannot be ranked as a timber tree, still its gracefully irregular form and habit of growth, pendent plume-like branches, and above all its light, rich, silvery-green foliage places it in the first rank as an ornamental tree. No Evergreen, whether tree or shrub, can excel this Conifer for richness of foliage or beauty of outline, and to see it during



Coning branch of Hemlock Spruce.

spring or early summer when the young, tender, drooping shoots, of a lively yellowish green, contrast so finely with the dark sombre green of the older foliage, forms a combination that for pleasing effect is certainly hard to match. An erroneous opinion is, however, fast gaining ground that the Hemlock Spruce is not suited for the climate of Britain; even Loudon and Michaux have little to say in its favour, while, as Mr. Hovey, of Boston, some time ago remarked English nurserymen have generally followed suit by regarding the tree in a similar light. That it is we have here no such specimens as

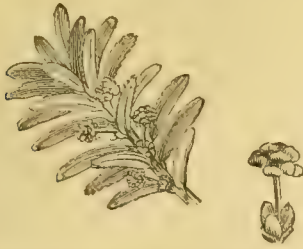


The Hemlock Spruce (*Abies canadensis*).

recorded from "the far West," and equally true is it that this Spruce will not flourish and put on its best garb when planted anywhere and anyhow with us, no more than do the majority of foreign importations; but treat the Hemlock Spruce in a rational manner and as its nature requires, and it will ere long be found out that few trees are more amenable to cultivation, and perhaps none repay more fully the bestowal of a little extra care and attention at the time of planting out. In support of these statements we will now record a few examples

of the growth of *Abies canadensis* in this country.

At Chatsworth, in Derbyshire, there are numerous fine specimens, ranging from 25 feet to fully 100 feet in height; while in Perthshire, trees of from 40 feet to 80 feet are not uncommon. Again, at Weybridge, in Surrey, there are several beautiful and thriving groups of the Hemlock, these being, perhaps, the most luxuriant and fast growing of any in the country, although nearly approached by the fine specimens in Norbury Park, near Dorking. Trees from 30 feet to fully 40 feet in height are also to be seen in the fine collection of Coniferae at Hafodinas and at Eaton Hall, in Cheshire. I was particularly struck by the fine, healthy specimens dotted over the grounds, several bearing large numbers of cones. Growing in deep peat bog, that was



Fallen flowers of Hemlock Spruce; detached part natural size.

thoroughly drained and prepared some time previous to planting on Churchhill estate, in the north of Ireland, are, however, some of the most luxuriant, well-furnished specimens that I have ever seen, the healthy appearance of which indicates but too forcibly that both soil and situation are well suited to the perfect development of this handsome Conifer. Numerous other instances of the luxuriant growth of *Abies canadensis* might be adduced, but sufficient have already been given to show that the commonly accepted opinion regarding the non-fitness of this tree for our climate generally is simply absurd, and not borne out by the testimony of the trees themselves.

In its native country, North America—Canada and the New England States—the Hemlock Spruce constitutes vast unbroken forests, although



Female cone, fruit cone, scale and seed of Hemlock Spruce.

much of the original woodland has been broken up and denuded of its fine timber by the advance of civilisation. We are told by Michaux that "it attains the height of from 70 feet to 80 feet, with a circumference of from 6 feet to 9 feet, and, judging from the concentric circles of the wood, would require two centuries to attain such dimensions."

A moist, deep, rich, but light soil and sheltered situation are its chief requirements when grown in this country; under such circumstances it thrives vigorously and forms a most ornamental, rather broad-headed, specimen tree. The roots enjoy an uninterrupted run in light, sweet soil, such as sandy peat, leaf-mould, or porous gravelly loam, but it seldom succeeds well or luxuriates in a degree necessary to give a true idea of its beauty when planted in stiff soils, of whatever

composition, and in high-lying situations. Where I have noticed this Spruce doing best—growing fastest and appearing most healthy—is in clear open spaces either within the woodlands or along the margins thereof, but invariably where shelter on all sides is provided, and, of course, with suitable soil as above described. In an old mixed wood on Sir William Verner's estate in Ireland, patches of about from 50 yards to 100 yards in diameter were cut down, the soil thoroughly prepared, and, along with many others of the new and rarer Conifers, replanted with numbers of this Spruce, and, I am glad to add, with the most promising results, as the rapid growth and deliciously green and abundant foliage now clearly shows. The soil was, over the whole woodland, deep peat bog, such as supplies the natives with fuel, but it was well relieved of superabundant moisture by careful and efficient drainage, and improved, at least where the choicer trees were planted, by a liberal admixture of fine gravelly loam and road-scrappings. With such surroundings as these the Hemlock Spruce, in my opinion, does best and develops its true character as seen in its native wilds. Planted as a lawn tree, it is, however, seen to best advantage, but should be distantly surrounded, on at least the most exposed sides, by other trees of more hardy constitution and that are better adapted for withstanding the rough and prolonged storms of our island generally.

The timber grown in its native country is not considered of great value, especially for outdoor purposes, although when kept constantly dry its lasting qualities are increased in a considerable degree. Few trees here, in Britain, attained neither age nor size at which the wood could be considered as mature, but specimens that have come under my notice might well be reckoned as second class in the Pine list.

The late Mr. Speed, gardener at Chatsworth, who had unusual chances of observing the tree and testing the quality of the wood, reported the latter as hard and heavy.

The bark is much used in America for tanning purposes, and realises about 15s. per ton.

The slender, pendulous branches are somewhat flat and spreading, with numerous linear, flat, obtuse leaves of from one-half to three-quarters of an inch long, of a vivid green on the upper surface, and with two silvery stripes beneath; cones oval-shaped, less than an inch long, by three-eighths of an inch broad, and pendulous on the extremities of the branches. When fully ripe, they are of a pleasant russetty brown, which, coupled with their symmetrical shape, imparts to the tree, when in full fruit, an appearance as unusual as it is desirable.

A. D. WEBSTER.

Prunus Myrobalana as a hedge plant.—

For years I have been looking out in THE GARDEN for a notice of this plant, and I am pleased to see it mentioned by "J. S." (p. 178). I have used it for years as a fence plant, and I know of no stronger, surer, or quicker hedge plant. It does not seem to care much what soil it has, and, like the Jerusalem Artichoke, gives a result in any soil in which White Thorn and Black Thorn would starve. A friend always keeps a small nursery of it raised from cuttings made of the stout shoots about the size of one's finger, cut up into lengths about 12 inches long, and put in rows like Rose cuttings about October. These furnish him with fine, healthy well-rooted plants, with which he has the gaps in the White Thorn hedges on his estate mended, for it will grow well in the gaps where the White Thorn has died out without going to the trouble of cutting down the bank and rebuilding. I planted a bed of it many years ago in an old orchard in the soil very much exhausted. It grew well, but has been kept close cut. Two years ago I wanted

to mend a Black Thorn hedge on the top of a bank, and I took up a few of the plants out of this hedge and stopped the gap with it; the following summer they sent out shoots 6 feet long, and this year the stems have grown as thick as my arm. In its young state ground game are very hard on it, and sheep and all cattle seem fond of it; therefore it is necessary to protect it for a year or two, which, if done, results in its forming a formidable fence that will keep any cattle from straying. It requires to be cut down close the first season at planting and cut back to 6 inches the second season, and then you will have as thick a hedge as you can wish treated in the ordinary way. If closely pruned, it becomes almost impetrable.—H. D. PALMER, *Nayland, near Colchester.*

THE FOO-CHOW FIR.

(*ABIES FORTUNEI*.)

It would certainly be interesting to know the whereabouts of the few British specimens that have been able to survive our winters, the conditions under which they are most successfully grown, and whether or not either male or female cones have been produced in this country. Judging from the way in which other Chinese trees succeed in this country, it is not at all improbable that the *Abies Fortunei* would do well in some of the warmer maritime parts of England and Ireland, and if so, it would well repay cultivation, being, perhaps, the most distinct, certainly the most interesting, of the semi-hardy Conifers. Perhaps some of your readers to whom the tree is known will favour us with the dimensions and any other points of interest of specimens growing in this country.

It may be well to point out that the cones of *Abies Fortunei* are not, as shown in THE GARDEN (p. 150) and taken from Lindley, pendent, but decidedly erect. This upright growth of the cones, coupled with the non-persistent character of their scales and broad sabre-like leaves, points out that the tree is far more nearly allied to the Silver Firs than to the Spruces, with which it has been placed. A. D. W.

BOOKS.

PLANTS OF THE RIVIERA.*

THIS is one of the most attractive books, illustrating local floras, which have appeared amongst us, and we congratulate the author as well as the firm who are responsible for the beautiful chromolithographs, not to speak of the publisher, upon it. Mr. Bicknell claims a modest position for it, especially in relation to Mr. Moggridge's well-known "Contributions" to the flora of much the same district; but he might, we think, without presumption have made larger professions. He has not, indeed, given us, as Mr. Moggridge did, a selection of the rarer and more botanically interesting plants of the neighbourhood, for his 82 plates include such well known ones as *Scilla bifolia*, the common *Hepatica*, and the common Dog's-tooth Violet. But he has admitted the public to share in the results of the studies of flowers in which he has spent a considerable part of the last four or five years, and which have been carried on evidently in a loving, reverent spirit, which is worthy of all praise. Not that there is any want of scientific accuracy, so far as we have examined his descriptions; and any special feature in the organs of the plants described has been illustrated with careful detail. But his labour has been a labour of love, literally speaking. He has watched the living flowers in their habitats, gathered and brought them home, so as to draw them while still unwithered, and, in doing so, grouped them in his beautiful plates with an artist's, at least as much as with a botanist's, eye. In respect of careful exactness of drawing, few more successful results can be

* "Flowering Plants and Ferns of the Riviera and Neighbouring Mountains." Drawn and described by C. Bicknell. Trübner and Co., Ludgate Hill. 1885.

pointed to in any recent work than (to make selections where all is good) the plate which contains the three *Scillas* (*bifolia*, *hyacinthoides*, and *italica*) or the group of *Cytisuses* on plate 13. Perhaps, indeed, in some few instances, Mr. Bicknell would have done better to think less of artistic grouping and of covering his paper, as some small measure of confusion in respect of specific characteristics may have resulted from this cause.

The chief fault we have to find with the book, as a whole, is as to the principles on which selection has been made. Mr. Bicknell, indeed, tells us that if this volume, as we confidently hope will be the case, is favourably received, a second will follow it. But, whether this is so or not, would it not have been more satisfactory to have had some of the genera more fully illustrated, especially when the region which he has taken in hand is rich in specimens? For instance, on the very first plate of all which is devoted to *Anemones*, two, and two only, are represented—*A. trifolia* and *A. hepatica*; whilst *A. fulgens*, with its most interesting varieties of form, *A. coronaria*, in which the Riviera used to be, and probably still is, exceptionally rich, and all those natural hybrids of which Mouans, near Cannes, is the supposed centre, but which are to be found, we believe, as far east as Antibes, and probably in many other less frequented localities, are altogether passed by. So, too, his instalment of the *Narcissus* family is but a scanty one, although he is able to tell us of treasures past and gone, through the rapacity of professional and the thoughtlessness of amateur collectors, as well as of those still existing in the more out of the way districts which he has explored. His *N. remopolensis*, let us observe, is, we venture to think, after much observation and with all respect to his friend, Signor Panizzi, to whom the book is gracefully dedicated, only a variety, the result of soil and situation, of the ordinary *N. tazetta*, every possible intermediate form being discoverable by a little pains.

But we must not be led away with these interesting inquiries in our notice of a book, which in a rather marked way abstains from these speculations, and devotes itself to recognised facts.

We have one more remark to make. Mr. Bicknell pays little or no attention to the cultivableness here in England of the plants which he describes, but amongst those which he has selected are several which readily adapt themselves to our climate, and yet are but little known in English gardens. We would instance *Leucocyma nicæense* (not *nicæense*, by the by, as it is printed), which, at least in the south of England, flowers and bears seed in the open air, and is a gem of the first water. *Scilla italica* is by no means as common as it deserves to be with us, nor is *Crocus medius* or *Tulipa Celsiana*, all of which easily make themselves at home here.

The book, we must add, is very well arranged in respect of type and division into paragraphs and such as this. Each plant tells its own tale perspicuously, as indeed a book of its calibre ought. It may seem ungracious to make much of shortcomings where there are so many indications of care and accuracy, yet a more watchful supervision of the letterpress would have prevented a good many undesirable mistakes—as of *chesnut* more than once, *annua* instead of *annua*, *nivens* for *niveus*, *stricta* where it ought to be *striata*, *Alyssum* for *Alpium*, and others of the same kind; and since Mr. Bicknell thinks well to give us the meanings of the names adopted for the several genera, it is to be regretted that he did not furnish us with something better than the very faulty interpretations, which in some cases are current; and he will not be offended at our re-

minding him, if his own Greek has grown rusty amongst his fascinating pursuits in the Riviera, that in the case of the Greek accents with which he favours us, the circumflex is more than a decoration to a vowel, whether long or short, and is generally supposed to suffice for a single word without the addition of a second accent.

But these are minor blemishes. We commend the book heartily to those of our fellow countrymen who in increasing numbers make the Riviera their home for the winter, as well as to botanists of every grade of scientific attainment, who will, we are sure, thank us for calling their attention to it, if as yet unknown to them. S.

GARDEN DESTROYERS.

BIRDS AND HOLLY BERRIES.

IN this neighbourhood (Tunbridge Wells) there are a great many Hollies which have mostly fruited this season in a wonderfully prolific manner; but here, as with "Veronica," the birds, as far as I can judge, have left the berries alone. Some of the trees are now losing their berries, which may be found lying thickly on the ground beneath the trees. May not this be the case with your correspondent's (W. A. Cook) trees, which seem to have somewhat suddenly been deprived of their berries? This would also account for some of his trees still bearing their crop of fruit, those in the sheltered situation being earlier trees. Just before Christmas I and some friends came across a Holly tree between Frant and Bayham Abbey which was so loaded with berries, that there were but few leaves visible. The tree was some 40 feet high, and with the sun shining on it, and contrasting as it did with some Firs which grew close by, it formed a most beautiful and striking object. We all agreed we had never seen such a Holly tree before. May not the reason for the berries apparently not having been touched by the birds be owing to their great profusion? If the birds only took the amount they would in ordinary winters, such numbers would hardly be missed. Again, although the winter has been, or I should say is, a very long one, for we seem (March 8) to be no nearer the end than we were at Christmas, there has been little intense frost in this neighbourhood, so that the birds have had chances of other sources for food, and most trees and shrubs bore a good crop of fruit; both hips and haws were in great abundance.—G. S. S.

—The remarks in THE GARDEN about birds and Holly berries are interesting and curious. "Veronica," who does not state his locality (which is a mistake, I think) says that the Holly berries there, wherever it is, have not been touched. "D. T. F." and W. A. Cook, whose whereabouts we know, say that in their respective localities the berries are completely destroyed. Now, I think that locality may have something to do with the matter. Generally speaking, birds do not attack the berries till compelled by hunger, excepting those of the Mountain Ash, which fall to the missel thrushes and blackbirds the moment the colour shows in early autumn, before the migratory thrushes put in an appearance. In winter a keen frost sets in, which may be quite partial, there being little, or none, where "Veronica" lives, and one of intense severity where others live. In one case the birds, much preferring soft (their usual) food, do not touch the berries; in the other the berries are their only food, and they are compelled to eat or starve. Again, a deep snow, such as has covered the country during the past week, drives the birds to this food much more certainly than frost, during which they can pick up a precarious living in shrubberies and woods, which is impossible when snow covers everything. I gather this from the case here. Holly trees abound in my garden, and have this season presented the most perfect pictures I have ever seen of the sort. There are berries (or have been) of all shades, from dull yellow to the brightest coralline red. During the frosts of January and February these remained almost untouched, and on March 1 many of the trees were as beautiful as on January 1. This day

week came a heavy fall (8 inches) of snow, covering everything. There is now scarcely a berry left in the whole garden. Fieldfares, redwings, and missel thrushes have been literally swarming in the bushes from morning to night, because they have had, absolutely nothing but the berries to eat. Blackbirds and common thrushes have not attacked the berries so much, but these have been regularly fed near the house, and the other birds are too shy to approach, unless driven by the very extremity of hunger. I may make a remark on another point. It is well known that fruit-eating birds are attracted by colour, and that Red Currants are always preferred to white, though these latter are sweeter. Now, it is curious that two or three of the Holly trees here, which bear the brightest berries in the whole garden, have been the last attacked, excepting some very dull, orange-yellow-berried ones, and this, not owing to any position in the trees, one of which is, indeed, in the most secluded part of the garden. Can any of your correspondents give a reason for this, or have they observed anything similar? I am afraid this winter will prove disastrous to our smaller birds, and that we shall lose many. Birds are starved not by cold, but hunger. If well fed they can resist any amount of cold, but they cannot live on empty stomachs. And, fortunately, they find numbers of friends to help them in their extremity; but let me give a hint to these good-natured people. Birds want water quite as much as food. Here, on the edge of the lake, they can get it, but, in the country, when feeding birds, always put out a pan of water, and change it when frozen; then you may hope to save your birds. —A. RAWSON, *Windermere*.

—Several of your readers seem to be surprised that "Veronica's" Holly trees should still be furnished with berries, but I do not wonder at it, as out on the lawn in front of me now there is a green Holly tree as densely covered with red berries as it was in December. I have been looking at several of our Hollies in different parts to-day and I find that the majority of them still retain their berries. This is all the more remarkable, as the weather has been most severe of late, and blackbirds and other members of the feathered tribe have been sheltering themselves in shrubberies in uncommonly large numbers. Wood pigeons have been clearing the berries off the Sweet Bay trees very rapidly of late, but the Holly berries do not diminish much, and should mild weather occur soon and other food become plentiful I think it is probable that they may remain on the trees until they fall naturally. Owing to there being a great deal of snow on the ground, the air frosty, and Holly berries on the trees, this March reminds one more of Christmas than spring. J. MUIR, *Margam, South Wales*.

ORCHIDS.

MASDEVALLIA CHIMÆRA AND ALLIES.

THIS is an interesting class of *Masdevallias*, first brought into prominent notice by M. Linden, of Brussels, about the year 1872. The two species *M. Chimæra* and *M. nycterina* seemed at that time to have been somewhat mixed. Mr. Day, of Tottenham, flowered *M. nycterina* in 1873. Both M. Roezl and Mr. Wallis found this species and made drawings of it, which were published in "*Xenia Orchidacea*," ii., 185 and 186, but the Wallisian specimens were evidently not so fine as those found by Roezl. Finally, we have *M. Backhousiana*, which at first was considered to be a new species, but has now been decided to be merely a well-marked form of *M. Chimæra*. At York, the flowers are some 16 inches across, and we have had it nearly as large in our own garden. *M. Chimæra* is figured in the *Botanical Magazine*, t. 6152, from a specimen flowered by Mr. W. Bull, of Chelsea, but this again is quite different from *M. Chimæra* figured in the *Florist and Pomologist* in 1872. Mr. B. S. Williams, in the last edition of the "*Orchid Grower's Manual*," states that the plate in the *Botanical Magazine* is not *M. Chimæra* at all, but *M. Wallisi*. These *Masdevallias* are best grown in teak baskets in

turfy peat, Sphagnum, potsherds, and a sprinkling of charcoal. We grow them in the cool house during the summer and autumn months; removing them to the Cattleya house in winter and early in spring. The flower-spikes push their way through the live Sphagnum on the surface of the baskets, and under or over the top bar where the flowers display their weird forms. This section should be grown in even small collections.

Besides the above there are a few other Masdevallias of a very distinct character well adapted for baskets or small pans; suspended from the roof, *M. Wageriana*, for instance, is a pretty little species, first flowered by Rollisson, Tooting, in 1856, and figured in the *Botanical Magazine*, t. 4921. The whole plant is not more than 2 inches or 3 inches high, and consequently not conspicuous until it has been placed under a magnifying glass, when the delicately beautiful markings of the flowers become apparent. Grown in small pans, it spreads freely, and should be kept near the roof glass; a small tuft of it will produce a dozen flowers, which last long in beauty. *M. Shuttleworthi* is another distinct and pretty species, also figured in the *Botanical Magazine*, t. 6372. It was discovered by Mr. Shuttleworth when collecting for Mr. W. Bull in Columbia. It is one of the small growing species, but much larger in leaf and flower than *M. Wageriana*. It can be grown well in pots under the same treatment as that given to the *Chimera* section and is of easy culture. *M. ephippium*, also figured in *Botanical Magazine*, t. 6208, is a very remarkable species, first discovered at Loxa by Krause, who sent it to Messrs. Backhouse. This is a vigorous growing species, well worthy of culture on account of its distinct character, but its dull, brownish-coloured flowers, with long yellowish tails, are not remarkable for beauty. It may be grown in pots like the *M. Harryana* group, but the night temperature in winter should not fall below 50°, so that it does best in the Cattleya house in winter. This is the *M. trochilus* of Linden, and *M. colibri* is also a synonym of it. Another charming little species which should be in the most select collections is *M. polysticta*. This was discovered by Roezli, who was quite carried away with its beauty; he found it in tufts with twenty racemes of flowers, and five or six on each open at one time. It flowers in our collections with similar profusion; the flowers, which are produced six together, are whitish, spotted densely with reddish purple; the sepals are terminated by short yellow tails.

M. Estradæ ought not to be omitted. It is one of the dwarf growing species discovered in the garden of a Spanish lady in New Granada, after whom it is named. It is one of the most free flowering of Masdevallias, and forms a neat-habited plant; the dorsal sepal is marked in the centre with a large violet-purple blotch, the lateral sepals whitish terminated by short yellowish tails. This also does best in the higher winter temperature. There are other species which might be named for special culture; some, such as *M. vilifera*, have an offensive smell, but the above would be my own selection. J. DOUGLAS.

Ilford.

Cypripedium spectabile.—It is said respecting a plant of this at Easter Duddingston Lodge that "it is perched upon what appears to be a high rocky bank," but such is not the case. The plant represented in the engraving (p. 174), photographed by Mr. Bashford, is planted in an artificially-made bog about 3 feet below the general ground level and exposed to full sunshine. The roots are never dry; on the contrary, they are sometimes for a month under water, and increase in size every year. Last summer it produced about fifty blooms. We have other plants

of this *Mocasson* flower in the rock garden in much drier situations than the above, but although they flower freely the roots do not increase in size, showing conclusively that these plants like moist treatment better than that which is dry. The British Lady's Slipper (*Cypripedium Calceolus*) is also in the rock garden, and has been for the last twelve years in a damp place with a north exposure and is in a thriving state.—M. C.

Cattleya Lawrenciana.—This new Cattleya is evidently a good one to last in bloom. We have had it in flower three weeks, and as yet it shows no signs of going off. We have, however, the advantage of a good show house for Orchids in flower, which makes a vast difference as regards lasting properties. Indeed, we find some things to last too long for the well-doing of the plants, which seem to get quite exhausted owing to the long time during which they keep in flower. Our *C. Lawrenciana* has three flowers on a spike, each about 4 inches across the sepals; the lip is a trifle over an inch, intense purple-crimson with a few veins of yellow in the throat.—W. HOLAH, *Redleaf.*

NOTES OF THE WEEK.

Dr. Regel.—It is reported that Dr. E. Regel, who has long been director of the St. Petersburg Botanic Gardens, has resigned, and has been succeeded by Dr. Engler.

Pampas Grass.—Mr. Ratcliff, the gardener at Hessel House, Ewell, sends us photographs of two very fine specimens of Pampas Grass, one of which bears about 120 plumes. This plant is of the erect growing variety with pinkish tinted plumes; the other has silvery plumes, which spread somewhat after the manner of those of *Arundo* conspicua.

Dracæna Lindenii.—This plant, which we believe is strictly not a *Dracæna*, but *Aletris fragrans variegata*, is flowering in the Pine-apple Nursery, Maida Vale. It is not very attractive, the flower-spikes being crowded with tiny dirty white flowers. It is therefore only for its leaves that it is worth growing. These are handsome, being broadly banded with various shades of green and yellow.

Apelandra nitens.—One of the most brilliant stove plants we have seen lately is this *Apelandra*, which, with its fiery scarlet spikes of bloom, quite lights up one of the stoves in the Pine-apple Nursery. It does not differ much as regards the flowers from other kinds, such as *A. Roezli*, but the foliage is distinct in being of a deep metallic green, in fact quite a bronze tint. It is a plant that should be grown in the stove for winter bloom.

Chrysanthemum Mrs. C. Carey.—Chrysanthemums in March seem quite out of season, yet some uncommonly good blooms of this pure white variety have been sent to us by Mr. Ware, of Tottenham. They were cut from plants which began to flower at Christmas, and which have produced a continuous supply ever since. This is, therefore, a valuable late sort, and, being pure white, is on that account all the more valuable. The blooms are not large, but compact and full.

The double Sparmannia.—A fine flower cluster of the double-flowered *Sparmannia africana* has been sent to us by Mr. Hartland, of Cork. When we saw it in flower for the first time, in Ghent, two years ago, we thought that it would prove to be a good plant. Its flowers are certainly very double—quite rosettes, in fact; but there are numerous coloured petals intermixed with the white, which mar their purity. The old single *Sparmannia* is so beautiful, that it seems a pity it should have doubled. Some, however, may like the double sort, as the blooms endure longer when cut than those of the single kind, and the double Daisy-like blooms may be useful for button-hole bouquets. The truss sent by Mr. Hartland bears no fewer than forty flowers.

Liverpool Horticultural Show.—We understand that Messrs. Sutton, of Reading, have offered the following prizes for competition at the forthcoming great provincial show of the Royal Horticultural Society at Liverpool, to be held on June 29 to July 5: For a collection of twelve kinds of vegetables: First prize, £5 5s.; second, £4 4s.; third,

£3 3s.; fourth, £2 2s.; fifth, £1 1s.; sixth, 10s. 6d. For the best brace of Melons, either Sutton's Imperial Green-flesh, Sutton's Invincible Scarlet-flesh, or Sutton's Hero of Lockinge, each entry to consist of one variety: First prize, £2 2s.; second, £1 1s.; third, 10s. 6d. The foregoing prizes are open to gardeners in private establishments only.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 9.

THERE was a large and attractive show in the conservatory at South Kensington on Tuesday, but the exhibits were singularly devoid of novelty, and though numerous plants were placed before the committee, but three were awarded first-class certificates. These were

CYRTOPODIUM SAINTLEGERIANUM, a beautiful Orchid, of noble growth, very much resembling, if not identical with, the old *C. punctatum*, a species which was not unfrequently met with at exhibitions years ago. This alleged new species resembles *C. punctatum* exactly in growth and mode of flowering. The terete pseudo-bulbs range from 1 foot to 2 feet high, and from the bases of these the branching flower-spikes rise about 4 feet in height. The specimen shown on the present occasion, by Mr. Smee, of The Grange, Wallington, bore two fine spikes, carrying altogether over 250 flowers. These are each about 1½ inches across. The sepals are yellow, barred and spotted with brown, the petals almost wholly yellow, and the wings of the labellum are of a reddish brown. At the base of each flower-stalk is a coloured bract marked similarly to the petals, and at the base of each branchlet of the spike is also a coloured bract, so that altogether it is a most attractive plant, and should rank among the finest of cultivated Orchids.

BEGONIA GIGANTEA ROSEA, a beautiful plant differing but little if at all from the plant long known as *B. Roezli*, and more recently as *B. Lynchii*, a name given to it in the *Botanical Magazine*. The plant is undeniably most beautiful, and well deserved the distinction accorded to it by the committee. The leaves are like the well-known *B. nitida*, large and of a bright shining green. The flowers are of a charming cherry-red colour, borne in spreading dense heads on stems overtopping the foliage. Some well-flowered plants of it were shown by Messrs. Cannell & Sons, of Swanley, who have long recognised its high merits.

NARCISSUS BULBOCODIUM CITRINUS, a variety of the Hoop-petticoat Daffodil, distinguished from others in having the open funnel-shaped crown of a soft lemon-yellow colour. Its flowers, moreover, are larger than those of any other form of *N. Bulbocodium*. A potful of finely-flowered plants was shown by Messrs. Collins & Gabriel, of Waterloo Road, and Mr. Ware, of Tottenham, also exhibited good specimens of it.

ORCHIDS.—These were few, but among them were some of exceptional interest. One of the most remarkable was a variety of *Dendrobium Leechianum*, with flowers fully a third larger than usual and of higher colour. Messrs. Thomson, of Clovenfords, were the exhibitors, and being such skilful cultivators, the unusual size of the flowers may in a measure be attributed to vigorous growth. At any rate, the specimens abundantly proved that *D. Leechianum* is the finest of the trio of hybrids which so nearly resemble each other. These are *D. Leechianum*, splendissimum, and *D. Ainsworthii*. Another remarkable plant was a very fine variety of *Cœlogyne cristata*, appropriately named maxima, inasmuch as it eclipses all other large varieties of this lovely Orchid. It need only be said that the flowers of maxima are much larger than those of the Chatsworth variety, hitherto regarded as the finest, and moreover differ in shape, the petals and sepals being broader, and the lobes of the lip hood over the column. A small plant of it was shown by Mr. Southgate's gardener (Mr. Salter), Selborne, Streatham, and a large specimen, bearing a dozen or more long drooping spikes, was shown by Messrs. Sander, of St. Albans. *Cattleya Lawrenciana* was the object of much attention, as its flowering has been so

eagerly anticipated by orchidists. On this occasion no fewer than three exhibitors sent flowering plants of it. Messrs. Laing, of Forest Hill, showed the best, and one of their plants bore highly-coloured flowers with broad rounded lips of an intense maroon-crimson, which went far to substantiate the introducer's description of it. It is too early, however, to judge of a newly-imported Orchid; we must wait until next season before we see Sir Trevor Lawrence's Cattleya in character. According to the dried specimens, the spikes should carry as many as fifteen flowers. A very pretty Cattleya—*C. Trianae* Ingrami—was shown by Mr. Ingram, of Eistead, Godalming. It has a noble and finely-shaped flower, with a lip of superb colour. It is, we imagine, the pick of some thousands of plants, for not often does such a fine variety as this crop up. Another Trianae, called Laingi, was shown by Messrs. Laing, who also showed an uncommon and pretty variety of *Dendrobium crassinode*, noteworthy on account of its large and highly-coloured flowers. Mr. Philbrick, of Oldfield, Bickley, showed a remarkable *Lælia*, named *L. lilacina*. Mr. Philbrick's label stated that it is "a (supposed) natural hybrid between *Cattleya (Lælia) crispa* and *Lælia Perrini*. It was collected and imported with *L. Perrini*. It differs especially from *L. Pilcheri* (which it most nearly resembles) in the form and colour of the labellum. It is intermediate in the form and colour of the flowers between its supposed parents." The plant most resembles *C. crispa* in growth, and the flowers, being of a delicate tint, are attractive. Mr. Southgate's collection contributed a plant of the new *Dendrobium nobile nobiliss*, bearing sixteen pairs of flowers on one bulb; *D. crassinode album*, thickly wreathed with flowers for about a foot in length; and *D. heterocarpum Ellaianum*, a distinct variety having paler flowers than the type and not such dark lips. A beautifully flowered small plant of *D. Devonianum* came from Mr. Clarke, Eversleigh, Herne Hill. The bulb was covered with flowers for about 2 feet in length. A large specimen of the scarce *Odontoglossum maculatum Donnianum* came from Mr. Smeeth's garden at Wallington. The flowers of this variety are much larger than those of the type, sepals broader and differently marked. The plant shown by Mr. Cummins bore two spikes, one with eight, the other with nine flowers.

Other plants of interest shown included a group of the Easter Lily of Bermuda (*L. longiflorum floribundum*) from Mr. Bull's nursery at Chelsea. These plants ranged about 4 feet high, and bore from three to six large white flowers. It seems to be very floriferous, and the fact that it may be had in bloom at this season renders it the more valuable. Mr. Bull also showed *Cupania grandidens*, an elegant plant with pinnate leaves arranged symmetrically around the stem. Messrs. Cannell showed besides *B. Lynchi* flowers of *B. nitida alba*, also a pretty winter flowering kind, and *Cyclamen giganteum* Improved. Mr. James, the well-known Cineraria raiser of Farnham Royal, had a box of his best flowers. He is seemingly striving to improve upon his last year's seedlings, which were then considered unsurpassable. Messrs. Carter, High Holborn, showed large baskets of their new Chinese Primulas, numbering about a dozen sorts, among them being Holborn Blue, Snowflake, Holborn White, Holborn Pearl, Elaine (white), and Venus, all beautiful sorts.

Silver Banksian medals were awarded to Mr. B. S. Williams for a large group of well-grown Cyclamens and about half a hundred plants of his new white Primula; to the St. George's Nursery Company, Hanwell, for Cyclamens; to Messrs. Page, Teddington, for Cyclamens, one large group being wholly composed of a white variety, each plant bearing a sheaf of bloom, though only sixteen months old.

HARDY FLOWERS were plentiful and made up half the show; the Daffodils, which had been coaxed into early bloom under glass, made quite a glow of yellow along one side of the conservatory, and these were interspersed with numerous other early spring flowers. Mr. Ware had a large group of Daffodils intermixed with many interesting plants, among them being Cyclamen Atkinsi, large panfuls of Puschkinia libanotica, common Dog's-tooth Violets, Galanthus Elwesi and others *Chionodoxa sardensis*, *Iris stylosa*, *Leucojum*

vernum, *Iris reticulata*, and *Freesias*. Messrs. Barr showed a large group of Daffodils representing most of the sections, and none were so conspicuous or so beautiful as *N. pallidus præcox*, of which there seems to be now several different forms varying in the size and shape of the flowers. The delicate primrose-yellow of its flowers singles it out from all the rest. A large gathering of double Crown Anemones lighted up the group, and these, the first of the season, had a cheerful appearance. Mr. Dorrien Smith was awarded a bronze Banksian medal for a large gathering of Daffodils from his garden in the Scilly Isles. The bulk of the group was composed of the *Tazetta* or *Polyanthus* varieties, all admirably grown, the Paperwhites being conspicuous for their pure whiteness. Messrs. Collins and Gabriel also received a bronze Banksian medal for a fine group of Narcissi similar to that shown by them on the last occasion. They had large potfuls of the best sorts, besides numerous specimens of rarer kinds, such as *Grællsi*, *citrinus*, and *monophyllus*. There was also a pretty new white sort like a miniature form of *tortuosus* which may prove to be new.

Fruit.—The only exhibits submitted to the committee were a fine conical-shaped fruit of Black Prince Pine-apple, from Sir George Elliott's garden at Aberdeen, and a dish of Rood Ashton Apple from Mr. Miller, of Rood Ashton, Trowbridge. This is a large cooking sort, and, judging by the fruits sent, it is a first-rate keeper. Messrs. Carter, of High Holborn, sent a novel exhibit. It consisted of a large collection of preserved vegetables and fruits, which had undergone a certain new process by which the form of the specimen is retained, and, in some cases, the natural colour. The objects looked like wax models, but such is not the case. In most instances the process had preserved specimens admirably, but in others, such as the Peas, the greens were of a somewhat unnatural tint. Messrs. Foster and Pearson exhibited a new ventilating contrivance for fixing in the walls of hothouses and frames. It consists of an iron box, the door of which works on a pivot. By a little modification it will, no doubt, fill a want. Mr. Crute showed samples of his patent pots, as did also Mr. Smith, of Reading, the latter having an ingenious false bottom to his pots, in order to save the trouble of crocking.

Scientific committee.—Among the subjects discussed at the meeting was an interesting communication from Mr. Michael upon the great injury occurring to Cucumber plants in Cornwall. In a collection grown largely for the London market plants were continually being struck down. A careful examination of the earth proved that the source of the mischief was entirely due to nematoid worms. On examining the sound parts of the roots where the disease was just commencing, he discovered cysts of eggs deposited in those parts, the female having burrowed more deeply into such tissues to provide food for the young ones. Mr. Murray said that he had made similar observations in conjunction with Mr. Carruthers, and they had come to precisely the same conclusion. Other animals, such as *Acari* (*Serraton rostratus*), as well as *Rhizobryophus*, were present; but these were not the cause of injury, but only followed on the decayed condition induced by the nematoid worms. He suggested that sulphur and lime should be applied round the roots, and that all affected plants should be burnt.

Colletia horrida (speciosa) on *C. bictonensis*.—Dr. Lowe exhibited specimens of a shrub of *C. bictonensis* with dimorphic branches; the smaller kind growing on the larger differed from *C. horrida* in having the branches flattened and not rounded, as in the latter. This was also the case of the specimen exhibited at the last meeting; and Dr. Lowe raised the question whether the growth of this small form of *C. bictonensis* had not been mistaken for *C. horrida*. It is requested of persons cultivating this plant to examine them and report to the secretary as to the frequency of the true *C. horrida* growing upon flattened *C. bictonensis*; also, if *C. bictonensis* with broad flat branches is ever known to grow upon a shrub of *C. horrida* with round branches. Specimens will be very acceptable. He alluded to an ancient Italian painting of "The Crown of Thorns" having this sport depicted in it.

OBITUARY.

MR. J. COOPER FORSTER.

WE record with deep regret the death of Mr. COOPER FORSTER, which took place, after a short illness, at his residence, 29, Upper Grosvenor Street, on the 2nd inst. He was well known to lovers of gardening as an enthusiastic cultivator of Filmy Ferns, which he grew with great success under quite exceptional circumstances in his rooms and at the rear of his town house, situated quite in the heart of the west end of London. His collection of Filmy Ferns has been accumulating for years, and is now probably the best private collection in existence. He personally attended to the welfare of his Ferns, which seemed to be always uppermost in his mind whenever we met him. By close observation of the habits and requirements of his plants he acquired a more intimate knowledge of Filmy Ferns than perhaps any other amateur in this country, and it is to be regretted that he has not left some written record of his peculiar system of cultivating them so well. He was ever on the look-out for large specimens to add to his collection, and we remember that when the famous Dangein collection was dispersed he secured the finest plants of Filmy Ferns, notably an enormous mass of *Trichomanes reniforme*, supposed to be the largest in cultivation. It was a mystery how he baffled the unfavourable conditions of a London atmosphere, as his collection afforded ample proof. Not only did he love and take an interest in Filmy Ferns, but all classes of plants had an interest for him, and those who met him at the chief London flower shows every season knew how intimate was his knowledge of plants in general—hardly flowers being his especial favourites. He will also be missed on account of his benevolence, for his exceptional skill as a surgeon was generously applied gratuitously to the relief of numerous sufferers among the gardening community, which has lost one of its best friends. We learn with satisfaction that the collection of Ferns will remain entire in the hands of his son, Mr. Stuart Forster, who will doubtless spare no trouble in cherishing an heirloom of such value. Mr. Cooper Forster was ex-president of the Royal College of Surgeons, and was in his 63rd year.

MR. ROBERT PRESTON KER, the head of the firm of Messrs. R. P. Ker and Co., of Basnett Street, Liverpool, and the Aigburth Nurseries, died at his residence at Canning Street, on the 4th inst., at the age of 70 years. He belonged to a good stock of Scotch gardeners, his father, Andrew Ker, and his grandfather, John Ker, before him, having filled the important post of manager of Dickson's nursery at Hassenden Burn, near Hawick—the latter for forty years. A brother of Andrew, named William, was sent from Kew to China and afterwards to Ceylon, where he died in 1814. *Kerria* (*Corchorus*) *japonica* was named after him. Robert P. Ker at fourteen years of age was apprenticed to Messrs. Dicksons, of Edinburgh; and having served the term of seven years, he went to Mr. Skirving's nursery at Liverpool, and in 1841 was placed at the head of the seed department. Being refused a share in the business by Mr. Skirving, he, in 1860, went into business on his own account as a seedsman, and, having many friends, he soon obtained a good connection. In 1870, the Aigburth Nursery was added to the business, and visitors to it at the present time can find there one of the best collections of trees, shrubs, and plants, both hardy and tender, to be found in the trade. In everything pertaining to gardeners and gardening Mr. Ker took a deep interest. He was a generous supporter of the Gardeners' Royal Benevolent Institution, and, up to his death, was a member of the committee. He leaves three sons, two of them having been partners in the business for some time past, the now senior partner being Mr. Robert Mason Ker, for many years secretary of the Liverpool Chrysanthemum Society.

LATE NOTES.

Yellow Rock Cress.—Rock Cress is the popular name for *Arabis*; *Yellow Cress* for *Barbarea vulgaris*; but we do not know a plant called *Yellow Rock Cress*.

Names of plants.—*G. G.*—Next week.—*G. T.* *Fuchsia cordifolia*, *F. T.*—Next week.—*J. R. R.*—A very good variety, but we cannot identify it with any of the named forms of *C. Trianae*.

WOODS & FORESTS.

DRAINING FOR PLANTATIONS.

THE essential difference between drainage for plantations and for agricultural purposes is that for the former open ditches or water-ways are used, but for the latter covered pipe or tile drains. The reasons are obvious, as for agricultural purposes, where the soil is continually stirred and horses and implements are employed, an even surface, presenting no obstacles to their passage, is the first consideration. With plantations the case is quite different, as the presence of open drains cannot be objected to on this ground. As this is so, and, on the other hand, if the use of covered drains was attempted, the roots of the trees would most certainly choke them, to say nothing of the increased cost, it will need no further explanation why open drainage is almost always adopted where the site has to be planted with wood.

As to the actual way in which the drainage

flow of the water as it leaves the main drains. In very many cases, however, the outfall is not so readily found or made at so small a cost. Where the site is almost a dead level it is no unusual thing for it to become necessary to carry a principal drain for a very considerable distance before a sufficient fall can be found into a suitable natural channel. In this, as it has been said, the details are different in almost every undertaking, but the principle is the same, viz., to find a spot at one boundary of the area where the water which collects over the ground may be carried away with as little hindrance as possible.

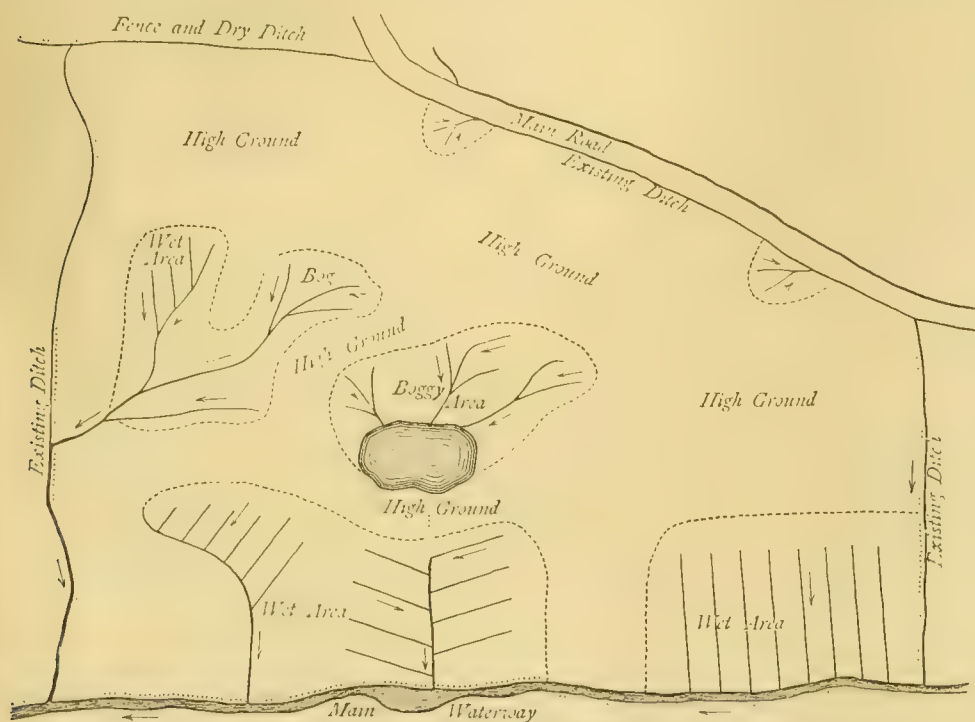
THE MAIN DRAINS here, as in agricultural drainage, are those into which smaller drains empty themselves, but for the purpose under review they need not be laid down with such mathematical precision as would be essential with covered mains. The level in each case must of course be observed, but with open drains the preservation of direct lines or particular angles is not so important providing they are arranged so that they will effect the object for

mately belongs to the site of our operations, it is essential that this ditch be thoroughly scoured from its outfall to the point where it crosses the road and leaves the field. At one or two spots along the margin of this ditch where depressions exist and undue moisture is retained, some short trenches or open drains will be required, as shown. With respect to the old ditch on the opposite side of the field, it will be seen that very little water comes from the upper portion. This should of course be cleansed, but not necessarily to so great a depth as the lower portion, which we shall have to make one of our principal outfalls. This being so, it will be important that this portion be both lowered and widened from its final outfall into the main waterway to the point where it passes through the fence and receives the water from the open main, which we have to construct to tap the bog which lies to the right of and above it. This is one of the wettest spots in the whole area, and will require a good sized drain to effectively carry off the water. A little judgment, too, must be exercised in deciding upon its width at the top, as with a soil of this nature it will be necessary to form the banks with a greater angle to prevent their slipping and blocking the waterway and obstructing the free flow of the water. The spot between this and the fence, denominated a wet area, requires to be drained, but its character does not necessitate our going to so great a depth or width as in the case of the bog; so it will be seen that what in agricultural drainage would be termed a sub-main has been led into our main, and the minor drains in their turn into this.

THE SUB-MAIN does not occur much in the work before us, but where it is used it does not call for further remark, as its business will be readily enough understood from its name. Hitherto we have, with the exception of the drain just spoken of, been engaged with existing watercourses the levels of which have already been determined, so that much has not been said on this matter. It is, however, so obvious to everyone that water must be drawn from a higher to a lower level, that no other reference need be made as to this simple fact. In an area like the one to which attention is now being called the eye will be a sufficient guide as to the lowest spot without the aid of instruments, but where this is not so, levelling should be resorted to.

THE DIRECTION OF THE DRAINS will require a little thought, as, although they may be theoretically right and serve to draw off the water, the rapidity of the operation will depend to a considerable degree upon their arrangement. As a general rule drains should be cut in the direction of the greatest slope, as by this means the water will be more quickly carried away. The arrow heads in the plan are intended to indicate this. At the lower portion of our planting ground the soil is more or less wet for some distance from the main waterway, and draining is necessary. There are two tolerably distinct wet areas. Of these areas, that to the right slopes gently and uniformly to the outfall; therefore all we have to do is to cut parallel drains of sufficient capacity, emptying directly into the main waterway and at right angles to it. With the other wet area in the lower portion of the field the case is rather different, as the slope is not uniform and in varying directions. To overcome this, it will be seen that a straight and a curved main drain have been cut, and minor drains to carry the water into the mains. The fall of the ground in each case can be traced by means of the arrow heads.

THE CENTRAL BOGGY AREA presents a new difficulty, as it is surrounded on all sides by high ground, and if the water from it is to be drained



Plan of drainage of field preparatory to planting with trees.

of land intended for plantations is set about, much will depend on the soil, the situation, and the conformation of the site itself. In fact, so varied is this, that no one set of rules would apply in every particular to two cases. Notwithstanding this, the principle in all instances will be much the same. The annexed diagram represents a piece of enclosed land which, it is assumed, has to be planted with trees, and from this several of the most important points to be observed in freeing plantation sites in general from superfluous water may be drawn.

THE OUTFALL is the first thing which demands consideration. In the plan before us, which, it may be well to say, has been prepared from a field which is in the condition indicated, it will be seen that but little difficulty has been experienced in this respect, as it happens that a natural waterway already exists along the entire length of its lower boundary. There the only thing which has to be attended to is to see that this is properly cleared and freed from any obstruction which may be likely to hinder the free

which they are intended. It will be seen that the area shown in the diagram, with the exception of its upper boundary, is already surrounded by watercourses. These, however, from want of attention, have become more or less choked and inoperative. To thoroughly cleanse these and put them in working order will be our next business. We take first the existing ditch on the right hand boundary of our plan. This, it will be seen, if followed up from its outfall into our main waterway, passes along this right hand boundary and receives the water from the ditch which flanks the main road. This latter, it will be observed, does not terminate within our area, but continues underneath the main road, and is consequently one of the outfalls of the drainage of the higher land on the opposite side of the road. So long as our ditch remains choked, the water which comes from this outfall naturally spreads itself over a portion of the surface of our field, and consequently a wet area is produced, as shown. To remedy this, and also to help in reducing the amount of moisture which legiti-

completely away, a main must be cut in the direction of the dotted line and joined to that which drains the lower portion of the field. This, however, would entail some rather heavy excavation, and to obviate it we have assumed that drains are cut through the different parts of this central area in the direction of the lowest ground in it, which would by this means be converted into a small pond. Such a thing in the centre of a plantation may not be altogether undesirable, as its edges may be planted with trees suited to the situation. At any rate, the occasional adoption of the plan would help us over a difficulty in our work, and the loss of the small area occupied by it would not be of great moment.

Lyneham, Wilts.

D. J. YEO.

ECONOMY OF SPACE IN WOODS.

Now that the question of more extensive planting of land with wood is so much to the front, it may perhaps be worth while to look a little at the existing woods around us and see if everything in the management of them is as it should be, and that the most is made of all available space. I fear if this was thoroughly done, the result would be rather astonishing, and the outcome of it be the knowledge of the fact that much more could be done with the areas at command at the present moment than is done. Within a short distance of the place from which I write I could point to two large woods. In one of these all available ground is occupied, but in the other, although perhaps equal in extent and the soil in productiveness, there is hardly more than a third the amount of timber there should be. It would not, of course, be fair to go offhand from one wood to another and jump at the conclusion that because the cubic contents of each was not equal, that the management of that which contained the smaller quantity was bad, as the dates of the last cuttings and the returns from them would have to be taken into account. What, however, is an unmistakable sign of defective management is to enter a wood and see that over two-thirds of its area there is not only no timber, but no preparation made for another crop. If the fellings had taken place during the present or the last season, such a state of affairs would not cause much comment; but when it is seen that years have been allowed to elapse since the fellings and all that the ground is occupied by is underwood of doubtful value, it leads one to question whether matters are as they should be, and whether such a lack of attention towards securing a future crop is at all general. To imagine a wood of 100 or 200 acres with only here and there a few acres of Larch, some clumps of Scotch Fir, and perhaps a quarter of its area occupied with Oak, the remainder being nothing better than underwood, is bad enough, but when we pass from imagination to simple fact it is certainly much worse.

For such a condition of things to become possible there must have been lack of management for many years, as it is perfectly obvious that the mere cuttings of a few years without attempt at replenishment would not be sufficient to account for it. However, if it is never too late to mend, it is never too late to plant; so we would earnestly commend to the notice of those who have woodland falling under their charge that attention to the matter of replanting or reproduction in some form should go hand in hand with the periodical fellings. It may seem passing strange that after all that has been said and written, that such a fundamental principle should need to be repeated; yet so it is. What perhaps is more remarkable is the fact that on the same estate where the woodland is in the state described, planting of new areas has to a considerable

extent been carried out. It may be that it would be injudicious to replant the site with the same or any allied species of tree to that which last occupied the soil. Notwithstanding this, the range is certainly wide enough, for if the last crop consisted of deciduous trees the change to Conifers is open; if it was the reverse, the remedy is just as simple. That land which is, from the portion under crop, evidently fitted for the successful growth of timber, and is already fenced and of course lying idle, not brought into active production, seems to point to the conclusion that apathy extends beyond merely not planting more largely, but to the land already devoted to the purpose of growing wood.

TIMBER TREES IN RAVINES.

I HAVE expressed my experience on this subject pretty fully already, but it may be advisable to give a few examples of what others say in corroboration of my statements.

Perhaps the *Wellingtonia gigantea* is the largest tree yet discovered, and Grigor, in his book of arboriculture, makes the following remarks regarding the site of this tree as found in its native habitats:—

Everyone interested in the growth of plantations in this country must have observed the great advantages derived by trees situated in glens and ravines standing in a congenial soil and undisturbed by the influence of far-fetched and biting winds. An inequality of surface, even on a small scale, is conducive to rapid growth and lofty dimensions; something unusual, therefore, might be expected in the vegetation of a country where the configuration of ground forms land-locked valleys on the most magnificent scale yet known. . . . The soil which has yielded these magnificent objects is said to be a deep, rich black loam. The groves form deep valleys in the mountains, &c.

Some of these trees, we are told, are 363 feet high, 140 feet to the first branch, 15 feet in diameter at 100 feet high, with a trunk 93 feet in circumference at the ground level. These trees exhibit girth of trunk as well as height in a very symmetrical manner, and shows clearly that good soil in ravines produce bulk as well as height.

In speaking of the common Silver Fir as found in its native habitats, the same writer says:—

In narrow valleys in the south of Germany, between the Swiss mountains and the Black Forest, on rich friable, loamy soil, it attains the height of 150 feet, with a trunk 16 feet to 20 feet in girth.

Here, again, as in the former case, soil is spoken of as one of the principal factors in the production of large timber as regards height and massiveness of trunk, and I could give abundance of further evidence from the writer already quoted, as well as others, that ravines do produce tall and heavy timber when grown under the conditions which I have previously specified.

In many cases soils capable of being reclaimed and used for tillage have a hard impervious sub-soil, which is inimical to the growth of large timber; whereas soils of a loose open texture mixed with stones to give it porosity, and that is incapable of being used for such a purpose, produce large, heavy timber, and this fact ought to be a strong inducement to landed proprietors to have such land planted. In fact, some of the largest Larch, Spruce, and other trees that have ever been produced in this country have been grown upon such soil, where the roots were watered by a running stream or by the percolation of moisture from the hills in the vicinity. Three things are essential to the production of tall, heavy timber, namely, a deep, loose, open, porous

soil, a good supply of water (not stagnant), and shelter; and, as a general rule, all these conditions are afforded to trees growing in ravines.

J. B. WEBSTER.

GATES FOR PLANTATIONS.

THE essential difference between a plantation and a field gate is, or should be, that whilst the latter is constructed of horizontal rails only, in the case of the plantation gate the framework should be supplemented by vertical pales. In the fields the primary object of the gate is to keep back cattle; in the plantation, in addition to this, it is desirable that the ingress of every class of trespasser should be prevented. A gate palied with vertical or diagonal pales, placed sufficiently close together to prevent a foothold being obtained, is a difficult thing to climb, and, therefore, well adapted for plantation entrances.

With respect to the framework, there can be no question that for heavy gates, *i.e.*, where the width of the entrance is considerable, as in the case where the road is intended for wheeled traffic, Oak should always be used. Where the width of entrance is over 10 feet or 12 feet, I should always recommend the use of double gates, *viz.*, a gate to be hung to each of the posts, and closed to a stump post in the centre. It may sometimes be necessary to have the double gates of different widths, so that the narrower may be used for pedestrians or for horsemen, and the wider one only opened for wheeled traffic. Oak wood should always be preferred for the larger gates for making the framework, *i.e.*, the hanging and falling styles, the braces, and the rails. When this is done, other material may be used for the pales. When properly selected and carefully sawn, Larch will make excellent pales for the purpose. For most cases about an inch in thickness and from 2½ inches to 3 inches in width will be a good size, the length, of course, being regulated by the height of the gate. It is a matter of taste whether the material for this work is planed or unplanned, but if in a position where it is constantly seen, most people would prefer the wood to be planed and painted. A cheaper class of gate where they are not much seen or used, such, for instance, as the gates found along bridle tracks, or those used by hunters for gaining access to woods and plantations may be made entirely from Larch or Scotch Fir. These will require little sawing and no planing, as they are best made of the wood with the bark remaining on it. A rectangular framework with a diagonal brace for a gate some 4 feet wide, when made rigid by means of the vertical or diagonal pales, will be found to answer in most instances. In the matter of hanging, various plans are in use; for small gates the hooks which are inserted in the posts for the gate to swing upon are generally driven home and clenched, and the eyes which are used upon the hanging style are usually fastened in a similar manner. For larger gates, however, it is more usual to have the hooks made with a screw thread at the end and a nut attached, so that as the weight of the gate causes it to drop at the head, the nut may be tightened and the level of the head raised. With regard to the eye the practice is to have it made with a strong band or strip of iron which passes for a greater or less distance along the top and bottom rails, and is fixed by means of bolts which pass through these rails. In the matter of fastenings, where there is not someone constantly on the alert it is always best that the gates be kept padlocked as much as possible. It is not always practicable, we know, as in hunting counties it would be very inconvenient to have the gates constantly locked, and the same would be true when the removal of wood, &c., is going on. D.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NEGLECTED APPLES.

NUMEROUS letters having reached me since my notes on Flanders Pippin were published, I can only arrive at the conclusion that quiet, practical cultivators wish to hear more about neglected varieties. One orchardist, who once lived in Worcestershire, informs me that he sent samples to the late Messrs. Rivers, Scott, and another noted pomologist—all of them now gone over to the great majority—but none of them knew it, although its introduction to this country is lost in antiquity. Eleven dishes of this Apple were shown at the congress in 1883, and the censors spoke highly of it; but its best qualities cannot be properly appreciated until it has passed through the cook's hands or has been tasted at the dessert. It is gratifying to learn that grafts have been sent to Chiswick, where, under Mr. Barron's fostering care, it will soon be brought to the front to occupy the place it so richly deserves. A correspondent in a recent article speaks of Tom Putt as being an inferior Apple in the neighbourhood of London, and goes on to say it cannot be so valuable as other varieties which come into use after Christmas. But this was not the point I had in view. I stated that it was an early and a prolific Apple, whose splendid colour and quality and the many uses to which it can be applied will, when better known, insure it a ready and profitable sale when pitched in competition with the pale-faced, watery-fleshed Suffields and Codlins. These Apples, like September Pears, are appreciated for their extreme earliness, but no one would think of storing them for use after Christmas.

The old Winter Pearmain of which "A. D." writes grows well in this county, and is what growers here term a lucky Apple. We have, however, two varieties, differing slightly in shape, but equal in size and quality. Our old Winter Pearmain, or Duck's Bill, is supposed to be the oldest English Apple on record, trees of this variety having been cultivated in Norfolk as early as the year 1200. Dr. Bull says it is also extensively grown in Sussex, where it is met with in almost every orchard. "It is sometimes locally called Winter Pearmain, but is quite distinct from the old Winter Pearmain." As much confusion exists, and as these two old Apples are so thoroughly worthy of general cultivation, the following notes from the "Pomona" may be of use to owners of one or both of these varieties: "Fruit large, 3½ inches wide, the same in height. Pearmain shape, five-sided towards the crown. Skin smooth and shining, greenish yellow with faint streaks of red on the shaded side, deep red on the side next the sun, and strewed with small russety dots. Eye large, open, with short segments set in a deep, prominently plaited basin. Stalk quarter of an inch long, in deep funnel-shaped cavity, lined with russet. Flesh yellowish, firm, crisp, juicy and sugary, with a brisk, piquant, and pleasant flavour. This highly esteemed Apple is chiefly suited for culinary purposes, but can take its place on the dessert table with credit. It is very handsome, and always fetches a high price in the markets. It is in season from December to May. Tree very hardy, grows freely, and a good bearer."

HEREFORDSHIRE PEARMAN (the old Pearmain of the Horticultural Society).—This by some is

considered better than the preceding, and, being less Pearmain shaped and more angular, is most likely the variety which "A. D." placed before the fruit committee at South Kensington. Coming into use as it does after Christmas, and continuing good up to May, it is worthy of general cultivation, not only in the fruit garden, but also in the orchard, for which its stout, vigorous growth, hardiness, and cropping qualities admirably fit it, at least in this part of the country. The fruit with me is smooth, marked with a prominent rib on one side, and dull green when first gathered. When stored in Fern on a dry floor in the fruit room a gradual change from green to yellow soon sets in, faint brown streaks turn red, russety spots become prominent, and all the finest and best ripened fruits change to a rich crimson during the winter. It is a culinary fruit of high merit, dishes well, and its delicious aroma is very powerful. There are many other varieties of Pearmain all good and handsome, but being mostly early or midwinter sorts and well known by modern cultivators, it is hardly necessary for me to notice them here. Indeed, so numerous are the Pearmans, that it is questionable if a good dish might not be placed on the table every day throughout the longest winter.

Before I leave my old Herefordshire orchard there are other varieties which I feel constrained to notice. The first on my list is Ashmead's Kernel. This excellent late dessert Apple was raised by Dr. Ashmead, an eminent physician in the city of Gloucester, and has been grown and well known in this part of the country nearly 200 years. Mr. Wheeler, an ancestor of the present Mr. J. C. Wheeler, took the tree in hand, and pomologists are indebted to his firm, not only for having sent out trees, but also for their present fostering care, as they still offer handsome prizes for dishes of the fruit at the shows held annually in Gloucester. The fruit is medium sized, slightly elongated; skin greenish yellow, covered with brown russet, with a peculiar tinge of brown next the sun; eye small; stalk short; flesh yellowish, firm, crisp, and highly aromatic. Dr. Bull says: "Ashmead's Kernel is a dessert Apple of the first quality. It has all the richness of the Nonpareil, but it is more sweet and juicy, and is in season from November to May." The tree is very hardy and bears well. It is so similar in its mode of growth, its shoots, and leaves to the Nonpareil, that Lindley thought himself justified in considering it a seedling from that variety. It is, however, more hardy, and grows well with me as a standard, forming a rather low, round-headed tree, where the Nonpareil is badly affected with canker. Having myself many times judged this rather extensive class in Gloucester, I think I may safely assert that it is one of the finest late dessert Apples in cultivation.

COURT PENDU PLAT.—This handsome dessert Apple, literally weighed down with synonyms, is extensively grown in this county, and is best known locally as Garnons Pippin, from Garnons, the seat of the late Sir John Cottrell, who probably introduced it into Herefordshire. The fruit is medium sized, oblate, and very handsome. Skin bright green when first gathered, but changing to yellow, suffused with russety dots soon after it is stored, and to deep rich red long before it is in its best for use. In shape the fruit is the exact counterpart of the most perfect examples of Fearn's Pippin, but has yellow flesh and a much higher flavour. Trees on the Crab stock do well with me on the cold calcareous marl, and bear well from year to year when the seasons are at all favourable. The trees do not, however, attain a large size, and are rather remarkable, not only in their style of growth,

but also in their lateness in coming into flower a quality from which the variety has derived the name of Wise Apple. Worked on the Paradise stock, it makes a small fruitful cordon, or pyramid, well adapted for the smallest garden. Its season lasts from the end of December until the end of May, and during all this time it is as ornamental as it is useful for the dessert. If Fearn's Pippin is a profitable early market Apple, this is doubly so much later in the season.

THE BEAUFINS.—Our county having become famous for "Bifins," by the re-discovery of the handsome Herefordshire Beaufin, I must say a few words in their favour. Many people, myself amongst the number, for a long time thought the Beaufins were only fit for stewing or baking, but this was a mistake, as they are excellent culinary Apples. All of them are late keepers; they are very handsome, and, notwithstanding all our own countrymen may say in favour of American produce, they still realise a paying price in the markets. The Norfolk Beefing, or Beaufin, does well here on sloping limestone banks, and produces heavy crops of clean, dull brown fruit, which changes to bright red before the Apples are taken for use, or market. This old and best-known variety keeps well until June. The tree is vigorous and hardy, but it is not so fruitful with me as a pyramid on rich soil, neither is the fruit so fine and highly coloured as it is from standards in the open orchard. This is the variety which produces the dried fruits sold by confectioners as Norfolk Bifins.

THE STRIPED BEAUFIN, also a Norfolk Apple, is now the fashionable representative of its class amongst exhibitors. It is a large, fine, and remarkably handsome Apple, with a short stalk and large open eye like that of the Blenheim Orange. The skin is of a bright, lively green, often covered with patches and streaks of deep red, which render the fruit very handsome after it has been gathered for a time. Its season is from October to May.

THE HEREFORDSHIRE BEAUFIN, so named by pomologists after seeing some highly coloured fruit at the Apple show of the Woolhope Naturalists' Field Club, held at Hereford in 1876. Like the old Norfolk Beaufin, this is an excellent culinary Apple, and naturally has the valuable property of drying well in the oven, for which purpose all the Beaufins will pay for extended cultivation. But whether this Herefordshire Beaufin will prove anything more than a highly coloured sample from an old and possibly a starved tree remains to be proved by the Cranston Nursery Company, as it is from this establishment that trees are now being distributed.

Eastnor Castle, Ledbury.

W. COLEMAN.

PEAR BARONNE DE MELO.—Allow me to give you an account of this excellent Pear. In 1844 I visited M. Jamin, of Paris, and he communicated to me much valuable information about Pears; he gave me the names of all the new sorts he had for sale, and said he would send me trees of each of any good variety. He did so. Among them were two trees of the Adèle St. Denis, which subsequently proved to be B. de Melo. They were upon the Quince, and were planted together in the row. When they began to bear I do not recollect, but they did bear rather early and so heavily, that I was afraid they would break off at the graft. I drew the earth up around the stem, and they soon rooted from the Pear. One of them is now a good sized tree; the other has never been very vigorous, but has always borne fruit. It is the only fine Pear of which I have only two trees. And

what do you think has been the record since 1862? The years 1867 and 1878 there was no crop; the other twenty-two years they have produced eighty-one bushels, which sold for £41. They cover just 36 square feet each tree. Has anyone two trees that have done better?—C. M. HOVEY.

NOTES OF THE WEEK.

Chionodoxa Luciliæ variety.—Mr. Ware sends from Tottenham a distinct and pretty variety of this spring bulb. The flowers are violet and delicate pink with a white eye. This is the first recorded variation from the original blue colour.

The great show at Liverpool.—The schedule for this show, to be held next June at Liverpool under the auspices of the Royal Horticultural Society, has just been issued, and copies can be obtained from Mr. Barron at the society's garden at Chiswick. The society's schedule for their home shows and meetings has also been issued.

Early Daffodils.—I send you a Daffodil grown under similar circumstance to the Tenby. It is at least three weeks earlier. You will notice the distinct yellow band down the centre of each perianth segment, which renders the flower so distinct. I have had it for several years here, and it is certainly the earliest in my collection. I mean to flower a few more of the Snowdrops, which I consider the Imperati variety. Is it correct? [Yes.]—A. D. WEBSTER.

The Narcissus Committee.—The first meeting of the Narcissus Committee will take place on Tuesday next at South Kensington, when a good show of flowers is expected. The committee are anxious that Narcissus growers from all parts should send flowers, however few, to their meetings. It is particularly desirable that nurserymen in the provinces contribute flowers from their collections, for by that means the committee would be enabled to see how far the names adopted in various parts of the country agreed with the corrected list that has been drawn up by them.

An innovation.—A large quantity of manure has, we observe, been put on the hardy plant borders at Kew. The drawback for many years in the herbaceous ground here has been that the plants, owing to the starved condition of the soil, have been unable to show their beauty. When perennials are grown for years in the same soil, and that a poor one, they cease to grow as they should do; their flowering period is very short, and they have a shabby, half-starved appearance. Good culture and good arrangement will, we hope, soon make a striking change in this quarter of Kew Gardens.

Three good greenhouse flowers.—Among a gathering of spring flowers from Mr. Crook, the gardener at The Grange, Farnborough, are three excellent kinds which every greenhouse should contain at this season. These are *Azalea obtusa*, a small-flowered species, but larger than *A. amena*, of a peculiar orange-red colour; *Primula obconica*, the delicate lavender-flowered species figured in THE GARDEN last week; and *Rhododendron Princess Royal*, still one of the most beautiful, most easily grown, and most floriferous sorts one can have. These, with the other specimens, are admirably grown, as is usual with things received from this garden.

Haberlea rhodopensis.—In this we have a most beautiful addition to shade-loving rock plants. Amongst its many good properties is the length of time during which it continues in flower and the quantity of flowers which it produces during the season. The general habit and appearance of the plant closely resembles that of the beautiful *Ramondia pyrenaica*. The leaves are from 2 inches to 3 inches long and 1 inch or more broad at the widest part, deeply and regularly crenate, thus forming handsome bright green rosettes 5 inches or more in diameter, the whole plant being densely clothed with bristly hairs. The flowers are borne on leafless, slender stalks from 3 inches to 4 inches long, with from three to five flowers at the summit of each stalk. The blossoms in form remind one of a small-flowered *Gloxinia*, or of a large flower of *Pinguicula*. The tube is three-quarters of an inch long; the flower about

1 inch in diameter across the mouth of the corolla; externally the colour is lilac-purple, while internally it is white, suffused with lilac-purple; the throat is hairy and prettily spotted with deep purple and pale yellow, which adds very much to the charm of the flower. To grow it successfully it should be planted in moist, sandy peat in deep shady crevices. What the plant appears to enjoy most is not merely moisture at the roots, but a moist and humid atmosphere. I saw the plant flowering in the York Nurseries a few days ago.—R. P.

Monochætum Lemoinianum.—This plant belongs to a useful genus of greenhouse flowering plants only rarely seen now-a-days, although once common in gardens, *M. Hartwegi*, *M. sericeum*, *M. tenellum*, with the above named kind being most popular. They form compact shrubs if grown in peaty, sandy soil in a well-aired greenhouse, this last being of importance, as in a moist, badly-ventilated house the *Monochætums* seldom look happy or flower freely. We have seen them grown well along with Cape Heaths, and along with these plants, put out of doors during warm weather, they flower all through the summer. *M. Lemoinianum* has flowers of a deep rose colour, flat, like a Pansy bloom, and $1\frac{1}{2}$ inches across; they are borne all along the branches, and last several days before falling. For cutting these flowers are of no value, but as bright and pretty objects on a greenhouse stage they are well worth cultivating. If anyone grows *Pleroma elegans*, one of the choicest of *Melastomads*, and closely related to the *Monochætums*, he can easily manage these plants if he treats them the same as for the *Pleroma*. Several plants of the above nicely in flower have come under our notice during the past fortnight.

Bignonia speciosa.—Many of the Bignonias are known to be beautiful under exceptionally favourable conditions, but only one or two of them are what one would term good garden plants, and the best of these is *B. speciosa*. In colour it is not so brilliant as some, such, for instance, as *B. Cherere* and *B. venusta*, but it surpasses a long way both these kinds in its habit of flowering abundantly several times a year. In a stove, if its roots are planted in a rich soil, this plant grows most vigorously, and will cover yards of space in a single season with its long string-like branches clothed with bright green foliage. When growth is finished and the shoots are ripening, it is a good plan to loosen them from the wires or strings they have climbed upon, and let them hang down from the roof. A large plant treated in this way at Kew is now an attraction, the shoots bearing in the leaf axils and on their ends large, pale violet flowers with a dash of pink and streaks of white inside. To those who do not grow this plant, and who have a stove or warm greenhouse, we recommend it as a useful and handsome climber.

Burchellia capensis.—At a show held at Richmond some five years ago we saw a large bush of this plant, exhibited by we forget whom, but certainly someone who had taken great pains to grow well a plant which abundantly repaid him in the rich crop of flowers it had yielded. It was a bush 6 feet high, 4 feet wide, pyramidal in shape, the leaves oblong, leathery, and dark green; flowers in compact heads on the ends of every branch, even the smallest branch bearing one. Each flower is an inch long, urn-shaped, somewhat fleshy, and coloured a bright scarlet; a strong shoot bears about a score of such flowers. A month at least is the time one of these flower-heads remains fresh upon the plant. For its cultivation a warm greenhouse is more suitable than a stove, and it likes a rich loamy soil, plenty of water during summer, partial drought with exposure to sunlight and air when growth is maturing; it flowers in the first three months of the year. A small plant in the Palm house at Kew is now in flower, which recalled the specimen we had been delighted by at Richmond.

Rare British plants.—At a monthly meeting of the Horticultural Club, which took place the other day, an interesting paper on "The Preservation of the British Flora" was read, and the following resolution was proposed and unanimously adopted: "That the club, deploring the extinction in many places of British plants and Ferns, which tend so much to the beauty and enjoyment of the country, hereby undertakes to use its best

endeavours to prevent this destruction, and especially invites all tourists to discontinue the practice of bringing away specimens from the places they visit, which in ninety-nine cases out of a hundred never live, and which can most probably be procured from a nurseryman close to their own doors; and urges also on all professional collectors great care in obtaining plants, and, moreover, desires to impress upon managers of provincial shows the need of limiting the collections for prizes for wild flowers, which they fear tend towards the wanton destruction of many plants."

MICHAELMAS DAISIES WELL GROWN AND GROUPED.

WHEN I first began to plead the cause of hardy flowers, and to urge that they had many uses besides the mixed border, then nearly always a sad medley, I used to say that the flower border of those days owed its poor effect to the weedy Asters and Golden Rods allowed to grow rampantly over it! Many things have changed in the flower garden since then, but I scarcely expected to see these despised Daisies themselves forming a beautiful garden picture. They did so last autumn in the garden shown in the engraving. They grew in narrow borders in the kitchen garden with some Scotch Firs seen beyond the walls, and as the Daisies were the best sorts and well grown, the effect was very pretty at the time when autumn Roses and the taller hardy flowers are tossed about by the strong wet autumn winds. In explaining the good effect we have to consider its simplicity; the Daisies had it to themselves, so that the eye was not troubled with more than it needed at a time, and one was left in no doubt as to the source of the beauty. The simplicity, however, was not monotony, for there is much variety of form and colour and habit among these flowers, which are, however, alike in their freedom of growth, hardiness, and in all ways fitness for our climate and our gardens. There is not a garden to which they will not lend a charm. The essential thing is to place them, as a general rule, where they will not have to compete with summer or spring flowers. There are many ways of doing this in quiet corners and borders, and even in some cases in shrubberies or woods. In one way, however, many may be certain to grow them with advantage, and that is with the hardy flowers grown separately for cutting! Their tender and good colours and delicately pretty forms make them welcome to all who care for the best flowers of each season in the house. Cut 3 feet or 4 feet long, and grouped in a large glass with some bold white flowers, such as single Dahlias and the great Ox-eye Daisy, their effect is excellent. For this purpose, the bluest coloured, such as *amethystinus* and other fine garden kinds of the same group, and the varieties of *Amellus* are the most important for colour effect, while those of graceful habit, such as the one here illustrated, though less bright in colour, will be found of value in giving good form to large bouquets.

Michaelmas Daisies are vigorous and rapid growers, the larger kinds increasing more than fourfold in the year. To have fine flowers it is, therefore, necessary to divide and replant yearly. The best way is to pull away pieces with four or five crowns attached to them from the outside of the old clump, and plant three such pieces a foot apart each way. They are strong feeders, and in poor soils want annual enrichment. Those of the *Amellus* section do not increase so fast, and can be left two years without division.

The border here shown and the cut of the single spray was engraved for THE GARDEN from photographs taken at Munstead last autumn.

W. R.

INDOOR GARDEN.

DAPHNE INDICA.

"NORTH-WEST CHESHIRE" complains (p. 107) of his Daphnes having died mysteriously two years in succession, adding that a neighbour had similarly failed with them, and asks if anyone can suggest a remedy. The reason why so many fail with this and other desirable plants is that little or no thought is given to their natural requirements. When procured they are associated with such things as zonal Pelargoniums, Fuchsias, Calceolarias, Cinerarias, tuberous Begonias, Abutilons, and other accommodating plants that can manage to exist somehow with a rough-and-ready, all-alike sort of treatment. Against this this Daphne rebels. It makes few

height, in which case 14-inch pots are large enough. I have had a plant of this character for half-a-dozen years in the same pot without anything being done except seeing to the drainage now and then, and which was kept in vigour by being assisted in the way described each season from the time the growth began to move until it was completed. Even young plants, such as are sold in the nurseries, require assistance in this way during the season of growth and a little when the flowers are developing, but at no other time, as I am convinced that it is not only useless to give anything in the shape of liquid stimulants or surface dressings of manure to pot plants in the dormant season, but that it is highly injurious. The roots have no power to reject even that which they do not require, being compelled to take up in the

is weak. When this Daphne is in a vigorous state the greater portion of the shoots it produces have a prominent wood-bud at the base of each leaf for a considerable length from the extremity downwards. Weak shoots, on the contrary, have only a bud or two immediately at the base of the flowers, in cutting which, on account of their short stems, it is necessary to take the buds in question, which are intended to produce the next season's growth; when these are removed it often happens that no growth is made from the shoots so cut; whereas the strong wood admits of the flowers being removed and enough of the buds remaining to allow of the requisite growth being made. Through want of this peculiarity in the habit of these Daphnes being noticed, it frequently happens that plants in a weak state are hard cut to an



A border of Michaelmas Daisies.

roots as compared with many things, and these are of a delicate nature that cannot bear being in a mass of wet soil, especially when the plant is not in a state of active growth, and, like other spare rooters, it requires to be kept in pots proportionately small. In common with most other evergreen subjects, it will not bear shaking out; consequently there is no chance of renewing the soil, which naturally becomes exhausted, so that there is no possibility of keeping up the requisite strength without liberal assistance in the shape of manure water or of concentrated manure applied to the surface of the soil during the time when the plants are making growth, and which will be carried down to the roots by water given in the ordinary course. It is necessary not to omit this assistance, particularly when the plants have attained something like their full size, say 3 feet through and as much in

water which they absorb whatever elements are present in it.

This Daphne is much slower in growth than many plants, even when it receives the treatment best calculated to get it on. Although, strictly speaking, a greenhouse subject, still where means exist for giving an intermediate temperature for two years or so, it will attain a useful size much quicker. If kept in a night temperature during winter of about 50°, with a proportionate increase by day and a like medium heat in summer, the plants will make more than double the progress they otherwise would in a greenhouse. Ordinary trade examples obtained in 5-inch or 6-inch pots so managed will in the time indicated attain a size and produce shoots of such strength, that the flowers can be cut freely without the plants being reduced to the stunted condition brought about by flower-cutting when the growth

extent that does not admit of their making up the loss at the ensuing season's growth, for it usually happens when the flowers are cut from plants that are in a weakly state that many of the shoots fail to break, or, if they do push, come away so weakly as not to produce flowers worth naming.

I have grown this Daphne placed close to the front lights of a vinery that was started at the beginning of March, where, as a matter of course, some heat was kept up until the weather was warm enough to dispense with it. No air was given at the front until the Grapes began to colour, before which the Daphnes had about finished their growth; consequently they were subjected to a good deal of warmth when the weather was bright, which, combined with the fairly moist condition of the atmosphere, caused them to grow much more freely than if they had been

located in an airy greenhouse. Nevertheless, those who have not the means of keeping *Daphnes* warm until they have attained a useful size need not be deterred from having them, only the cooler and slower they are grown the more necessity is there for care in watering, and in not overpotting them. As already said, *Daphnes* are the reverse of being short-lived. I have had plants for near on a score of years, at the expiration of which time they passed into other hands, that were as vigorous as ever. During the time they are growing they will bear the soil keeping fairly moist, but not so wet as quicker-growing things would do with; at the same time the leaves should not be allowed to flag for want of water. From the time that growth is matured until the plants are again moving the ensuing spring the roots must not be drenched with water in the way that some things will bear, even if they do not like it; as opposed to this it should not be given until the soil has become so far dry that its longer being withheld would leave the roots deficient of the comparatively little moisture they absorb in the dormant season. To sum up, it is too much water, over-potting, and want of sufficient sustenance to the roots in the growing season that are the usual causes of *Daphnes* dying, or getting into a condition that renders them useless.

Nearly all the trade-raised plants are grafted, the stock generally used being the British species, *D. Laureola* (the Spurge Laurel). By grafting time is saved, as in this way the plants sooner reach a saleable size than when struck from cuttings, and one cutting will make several grafts, which is an important consideration with a plant, of which, as already said, the stock to propagate from is always short. Stocks of the Laurel named are easily raised from seed. But in private gardens the propagation of *Daphnes* and other plants by grafting is not always convenient, whereas cuttings can usually be struck. *D. indica* roots readily from cuttings made of the points of the partially matured shoots taken off about 3 inches long in August and inserted in sand, kept moist and shaded under a propagating glass in a cool house until the ends of the cuttings are callused; they must then be kept in a temperature of about 50° in the night and warmer in the day, where they will root. The glass must not be removed until sufficient roots are present, after which dispense with it, keeping the little plants in a similar temperature until March; then put them singly in 3-inch pots, using good peat in which there is plenty of fibre, with some sand added, treating them onwards generally as advised for bought-in plants. Give larger pots as required until the plants have reached something like their full size and occupy such as are 12 inches or 14 inches in diameter.

These *Daphnes* are natives of China, and their perfume is preferred by many people to that of all other plants. The old *D. odora* and its variety *D. odora rubra*, which also come from China, are stronger scented than the varieties of *D. indica*, which latter, taking all their properties into account, are more desirable plants, owing to which they have in a great measure supplanted the older kinds. I have thus stated what I have found these *Daphnes* require and what they do not like in the hope that the details may induce "North-west Cheshire" and others who have not been successful with the plants to try again, and, I hope, succeed better. There are few plants that better deserve all that can be done for them, and it is quite time that a turn was taken so as to introduce an admixture of a better and more interesting class of plants among the commonplace material too often met with, and which reduces the contents of nineteen-twentieths of the plant houses which one sees to nothing more than repetitions of the same things.

T. B.

HOT WATER V. STEAM HEATING.

THE use of steam as a medium for warming plant and fruit houses, noticed by "Veronica" as now being adopted in America, is not a discovery that our friends at the other side of the Atlantic can lay claim to, as it was tried in this country and given up in favour of the now little-used flues. At the place where I was at in the early days of my gardening career, Cloughton-on-Brock, there was a range of five houses that, so far as I can make out, were built about a century ago; they were of the ordinary lean-to shape, but longer and considerably wider than this form of house usually is. A portion of them had copper roofs, the remainder wood (Memel). Originally they were heated by steam, and I have often seen part of the old apparatus, including the boiler and gauge, in the shed where it was fixed; but flues had been substituted in its place long before I knew it. This course was taken, I understood, on account of the constant attention, day and night, which was required, and which is ever likely to be indispensable where steam is used. An old hand on the place, who attended to the apparatus in the night-time, has often told me of the difficulty he had in keeping awake, on account of the little he had to do, although required to be continually present, and how thankful he was when the flues were put in. All the objections which Mr. Kinnell urges against steam are correct, and there are now more reasons against its adoption for horticultural purposes than there were a few years back. Not only are hot-water pipes much cheaper than they were, but since Portland cement is found to answer as well for making the joints as the iron borings that used to be looked on as necessary, the cost of putting the pipes together has been much reduced. But where steam is employed it is not likely that the cement joints in question would be able to withstand the pressure. One great advantage in the use of cement is, that there is little difficulty in taking the pipes to pieces should occasion require their being moved or altered.

The portions of the houses that were built of wood in the range I have instanced afforded good evidence of the length of time that timber will last when so employed, provided it is of the right description and well put together, and it is properly attended to with paint so as to keep the wet from getting into the joints, as it is only a few years back that they were rebuilt and hot water introduced in place of the old flues, which had been equally constructed with a view to their lasting, as they had never been rebuilt or anything done to them except the annual cleaning out; they were almost large enough for an ordinary individual to creep up, and were covered with soft stone flags.

It is not likely that anything will be introduced to supersede hot water for heating plant and fruit houses. In addition to its simplicity, for there is no mystery or difficulty about it, such as some try to make out, it can be depended on as so genial, that it answers better for plants in general than any other medium by which the required heat can be kept up, for though it is sometimes urged that when the pipes are kept very hot, such as at times is necessary to maintain the requisite temperature in severe weather, still I never saw any injury occur in this way if the atmosphere was not kept too dry. As a natural consequence when the water in the pipes is almost at the point of boiling for hours together in the way that often becomes a necessity in hard frost, it follows that unless enough moisture is present the air gets over dry. Of course it is much better on the score of economy to have enough piping to obviate the need of getting the water up to such a temperature, for unless the boiler has much less piping attached than it is capable of heating, where the water has to be got to nearly boiling, the fire has to be driven at a rate that consumes the fuel faster than it should.

T. B.

Forcing Daffodils.—The common Daffodil or Lent Lily, and also the double and single forms, force easily. And if English-grown bulbs are not

as good as foreign, they are at least so good that anyone having a stock of them need not send for others. For some time past a neighbour has had a grand show of Daffodils in boxes, reminding one of the striking effect which they produce in the open air when planted in masses. The bulbs were lifted in autumn, planted rather thickly in boxes, and brought on in heat in succession. When flowering is over they are hardened off, well ripened, and again planted out.—E. HOBDAV.

Violets.—I notice that "J. R." (p. 242) recommends *Marguerite de Savoie* as second to *Marie Louise*. This is new to me, and, if not too much trouble, I should be greatly obliged to "J. R." for a few plants or runners. *Comte de Brazza* has not yet come up to my expectations, but possibly we have not yet got into the right way of growing it, for I have seen it good in other hands. I am glad that "J. R.," as well as W. A. Cooke, agree with me in placing *Marie Louise* first as the best Violet grown, and should be glad to hear if any reader of *THE GARDEN* knows a better. I should consider an equally good Violet with more blue in it an improvement. In regard to single Violets, the raiser of *Queen Victoria* promised an improvement on that fine variety. Has this been sent out, and if not, when may we expect it? And has anyone a better single than *Queen Victoria*, or a better second to it than *The Czar*? A good single white is still greatly wanted, all that I have purchased hitherto proving mockeries, delusions, or snares. This is strong language, but it is natural after trying all the single white Violets I could obtain. The white *Czar*, for example, I consider useless.—D. T. FISH, *Hardwick House, Bury St. Edmunds*.

Lily of the Valley.—"S. W." says (p. 134) that if the finest samples of imported roots of this Lily are started in too high a temperature, i.e., from 80° to 90°, they will be sure to produce leaves and little else besides. To this "T. B." replied (p. 163) in a manner that would have satisfied most people. But not "S. W.," who (p. 188) reiterates his statement, coupled with the expression that he does so without fear of disproof. In my notes on the early forcing of this plant (p. 164) I wrote that I subjected it to a bottom heat ranging from 90° to 110°, and I go even further now and state that occasionally the temperature rises to 115° without any apparent injury to the pips or crowns. It is evident that "S. W." has not forced Valley Lilies early largely, or he would not have mentioned a moderate bottom heat being detrimental to them. Why he refers to growing them in the light I do not comprehend. Let him confine himself to his original remarks (p. 134), and I feel confident that every successful early forcer of Valley Lilies will agree with me, that without a bottom heat of at least from 80° to 90° no good can be done with them whatever, and even then in December and January a much larger proportion of flowers than leaves is the result.—WM. ELPHINSTONE, *Shipley Hall, near Derby*.

Tree and other Carnations.—I have not seen the Carnations at Tring Park (p. 200), but they must be beautiful. Some of the perpetual flowering varieties mentioned I have grown for many years, and consider them very desirable varieties to cultivate. To those named I would add *Mrs. Llewellyn*, a charming deep rose; *Worthington Smith*, a lovely scarlet variety, but objectionable in habit, being tall and straggling. If cuttings of these and others were not put in last month, they should be seen to at once. Let the small side growths be slipped off with the fingers, and be planted in 4-inch or 5-inch pots, a dozen in a pot. They do not take long to form roots in a heated propagating house, in which there is a little moist bottom heat. They should not be exposed to the atmosphere of the house, but should be under a glass light, or a square or two of glass may be laid over them, resting upon the labels—a simple contrivance, but sufficient to prevent shrinking up instead of forming roots. In this way very few fail to strike. They also form roots in a frame, placed over a hotbed. When roots have been formed the young plants may be potted off into small pots, and be placed in a warm house on a shelf or in some

other position near the glass until they have grown a little, when they must be inured to a cool, freely-ventilated house. Good culture consists in keeping the plants quite clean, and shifting them as they require more pot room, never letting them get root-bound. After May they do best out of doors, with the pots plunged in Cocoa-nut fibre refuse to prevent evaporation. We are now repotting the summer flowering varieties into the pots in which they are to bloom. These being choice varieties both of Carnations and Picotees, are kept in cold frames all through the winter, and are planted out or repotted as soon as they begin to grow in spring. For this purpose we use 7-inch, 8-inch, and 9-inch pots, and one, two, or three plants are put in each pot. The best potting soil either for these or Tree Carnations is good turfy loam four parts, one part decayed manure, and one leaf-mould. They require to be potted rather firmly. If the loam is heavy a good sprinkling of sand should be added to it. When potted they are usually placed out of doors, but I prefer placing them in frames if the weather is unfavourable. At the same time I must remark that I have sometimes placed them out of doors as soon as potted, and in a few hours they have been thickly covered with snow without being in any way injured thereby.—J. D.

PLANT NAMES.

"F. W. B.," writing on this subject in THE GARDEN (p. 156), suggests that "All garden seedlings, florists' flowers, &c., be sent to the committees of the Royal Horticultural Society to be named." Had he had practical experience of what the committees have to do, he would have known that he was giving them work which ought to be done by raisers themselves. The latter have named their plants for more than a hundred years, and no difficulty to speak of has been experienced. For instance, I have raised seedling *Auriculas*, *Amaryllises*, *Gladioli*, and other plants, and notwithstanding all that has been written on this subject, I have seen nothing to alter my opinion that I am solely responsible for naming my own productions. Surely "F. W. B." does not suggest any other system of naming than that now practised. Our present plan would be to name a large red *Amaryllis* Tom Jones, or a delicately tinted one *Clarissa Harlow*, &c. The name is speedily recognised, the plant is sent out under that name after it has been exhibited, and in all the hundreds of florists' flowers distributed by some of our large firms I have not heard a word of complaint. Where, then, do we hear of complaints? is it not amongst the *Daffodils* and the *Orchids*? Certainly it is. Take, for instance, the great Welsh *Daffodil*, as it is called. It was sent out under the name of *Narcissus incomparabilis* var. *Sir Watkin*, but this name was not given to it by the raiser. Although the name is lost, no doubt he named it; but was it not also named *James Dickson* before it was given that of *Sir Watkin*, both names having been published? Now, I hold that those who attached the above names to this *Daffodil* had no right to do so. This was a case requiring the consideration of some properly constituted authority. We may find presently that the name *Sir Watkin* has been interpolated in error. The naming of *Orchids* is getting into an interminable confusion, owing to the reckless way in which owners of collections attach their own names to them, or else their friends do it for them. For instance, at a recent meeting of the floral committee a variety of *Cattleya bicolor* was exhibited under the name of *C. Measuresiana*, and the name, like that of *Sir Watkin*, was published in the gardening papers. If the variety in question should differ considerably in colour from *C. bicolor*, there could be no objection to its being called *C. bicolor Measuresiana*, as it is the custom to do so, although I would rather another system was adopted, such as that inaugurated by Mr. Marshall, of Enfield, who named some fine varieties of *Cattleya* *Trianae* by the varietal names of *Io*, *Atalanta*, *Penelope*, &c.; that is perhaps fifteen years ago, and of *Penelope* I found a plant in flower in Mr. Philbrick's collection at Bickley the other day. This is a matter

with which the floral committee could easily deal. Indeed, the committee decided that the *Cattleya* to which I have alluded was merely a form of *bicolor*. J. DOUGLAS.

Iford.

FLOWER GARDEN.

WATER LILIES IN NEW JERSEY.

HAVING devoted much time and labour for several years to the cultivation of aquatic plants, it is but natural that I should read with avidity everything which appears in THE GARDEN upon this subject. As a slight return for the pleasure and profit which I have derived therefrom, I offer some account of "my work among the Water Lilies." I am bold enough to believe that some points in my experience will be useful to my friends across the water. I cannot say, with Mr. Miles, "that the culture of Water Lilies has been disappointing," for to me they are a source of unbounded satisfaction for several months in the year, and I may say both night and day, as at night we have *Nymphæa rubra*, *devoniensis*, *dentata*, and the *Victoria regia* delighting us with their charms, and when the sun is a few hours high, nearly the whole tribe of *Nymphæas* and *Nelumbiums* can be seen open together. It is interesting to notice the habits of these plants in regard to the opening and closing of their flowers. Our native species (excepting *Nymphæa flava*), together with *N. alba*, *N. candidissima*, and the *Nelumbiums*, open quite early. Then comes *Nymphæa cerulea*, and at 10 a.m. *N. flava*, which remains open till 5 p.m. *N. zanzibarensis* opens at 11 a.m., and *N. pygmæa* almost precisely at noon, remaining open till about sunset. The burden of Mr. Miles's complaint is, want of heat and warm water. In this climate, almost every species of *Nymphæa* that will endure the winter will flourish and bloom profusely when planted in natural ponds. In a mill-pond, a few miles distant from my garden, I have a plantation of *Nelumbium speciosum*, which has become entirely naturalised, and when it is in its glory is worth travelling many miles to see. But, from necessity I am compelled to grow the bulk of my collection in large tanks or basins, built with walls of brick and cement, and with the bottom of concrete, or of cement only, spread upon the bare clay. They are similar, I suppose, to the one not long since built at Kew for hardy aquatics. I have two of them, side by side, each 50 feet by 36 feet, and one 30 feet by 20 feet for the *Victoria regia*. In the large tanks, not only the hardy *Nymphæas* and the *Nelumbiums*, but every tropical species of *Nymphæa* is grown entirely without artificial heat. The former are left in the tanks all the year, and in winter the ice has sometimes formed to the thickness of 8 inches. Two "cold spells" have occurred this winter, during which the thermometer fell to 4° below zero Fahr. The tender kinds are first started under glass, then planted out the last of May or the 1st of June. They make rapid growth and soon begin to flower, and continue in bloom until the last of October, though, of course, the bloom is most abundant during warm weather. They are then taken indoors for the winter. Just here is one of the points which I wish to impress upon my English friends who are trying to grow aquatics in the open air, namely, the higher temperature to which the water and soil can be raised by the sun in tanks, such as those I have described than in any natural or artificial pond with a bottom of nothing but the natural earth or clay. If such an arrangement is useful here, with our bright sun and hot weather, in bringing to perfection the tropical species, why should it not be useful in England in the cultivation of

such kinds as *Nymphæa odorata* and others, which, though they endure the winter, do not make strong growth in summer?

TANKS.—I venture to assert that if ever the grand and stately *Nelumbiums* are successfully grown in the open air in England, it will be in shallow tanks of masonry. In arranging these for the plants, I do not in all cases cover the entire bottom with soil. For growing extra specimens of the tropical *Nymphæas* a few pits or beds are sunk in the bottom 1 foot deep and 4 feet square for holding the soil. Other beds or compartments are made along the sides by laying in cement two rows of bricks on edge. These beds are cut into squares or parallelograms, according to the amount of space to be given to particular varieties. It is necessary to plant *Nelumbiums* in walled-in beds of this sort, or they would ramble over the entire tank. It is also necessary to plant each particular variety of *Nelumbium* in a separate bed or compartment, or the different varieties would run together. The first tank which I built was for the purpose of trying to flower the *Victoria regia* in the open air. It was located on the south side of a vinery and fully exposed to the sun. Its dimensions are 20 feet by 30 feet, and it was 15 inches deep, with a pit in the centre to hold soil. It has an arrangement for heating the water artificially at such times as sun-heat is not sufficient. The tank is near a plant stove. From the boiler which heats this stove a flow and a return pipe is run to the tank and taken just inside the walls, and no further. The ends of these pipes are left open, so that when fire is kept up there is a constant circulation between the body of water in the tank and the boiler, and the desired temperature is maintained. As the water is fully exposed to the sun and air, no injurious effects follow this manner of heating. On the contrary, the plants attain as great perfection as in any glass structure with the tank heated by pipes immersed in the water.

Here, I think, is the key to the successful cultivation of *Nelumbiums* and many of the *Nymphæas* in the open air in England. It is a far less expensive arrangement than the glass structures built for such purposes, and I cannot see why your lack of summer heat cannot be overcome in this manner to such a degree as to give a fair measure of success. If no glass structure is at hand the boiler of which can be utilised, then special arrangements can be made. The tank might be placed on the open lawn and the boiler pit some distance away out of sight. Another lesson I have learned. To bring aquatic plants to their greatest perfection there must be abundance of root room and space for the spread of the foliage. I would about as soon think of keeping *Cinerarias* always in 2½-inch pots as to grow the *Nelumbiums* or most kinds of *Nymphæas* in tubs if anything better can possibly be afforded. Of course, if large half-hogsheds are used, and these are plunged in a pond, there is less objection. The second season after building a tank for the *Victoria* I determined to try *Nymphæa devoniensis* and *N. dentata* in the same position. The pit in the centre is 4 feet across and contains the rich compost usually given to the *Victoria*. In this two plants of *N. devoniensis* and one of *N. dentata* were placed. The result was indeed a revelation. These plants grew to cover a space 20 feet in diameter, producing leaves 2 feet across and flowers 12 inches in diameter. In succeeding years I gave similar treatment to hardy *Nymphæas* and *Nelumbiums* with most gratifying results. The soil in which I now grow nearly all aquatics consists of good garden loam or rotted pasture sods, and the best stable manure (or cow manure) in nearly equal

quantities, with a sprinkling of bone-meal and a covering of an inch of sand to keep the manure from rising. This compost from 9 inches to 12 inches in depth I find to be ample. I do not find that pond mud is at all essential in cultivating these plants. One word more in regard to the matter of root-room. A *Nelumbium* may be fairly well grown and flowered in a bed 3 feet square, but in order to attain the greatest perfection and a long period of bloom I find it necessary to give each variety a bed 6 feet or 8 feet square to itself. As is well known, their tubers are annual, and from these proceed the creeping rhizomes, which I have known to run as much as 30 feet in one season. It is therefore undesirable that they should be compelled to form a matted mass in a small space.

NELUMBIUMS.—*Nelumbium speciosum* I obtained from Kew several years ago, and as each year I have given it more and more liberal treatment it has gone on doing wonders for me. In my Lily tank it blooms constantly from July till late in October, frequently producing flowers which in their last stages of expansion measure 13 inches across, borne on foot-stalks 6 feet and 7 feet long. Many leaves measure 2 feet and 2½ feet across, and in one case 35 inches. It is quite hardy if kept from actual freezing, and one bed of it I winter by drawing off the water and covering with leaves. But the greatest marvel in this line is the naturalised plantation before referred to. A corner of the millpond was chosen away from the current of a stream which passes through it, and where the water is only from 1 foot to 2 feet deep. The soil consists of a greasy bluish clay, exceedingly rich in vegetable matter. Here, one or two tubers were planted some six or seven years ago, and the growth which they have made must surely equal that of anything found in Eastern countries, spreading in every direction, even into the wild shrubbery on the banks where there is no standing water, and there flowering. The extent now covered is nearly one-eighth of an acre. Multitudes of leaves are produced from 20 inches to 30 inches in diameter, and one measured exactly a yard across. They stand 5 feet or 6 feet out of the water, the total length of foot-stalk frequently being 7 feet. One morning last August, 100 noble blossoms were expanded at one time. Their colour is also rich and fine, especially after the intense heat of summer is past, when they assume a much deeper rosy hue. To produce such results as this in such a northern latitude, and to be instrumental in popularising so noble a plant, is, I had almost said, a sufficient life work for one man. Of Japanese *Nelumbiums* I have four varieties. One, a large, bold, and somewhat globular flower, ivory-white, with a few crimson stripes at the edge of the petals; one variety with white flowers, but single and not semi-double like the one figured in *THE GARDEN* last October. Another is light pink and white, paler than *N. speciosum*; and the fourth has blooms of a uniform rose colour much deeper than *N. speciosum* and very beautiful. This last was raised from seed which came from Japan, and represented as being nixed, red, white, and rose, but all have so far turned out to be rose coloured. Mr. Miles very kindly sent me some of the *Nelumbium* seeds to which he refers in his article in *THE GARDEN* (Dec. 26, 1885). I succeeded in raising plants of what were marked as three distinct varieties, flowered last summer and proved to be all of one colour, and precisely like those which were raised from the Japanese seed coming from another source. All the varieties from Japan endure the winter as perfectly as *N. speciosum*, and although they are very desirable have not proved to be quite as profuse bloomers as that species. It will thus be seen

that nearly all the *Nelumbiums* are here, in America, "about as manageable as *Pæonies*." *Nelumbium luteum* is grown in the Lily tank, and given precisely the same treatment as *N. speciosum*, yet it does not at all approach the latter in vigorous growth and profusion of bloom. Notwithstanding the fact that it is native here, it is not so easily managed under cultivation as *N. speciosum*. Fair success, however, is attained, and we cannot well do without it. It is a grand plant for large ponds or lakes, but a location should be chosen where there is abundance of rich mud.

TROPICAL NYMPHÆAS.—*Nymphæa devoniensis* and *N. rubra*, when grown as single specimens here, cover a space 20 feet across. They have leaves 25 inches in diameter, and flowers 12 inches from tip to tip. I have had as many as fifty blooms of these of different sizes open at one time. *Nymphæa Sturtevanti* is a seedling from *N. devoniensis*. As grown here in the open air the foliage assumes the deep reddish colour of *Coleus Verschaffelti* and is peculiarly wrinkled, being in every respect distinct from its parent. The flowers are more cup-shaped than those of *devoniensis*, having something of the graceful form of *N. candidissima*. The petals are invariably more numerous and broader than in the parent variety, and are of a deep rosy hue, which is particularly fine by lamplight. *Nymphæa dentata* grows to the same dimensions as the above, as does also *zanzibarensis* I received direct from Dr. Caspary, and with me the flowers are of a much darker shade of purple than that represented in the coloured plate in *THE GARDEN* published some time ago. As it grows here in my open-air tank, producing leaves 25 inches in diameter, and flowers measuring 12 inches from tip to tip of sepals, it is truly a queenly plant, and the statement that it is "the finest of the genus" is not far from right. Some of the first seedlings which I raised from this did not produce flowers of the same depth of colour as the type. These, for convenience, I call *Nymphæa zanzibarensis azurea*, on account of their lovely shade of azure blue, far surpassing that of *N. cyanea* or any other blue variety in depth of colour, and *Nymphæa zanzibarensis rosea*, which I think is a sport and not a hybrid, the product of the same seed-pod from which the azure varieties were grown. It is precisely like the type in size, form and fragrance, but the colour is a mixture of pink and lilac, a shade somewhat difficult to describe. The contrast between this and the bright green of the sepals is very fine. *Nymphæa cærulea*, grown in the Lily tank, reaches a size and depth of colour unattainable in "pans 15 inches in diameter." This will not endure the winter. I wish some one would tell the difference, if any, between this and *scutifolia* and *cyanea*. *Nymphæa Daubeniana* is interesting, but so pale in colour as to make but a poor show beside the other blue kinds. *Nymphæa gigantea*, the true large-flowered form, I have now growing under glass, raised from seed sent from Kew. I expect to be able to report next summer whether it is really gigantic or not. **Victoria regia.**—This has been successfully grown in the open-air tank specially built for it. The plant is started under glass in the usual manner, and planted out about the 1st of June. Artificial heat is kept up during early summer and autumn, but for six or eight weeks in midsummer sun heat alone is sufficient. Leaves are produced 6 feet in diameter, with a rim 3 inches high. It begins flowering in July, continues till October, and matures perfect seed. I am anticipating great pleasure in flowering next summer the new crimson-flowered *Victoria*, which I have now started in a plant stove. It is said to produce

larger leaves than the ordinary variety, and a vertical rim 6 or more inches high.

HARDY NYMPHÆAS.—*Nymphæa alba* takes very kindly to our climate, and flowers profusely for a longer period than *N. odorata*. *N. candidissima* was presented to me by the late Mr. Thomas Speed when I visited Chatsworth ten years ago, and is one of the most satisfactory plants in my collection. Judging from the vigorous growth which it makes in warm water along with the tropical species, one would think, with Canon Ellacombe, that it is a native of some warmer climate than that of England. This variety never produces seed with me. It begins to flower in May and continues till well into October or until frost sets in, fully a month longer than our native *N. odorata*. Many blooms measure over 6 inches across. *Nymphæa alba* var. *rubra* does not take so kindly to our warm water as the other hardy kinds, but I have flowered it sufficiently well to judge of its merits. It is very pretty and interesting on account of its reddish or pink colour, but for real merit bears no comparison with our native *Nymphæa odorata rosea*, which has colour enough to satisfy the eye of an artist—a shade of red or rosy pink which must be seen to be appreciated. Mr. Miles truly says that it must not be judged by flowers produced under glass. A large space in my Lily garden is devoted to this. On a summer's morning quantities of bloom may be seen which, as the sun strikes them, glow like fire. This is the queen of all the hardy varieties, and worthy of any amount of trouble to grow. Here it grows even stronger than the charming *N. odorata*, whose blooms cover some of our lakes as with a shower of snow. *Nymphæa tuberosa* is useful for making plantations in large lakes or ponds, but for a select collection it is of too weedy a character and too shy a bloomer. *Nymphæa flava*, the Florida Water Lily, is entirely hardy here. I have found it difficult to establish in natural water, but in the warm cemented tank it is a complete success. This plant dislikes pot or tub culture. It sends out numerous runners like a Strawberry plant, and must therefore be planted in one of the compartment beds of the Lily garden, where it can be confined to certain limits. It likes abundance of room, say a bed 3 feet or more square. The second season after planting it bears quite freely its canary-yellow, sweetly-scented blossoms, which are nearly the size of those of *N. odorata*. A singular fact in regard to this plant is that the seeds are two-thirds the size of those of the *Victoria regia*. *Nymphæa pygmæa* or *tetragona*.—This is hardy here, and flowers freely from May until frost comes. They are tiny indeed; but here some of the stronger plants bear flowers quite 2 inches across. I find them to be lemon scented.

OTHER SMALL-GROWING AQUATICS help to fill out the picture. *Limnanthemum lacunosum* might well be called a fairy Water Lily, with its tiny white blossoms less than half an inch across. *Limnanthemum nymphæoides* and *Limncharis Humboldtii* continue to open their pretty yellow flowers all summer. The latter I have christened the Water Poppy. The curious floating *Pontederia crassipes* and *Pistia stratiotes* are quite at home in the open, and a place in shallow water is given to the graceful and interesting *Papyrus antiquorum*. *Zizania aquatica*, the Wild Rice or Water Oat, lifts its graceful panicles some 7 feet out of the water. Seeing it thus in company with the aristocratic *Nymphæas*, few would suspect it to be a common weed in some of our streams.

Late last summer I placed a few weak plants of *Ouvirandra fenestralis* in one of the unheated open-air tanks. They made such im-

provement as to show that the treatment suited them. So early next summer I shall put out some good plants, with which I am confident of success.

INSECTS.—Mr. Miles complains that some kind of smother fly attacks the leaves of *Nymphæas*. I suspect that they were brown aphides. To destroy them I make an emulsion of kerosine oil (paraffin I believe you call it in England) and butter-milk. This is diluted with water and applied with a syringe. One application will destroy them, and keep them off quite a long time. Perhaps strong tobacco water would have the same effect.

At hybridising Water Lilies I have made some attempts, but, like Mr. Miles, I find it uphill work. My greatest ambition has been to obtain a form of *N. odorata* with flowers of a decided red colour deeper than that of *N. odorata rosea*.

A few years ago I fertilised a flower of this latter variety with pollen of *N. rubra*. Good seed was produced, and from this plants were raised, but instead of the flowers being darker than those of the female parent they were lighter. That this was in some sense a cross is shown by the following facts: The rhizomes of *N. odorata rosea* are large and somewhat succulent, whereas in the hybrid they are very slender, producing numerous side branches, which are slightly tuberous. I would be greatly obliged if someone with experience in such matters would tell me if there is a better chance of success by fertilising flowers of this seedling plant again with pollen of *N. rubra* than to try over again with *N. odorata rosea* or the pure white species. I have tried to cross *N. candidissima* with blue-flowered species, but cannot get it to produce seed. I now have seedlings growing produced by fertilising *N. Daubenyana* with *N. zanzibarensis*, and expect to flower them next summer.

The culture of tropical Water Lilies in the open air has been a revelation to many in this country, and Lily tanks of the prescribed pattern are becoming a feature in many private and public gardens. In Fairmount Park, Philadelphia, a fine collection has been grown in this way for several years, attracting much attention. During the coming season another large city is going to introduce them into its principal park.

EDMUND D. STURTEVANT.

Bordentown, New Jersey, U.S.A.

Winter Stocks.—It is to be feared that those beautiful Stocks, the Bromptons, Queens, and Emperors, will make but a poor show this spring. Ordinary winters they may pull through, but when we get half-a-dozen ordinary winters rolled into one, then such plants get the worst of it. It is common enough to hear lamentations made over the decadence of favourite old garden flowers, and none are more regretted than are these winter Stocks. When, however, the weather kills them wholesale, and the season's bloom and seed are lost, there is not only natural difficulty in keeping the strains in existence, but there is natural disinclination to grow yearly plants that so often succumb to the weather. "Veronica," I observe, laments the decadence of the old double Wallflowers, and in that lament I cordially join; but this decadence is due much less to neglect of propagation than to the repeated losses which our winters in the past have inflicted upon those who grow these beautiful border flowers. The trade or those who have frames might, of course, easily maintain these things in pots through the winter safely, but growers of them are mainly cottagers or those who trust to hardy plants for the

decoration of their gardens, and hence have no glass. If, therefore, this class of gardeners cannot keep their pet plants through the winter, they will hardly purchase others, even if they are to be had. We find the same difficulty arising in reference to the old-fashioned winter Stocks, for one or two successive losses of the winter stock of plants very naturally discourages further attempts. Very fortunately, we have at command a glorious wealth of summer Stocks, and can have at least five months of bloom from them if ordinary care be taken to keep up the succession. Indeed, it is but needful to sow at once a few kinds of Ten-weeks, pyramidal, and branching autumnal kinds, and get them planted out as early as possible, to have a wealth of flowers from midsummer till Christmas. This season, too, may be materially lengthened by sowing seed of some good intermediate or East Lothian kinds in August, and keeping the plants in frames through the winter to bloom in the spring. We cannot dispense with Stocks altogether; that is certain; and if it still remains difficult to obtain plants of the old-fashioned winter kinds, we can at least enjoy a feast of more dainty forms during the summer.—A. D.

TRILLIUMS.

THESE North American plants are now rarely met with in gardens in any quantity, although in



Trillium grandiflorum.

the good old days of hardy flowers we hear of them, as well as of many other rare American plants, having been cultivated with great success by Salisbury in the Botanic Garden, Brompton, and by others elsewhere. Choice of situation rather than special soil appears to us to be the chief essential to their well-being. They love shade and moisture, especially the former, and in many gardens this is just what is neglected, the plants being generally covered with unsightly weeds. Time is often lost in trying to establish Trilliums in the mixed border, but they do best in a suitable position in a shady wood. There they make a paradise of what is too often a waste. They may also be used as an edging on the shady side of a Rhododendron bed, &c., just as we use Snowdrops and other bulbous or tuberous-rooted plants. *T. grandiflorum*, here illustrated, is perhaps the most plentiful, and certainly by far the easiest to accommodate of all the Trilliums. It grows and flowers in profusion on a damp spot in a partially shady wood, presenting a most attractive appearance all through June and the beginning of July. Patches in sheltered nooks in the rockery out of reach of the east winds are very pretty; this species has large handsome pure white flowers that die off pink or rose. They are from 3 inches to 5 inches in diameter;

the leaves, which are in whorls of three, are a little longer than broad. It is a native of rich woods in Kentucky, Vermont, &c. It can readily be increased by division. *T. erythrocarpum*, the painted Trillium, is a very pretty species, with white flowers striped at the base with purple. The leaves, which are oval-shaped, are light green with a purple margin. It requires plenty of moisture all through the summer, and we find it to do well on the bank of a little streamlet. It is a native of Virginia, and flowers in May and June. *T. erectum* and the variety called *atropurpureum* have both fine and showy flowers of a deep rich purple. In *T. ovatum* the flowers are white and recurved. *T. petiolatum* is dark purple; *cernuum*, white and drooping, not so showy as *grandiflorum*; *nivale*, white and sessile, dull purple. K.

SNOWDROPS, SINGLE AND DOUBLE.

THE theory of Snowdrops changing from single to double and from double to single is a very interesting one, and one by no means of universal application. To those acquainted with places where the common Snowdrop is almost without limit, and where, so far as the most careful observation goes, not the smallest change in either direction can be discovered, it seems incredible that such conversions can occur. What, for instance, can the single form require that the double one does not? or, on the other hand, what can the double kind need in the nature of soil requirements which would not be equally congenial to the single form? And yet clearly there is some mystery about the matter. We cannot gainsay the evidence adduced by such observers as the Rev. W. Wilks, that in some places the single form disappears and the double one survives and increases. Here, where the single Snowdrop is the pride and glory of the place and exists in countless numbers, and is, moreover, so vigorous that the stems attain in many cases a height of 9 inches, and the sepals are fully 1 inch in length, and where seed is produced in abundance, and where seedlings overrun the place, it is quite clear that the effort of seeding—as adduced by "D. T. F."

—does not exhaust and finally destroy the bulbs; on the contrary, original clumps increase annually in size and individual strength of bulb. However, if his theory of seed-exhaustion was borne out, the seedlings would remain, which he appears to have overlooked. Be that as it may, what induced me to pen these few remarks is this. When, some years ago, these Snowdrops were first planted, a few—very few—clumps of the double form were placed amongst the rest, and these have not increased to any appreciable extent. They show no tendency whatever to extend beyond the spots in which they were first placed, and are in no sense vigorous, as compared with their single companions. Their flowers open immediately on emerging from the ground, and never rise more than 3 inches above it. I should add that they are the very double kind; we have in the neighbourhood a semi-double and much more vigorous variety, but it is not in the garden in question. I should advise all who may have any difficulty in keeping single Snowdrops to sow seed, and sow it freely for two or three years in succession. I feel certain they could be established in that way.

Nearly.

T. SMITH.

Red-flowered Yucca (*Hesperaloe Engelmanni*).

—This plant is a native of Texas. It is sometimes named *H. yuccæfolia*, or red-flowering Yucca. It is a dwarf grower, but when well established

throws up a flower-stalk 7 feet high, with at least one thousand flowers to a stalk, which are smaller than those of the Yuccas generally; they are purple outside, fine red inside, and bell-shaped. A few flowers open each day, and it takes fully three months to perfect all of its flowers. The stems and young buds are purplish in colour, which renders the plant quite showy. Think, says the *Gardeners' Monthly*, from which this extract is taken, of a dwarf plant with one thousand flowers similar to our *Yucca filamentosa*.

FRUIT GARDEN.

HARD PRUNING.

THE Peach tree figured in "The Gardener's Assistant" has several times come in fortunately for "J. S. W." against which to hold up the imaginary merits of his semi-wild unpruned trees, the glowing description of which will not deceive experienced fruit growers. At page 235, the Peach tree named serves a purpose of misrepresentation wherewith to associate my name, as "J. S. W.," if he has read the book, cannot fail to know, that I had nothing to do with the fruit department in it. He speaks of its being high time to saddle the right horse, but he is attempting to saddle the wrong one, and I challenge him to point to anything I have ever written in favour of any pruning further than is needful for the present and future well-being of the trees or Vines that are being dealt with. "J. S. W.'s" branch of Nectarine which he speaks of as figured in *THE GARDEN*, Vol. XVII., p. 510, had nothing about it but that which is common to any wrongly managed tree that is run up with the illusory intention of getting the branches to extend over the allotted space in the least time, regardless of the tree becoming almost at once devoid of bearing wood in the middle. Of this no better proof is required than the condition of "J. S. W.'s" two-year-old Royal George Peach, shown on the adjoining page; the long lengths of bare branches in this tree, whilst yet in its infancy, afford as clear an example of the mischievous tendency of this extension teaching as could be required to condemn it. Peaches with long lengths of bare fruitless branches in the centre of the trees might at any time be seen where they were unskilfully managed, and it was in the attempt to correct this that the mistake of too much cutting back was committed by some, which I and others who do not believe in extremes object to as alike wrong with the so-called extension training that "J. S. W." gives out as a new discovery of his, but which I beg to inform him is, in all but the name, an old condition of the trees which the work of successful fruit growers, past and present, has shown to be wrong.

No evidence could be adduced that shows more clearly the untenable position in which "J. S. W." has placed himself with this non-pruning or extension practice, which means one and the same thing, than what he says in last week's *GARDEN*, p. 232, where he tells us that "fertility is not a question of producing the largest quantity of fruit in the least space, but the greatest quantity of fruit in a given time." The italics are his own. A more complete condemnation of the extension non-pruning practice, which he has all along been trying to show the merits of, it would be impossible to produce than is thus afforded by "J. S. W.'s" own words. So the cost of fruit houses, keeping them in repair, and the fuel required to heat them, like the garden walls on which the trees are grown, are to be left out of the calculation. This is a startling admission, but it is exactly what those who object to the chimerical teaching in question know to be

the inevitable result of the practice. When the advocate of unpruned fruit trees and unshortened Vines thus cuts the ground from under the method he has been at such trouble to defend, even the unwary, if led to adopt the non-pruning system, have only themselves to thank. The dilemma which this admission places "J. S. W." in is a fair example of the mistakes people fall into when they push an idea to the extreme, and it will be interesting to see what explanation "J. S. W." will give as to the reason why he did not state, which to be fair he was bound to do, that his non-pruning extension practice involved a waste of space in the houses and on the walls where it was carried out to an extent that reduced its adoption to a certain loss.

T. B.

GRAFTED VINES.

CHASSELAS MUSQUE is not considered a good stock for other Vines, especially strong growers like the Muscat and Gros Colmar. It is a very old variety, rejoicing in a number of synonyms, the last of which, Josling's St. Albans, gave it a fresh lease for a time, but its old habit of cracking two-thirds of its berries just as the fruit was approaching maturity quickly revealed the fact that we had an old friend under a new name, and it soon fell back into the limbo prepared for highly flavoured, but generally unsatisfactory, Grapes.

This propensity to crack its berries, which, like those of all the round Muscat or Frontignan class, are rather small, is the first if not the strongest objection to its use, as Grape growers generally assert that the fruit which a Vine produces is more or less affected by the stock upon which it is worked. Indeed, within the last few years, men above suspicion have proved that grafted Vines have produced solitary bunches far up their stems, which were the exact counterpart of the fruit previously gathered from the stocks on which they were worked. Much doubt was thrown upon a recent statement to this effect at the time it was made; but such a result is, in my opinion, by no means impossible or even improbable, as we have remarkable instances of Peach trees producing woolly-coated Peaches and smooth-skinned Nectarines on the same branch; of *Cytisus Adami*, now considered a graft hybrid, producing the yellow flowers of *Laburnum vulgare* and the purple flowers of *Cytisus purpureus*; of two hybrid Oranges grafted on a third, reverting to one or other parent or producing fruit resembling all three forms. Such being the case, it is by no means surprising that Muscat of Alexandria is not quite a success when grown by Mr. Johnson on Chasselas Musque as a stock. My second objection to the Chasselas or Frontignan Vines as stocks for strong varieties is their weak growth; not that Gros Maroc will not unite and make a good cane on any of them, as I have grafted this fine black Grape on Grizzly Frontignan, the weakest member of the family, and the canes travelled to the top of the house—but with what result? The graft immediately above the union, when the wood ripened, was twice as thick as the stock. The Vine the next season made satisfactory progress, but the stock did not increase in size, and having been planted in an inside border I pegged the stock down, covered it with compost, and obtained my first Gros Maroc on its own roots.

If Mr. Johnson really wishes to graft or inarch Gros Maroc, he cannot do better than work it on the Black Hamburgh, the best of all stocks for general purposes. But why graft it at all, unless it be to save time, as it is one of our strongest, hardiest, and best growers on its own roots? Unlike all other varieties, it does not strike well from eyes, but once rooted it grows as freely as a Hamburgh, and, provided the wood is thoroughly ripened, produces an abundance of handsome clusters. These adapt themselves so readily to unfavourable surroundings and colour so perfectly in hot or cold houses, that I have generally described it as the best variety for bad Grape

growers. Being such a vigorous grower, it requires an abundance of rafter space, and for this reason, if started pretty early and the wood can be well ripened, is well adapted for extension training. In later houses, where this important point cannot be readily secured, spur breaks do not always show freely; but this fault can be corrected by planting inside, by limiting the root run, using good sound loam, pure and simple, and feeding with diluted liquid when the fruit is swelling.

Another of its characteristics is its tendency to produce oval berries in its youth; but so marked is the change from oval to round as the Vine increases in age, that I have known the berries to become exactly like those of the Gros Colmar. Not so the bunches, as they always retain their original contour.

This Grape is not a good traveller, as the dense purple bloom, no matter how well it is ripened, never seems to set or become part and parcel of the berry, as is the case in the Hamburgh, Gros Colmar, and other heavily-bloomed varieties. Some Grape growers are of opinion that it is not a good keeper, but this quality greatly depends upon the way in which it is grown and ripened. Having a small Vine in a pot, I turned it out in a very hot corner on an elevated border in my late Muscat house. It made a rather weak hard cane, which in the following season produced two and three shows on every break. The berries coloured to perfection; the bunches hung for three months after they were ripe, and kept fresh and plump for a considerable time after removal into the Grape room.

W. C.

AMERICAN APPLES IN SCOTLAND.

IN *THE GARDEN* of Dec. 19, 1885, there appeared a communication from Mr. C. M. Hovey, in which he expressed surprise that so few American varieties of Apples and Pears were to be seen or heard of at English fruit exhibitions, and he could only explain the fact to himself by supposing that British fruit growers were entirely ignorant of the superior merits of many American fruits. "Apparently," said Mr. Hovey, "our choicest American fruits are as little known in England as they are in Patagonia." He then proceeded to give a list of about twenty-eight of the best market varieties of American Apples, many of which he mentioned were shipped in great quantities for England. He also related his experience with a number of English Apples which he had grown, but which he found so much inferior to American sorts, that he could scarcely give them away for nothing. We ventured to suggest through the columns of *THE GARDEN* that the absence of American fruits from British exhibitions was due not so much to ignorance of their merits on the part of British cultivators as to the fact that "our comparatively cold and sunless climate" was not well fitted to bring them to the perfection which they undoubtedly attain in their native country. In support of this opinion we gave our own experience of about sixteen of the most approved varieties of American Apples, which we had grown for a number of years and fruited, but with such poor results that we had come to the conclusion that, as a rule, American Apples would not attain perfection in Scotland, "except on a good wall or in an orchard house."

Mr. Hovey returns to the subject in *THE GARDEN* of Jan. 23 and Feb. 27, and refuses to believe that our climate can have such a deteriorating effect on American Apples. Our trial ground at Liberton, must, he says, be a very unfavourable spot for trying new fruits of any kind, or he broadly hints our system of cultivation may be at fault. Did not the best Pears at the recent London Pear conference, said he, come from Scotland? And a country that can produce

such Pears will, Mr. Hovey is sure, grow every American Apple in perfection. In regard to our trial of American Apples, we can only say that our Liberton grounds may, as regards soil and situation, be taken as fairly representative of the majority of Scottish gardens; that the British Apples which are best adapted to the climate of Scotland succeed there admirably, such sorts as Lord Suffield, Keswick Codlin, Warner's King, Hawthornden (old and new), Cellini, Ringer, Echlinville, Stirling Castle, Golden Noble, Tower of Glamis, Pott's Seedling, Worcester Pearmain, Cox's Orange Pippin, &c., producing regularly good crops of fruit which in every respect, except that of colour, will compare not unfavourably with American produce; that the American varieties were planted in the same ground as those above mentioned, and received in every respect the same treatment, but with the disappointing results stated in our previous communication. Of course we do not mean to say that every British Apple will succeed in our climate better than any American variety. Our collection comprises upwards of 250 sorts, and among them there are not a few which do comparatively well in the midland and southern counties of England, but which are perfectly worthless in Scotland.

As regards Scottish Pears, at the recent Pear conference we were of course pleased to hear of the success of Scotch exhibitors; but we think Mr. Hovey really attaches too much importance to one of the few Scottish exhibits which received any commendatory notice, and quite overlooks the fact, which was made plain enough in *THE GARDEN* and in other reports of the conference, that the exhibits, as a rule, were best from the southern counties, and gradually but surely declined in quality, or at all events in appearance, the further north they had been grown, the few exceptions being no doubt from places where an exceptionally favourable soil and situation were assisted by careful culture. We know nothing of the particular exhibit of Pears referred to by Mr. Hovey, but we have no doubt that they must have been grown in one of the most favourable fruit districts in Scotland, and there either on a good wall or in an orchard house—positions in which we admit, as we did before, that American Apples may succeed in Scotland, but we still adhere to the opinion that, grown in the open ground as standards or pyramids, most of them will be found perfectly useless in our climate. This conclusion we do not, however, found entirely upon our own experience. We have supplied plants of the American Apples grown by us to many of our friends and patrons in various parts of the country, some of whom are enthusiastic fruit-growers and situated in favourable districts, but none of them so far have achieved such success as would induce them to plant any of the varieties extensively. We would also recommend to Mr. Hovey's notice the official report of the Apple congress held at Chiswick in 1883. If we understand it rightly, it proves very conclusively that American Apples have been very fairly tried in Britain, but have not, as a rule, been found profitable, even in the more favourable conditions existing in the midland and southern English counties. We find from the report that a considerable number of American varieties were exhibited by English and Scottish growers, and out of the select list of 28 sorts recommended by Mr. Hovey for market purposes at least 16 were exhibited at the congress, some of them in fair numbers. Thus there were 27 dishes of the Melon Apple, 24 of Northern Spy, 15 of Newtown Pippin, 14 of Baldwin, &c., so that there is really little ground for Mr. Hovey classing us with the Patagonians in our ignorance of American productions. When, how-

ever, we come to examine the lists of varieties selected by the exhibitors as best suited for cultivation in their various districts, we find very few American varieties recommended. This is the case even in the southern districts; but we will take the "List of 120 Apples selected the greatest number of times, the poll being taken for the whole of Great Britain." Here among the 60 best dessert Apples only 3 American sorts find a place (or 4 if we include Reinette du Canada). Early Harvest receives 6 votes, Boston Russet 5, and Melon 3 out of a possible vote of 130 in each case. Among the 60 best culinary Apples we find only two that may be claimed as natives of the other side of the Atlantic, viz., Reinette du Canada with 6 votes, and Gloria Mundi with 5 out of a possible 130. As further proof that British fruit growers are by no means indifferent to the merits of American fruits, we find, contrary to Mr. Hovey's experience, that many English nurserymen do grow and recommend some of the best American fruits. In the catalogue of one firm, which makes a speciality of fruit trees, upwards of twenty American Apples are recommended, generally with caution. Then in recent pomological works the American Apples bulk largely. The remarks appended to some of these in Hogg's "Fruit Manual" are significant. Of the Early Harvest it is said, "Though of American origin, this variety succeeds to perfection in this country, a qualification which few of the American Apples possess." Referring to the Boston Russet, he remarks, "This is an old American Apple, and one of the few which attains perfection in our climate." To use Mr. Hovey's own expression, "is any more evidence needed?" The fact seems to be that Mr. Hovey, in his eagerness to demolish what he variously calls the "absurd notion," "the modern idea," and "the old story" that certain sorts, say of Apples, will not succeed except under certain conditions as regards soil and climate, has gone to the opposite extreme in propounding the "notion" "that a fruit which succeeds anywhere will succeed everywhere." That is really the outcome of his contentions, and the evidence which he adduces is for the most part either irrelevant, contradictory, or founded upon mere exceptions. We would respectfully commend to his notice the following extracts from an article which appeared in an English publication about twenty years ago, and which, though written to illustrate the difference between the climate of France and England, applies with even greater force to the present subject.

The causes of success in fruit culture are not wholly under the direction of human intelligence. The various stocks on which the several varieties are grafted, the various modes in which trees are planted, pruned, trained and otherwise tended, exercise their respective influences on the final result. But the most important matter of all is the influence of climate. The best practice possible will not suffice to produce luscious Peaches in the open air in the bleak climate of the North Cape, nor sprightly-flavoured Apples in the hot and arid atmosphere of Idumea. It must be granted that to grow fruit well there must be something known of the best modes of training, pruning, planting, and so forth; but the foundation of success lies in adapting, in the first instance, the kinds of fruits to the climate in which they are to be cultivated. If we are wrong in our modes of training, we can be taught better. We may even go so far as to say that if the soil is unsuitable we can alter it, for in the very worst of cases we can do something to improve its texture, condition, and constituents. But what are we to do if the climate is against us? We are then driven to the employment of glass, of walls, of apparatus for the production and diffusion of artificial heat. Simple fruit culture in the open air is an affair of climate chiefly; every other condition of success is secondary to that. Give us a suitable climate and we will somehow or other manage the rest. . . .

Restricting the comparison to the respective climates of London and Paris, it will be observed that in London the extreme cold of winter is severer than in Paris to the extent of 1.7° Fahr. This difference is literally of no consequence at all; a few degrees more cold in winter cannot

affect our fruit prospects seriously; possibly we have the advantage in that matter. But when the summer has commenced the temperature of Paris rises higher than that of London, and the maxima of the cities differ to the great extent of 5.8° Fahr. Now, a difference amounting to within a fraction of 6° of Fahrenheit is something enormous in the consideration of the subject before us. Students of climatology know that a difference of only 2° either way in the heat of the summer in Great Britain will make a difference to the extent of a bountiful harvest and prosperity, or a meagre harvest and starvation. It cannot be wondered at that the cultivators of fruits in the neighbourhood of Paris should outstrip the growers of fruit in the neighbourhood of London, for they have the advantage to the extent of 6°, and no skill of man can find a compensatory equivalent for so much solar heat and light by which to place the London cultivator on terms of equality with the Parisian. Is it necessary to remind Mr. Hovey that the British Isles lie entirely to the north of the 50th parallel of latitude, while the fruit-growing districts even of Canada lie entirely to the south of it, and that Boston is about 10° further south than London. True, owing to our insular position and the influence of the Gulf Stream, the mean annual temperature of London may not differ very much from that of Boston, but it is the temperature during the growing and ripening season that is the all-important matter, and in that respect Boston has such an extraordinary advantage over London, that it need surprise no one to find that most of the fruits which succeed there to perfection are too precarious here to be profitable. Of course, there are a few exceptions; three or four varieties of American Apples and perhaps as many Pears have been found to succeed tolerably well in Britain; and Mr. Hovey, proceeding on the erroneous assumption that the soil and climate which suit one variety must suit all, argues from these exceptions that all American Apples and Pears ought to do here equally well. True, he admits that there may be a few varieties not just exactly suited for universal cultivation, but he says "their number is too limited to be taken into account, and we have not sufficient evidence that they have ever been skilfully cultivated to lay the fault to the variety rather than to the treatment." We think the opinion of every cultivator in Britain would be exactly the opposite of that of Mr. Hovey on this point. The whole of the experience of British fruit-growers tends, we think, to show that even among Apples there is scarcely a single variety that will succeed in every district. Referring once more to the report of the London Apple Congress, we find that even Lord Suffield, which is without doubt the most popular Apple in Britain, was only selected by 101 out of the 130 exhibitors who made out lists of the varieties best suited for cultivation, from which we are bound to infer that twenty-nine of the exhibitors had found this variety unsuitable for their localities. Now, although we have not the slightest hope that we will ever be successful in growing American Apples in Scotland, our case is not thereby rendered so hopeless as Mr. Hovey seems to imagine. We have a sufficient number of excellent varieties of Apples really suited to our climate, their only defect as compared with American fruit being their want of colour, and even that defect we hope in time to see overcome, as the raisers of new fruits are beginning to understand the prime importance of colour in all fruits intended for market. Except in the most favourable localities we have certainly few really good Pears which succeed as standards in Scotland; but with careful culture good fruit can always be had where there is a suitable wall, and

we are not without hope that even among Pears varieties may yet be raised which, while hardly enough to succeed as standards in our climate, will be a great improvement in point of quality on the hardy sorts which we at present possess. This is the direction in which we look for improvement rather than to the indiscriminate introduction of varieties from countries the climatal conditions of which are so widely different from our own.

As regards the list of British Apples grown by Mr. Hovey, it may have been fairly representative of British Apple culture forty years ago, but even on this side of the Atlantic some little progress has been made in that time, and many of our now most popular Apples are in Mr. Hovey's list conspicuous by their absence, so that if Mr. Hovey judges the state of Apple culture in Britain by the sorts which he himself grows, his materials are quite inadequate for forming a just opinion on the subject. Apparently he has never tried such sorts as Lord Suffield, Dumelow or Wellington, Warner's King, Hawthornden, Cellini, Echlinville, Stirling Castle, Golden Noble, Cox's Pomona, Mère de Ménage, Peasgood's Nonsuch, Worcester Pearmain, &c., or the newer varieties, such as Lane's Prince Albert, Lady Henniker, &c., which are among the best and most profitable Apples now grown in Britain. Can it be that Mr. Hovey, displeased with the result of his first trial of British Apples, has entirely ignored those which have come into notice during the last forty years? He has evidently, at all events, not procured any Pears of recent British origin, or he would have heard of Beacon and Fertility previous to the recent congress. But the British Apples grown by Mr. Hovey are not all superseded; some of them are still highly esteemed here, and Mr. Barron, to whose opinion Mr. Hovey justly attaches great importance, describes no fewer than seventeen of them as of first rate quality in the descriptive list appended to the report of the London Apple Congress. This he did with the best of all evidence—the specimens before him as his guide. Even the Wormsley Pippin is well spoken of, and in the selection by south of England exhibitors received an equal number of votes with Early Harvest. How is it, then, that Mr. Hovey has so signally failed in his attempt to grow that and other varieties which here are found to be so satisfactory? If we accept his own arguments as sound, it cannot possibly be because his climate does not suit them; the only alternative is that his system of culture must be at fault, and we would respectfully ask him to change his treatment before indiscriminately condemning them.

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AMERICAN BLACKBERRIES.

A RICH and well-drained clay soil is most favourable to the Blackberry. On such a soil I have never known some of the more hardy sorts to be injured by the most intense cold, while I have seen them much injured or killed on more sterile ground. This does not accord with the belief of many who claim that a rich soil causes a rank growth which is easily winter-killed. Cultivation late in autumn should be avoided, and the plants should be allowed to rest and mature their wood. A deep and rich soil is necessary to the production of large and luscious fruit. To prevent the effects of drought, I regard a heavy mulch of leaves or straw as better than cultivation. The best wild Blackberries are always found near brush heaps or rotten logs. In planting, the rows should be 7 feet or 8 feet apart. The plants should be 2 feet apart in the row, and I have found strong sucker plants to be quite as satisfactory as those from root cuttings. I recently pruned some rows of the Taylor kind from sucker plants, transplanted sixteen months before; they were generally 3½ feet high, 3 feet across the top,

and presented the dense and compact appearance of a well-kept hedge. For pruning such a line of plants a grass-hook or sickle is best. To save time and labour, it has often been my practice when planting Blackberries to plant Strawberries in rows with them and in rows midway between them. Some of my best Strawberries this season were from plants set last year along with Blackberries. All Blackberry plants, when 3 feet high, should have their terminal buds nipped, to force them to throw out lateral shoots. A severe nipping is often necessary to produce a compact and sturdy growth capable of resisting strong wind. The berries should not be picked until sweet, nor oftener than twice a week if intended for a home market, nor after being picked should they be exposed to a burning sun, as such exposure will change their colour from black to red and give them a bitter flavour. But few varieties of Blackberry worthy of general cultivation have yet been tested. The Lawton, introduced about twenty-nine years ago, was the first generally cultivated. Kittatinny followed it, and proved slightly hardier and of better flavour, but very liable to rust, and not sufficiently hardy to be reliable in the west. Snyder, Taylor, and Wallace, all originating in Indiana, and Stone, from Wisconsin, have since been introduced and found to be the only sorts that can be profitably planted west of the Alleghanies and north of the Ohio River. They are all remarkably productive, vigorous, free from disease, and of the most luscious flavour. Snyder is the first to ripen, and its earliness is a strong point in its favour; when grown on rich ground its berries are above medium size. The berries of Taylor and Wallace are larger than those of Snyder, and are hardly equalled in their exquisite flavour by those of any other variety, and I can think of no reason why they should not prove profitable in the South.—G. COWING, in *Transactions of the American Pomological Society*.

CANKER IN FRUIT TREES.

I AM surprised to see it stated (p. 210) that Lindley believed plants in perfect health never suffered from the attacks of either insect or fungoid parasites. This, if correctly set forth, is so widely at variance with my experience, that it is not easy to understand how Lindley could have made such a statement. It is next suggested that unsuitable conditions of climate may be the cause of canker, and for this there appears to be some rational grounds. Some seasons, fruit trees prolong their growth till late in autumn, and when such is the case the wood never gets thoroughly hardened and matured; consequently, during hard frost the cellular tissue of such wood gets ruptured, thus laying the foundation for canker. Trees growing upon cold inhospitable subsoils, damp, boggy ground rich in organic matter, dry gravel or shingle, and calcareous soils of a loose, open, dry texture, resting upon limestone rock, are always badly affected. Here we have such a complex variety of soils and conditions, that one may naturally ask how such a complicated mixture could be the means of promoting one and the same disease; but the answer is not far to seek. Trees growing upon loose calcareous soils and clay marl are apt to suffer in early summer from drought to such an extent that I have seen them drop their fruit, and in order to prevent this I have found a good soaking of liquid manure to be the best remedy. Although trees growing upon dry, warm soils are liable to suffer from early summer drought, yet such trees often make rapid growth after the occurrence of the midsummer rains, and as the wood in many cases is but imperfectly ripened in autumn, the cellular tissue is apt to get ruptured and cankered in a similar manner to that of trees growing upon cold, impervious and damp subsoils. Some of the worst cases of canker I have ever seen occurred in trees growing upon dry calcareous soils, and no experienced planter would ever think of planting an orchard upon such soil. Those who advocate the insect theory may be able to tell us how they account for trees in such a position being so badly affected, while trees growing in the immediate vicinity upon loam mixed with clay to attract and retain moisture are comparatively sound.

Were insects the cause, one would suppose that they would attack all the trees alike, regardless of soil and conditions of food; but that this is not the case we have abundant proof. Good sound loam not apt to get too dry in summer or to retain an excess of moisture during winter, alluvial deposits and shallow planting are the conditions most favourable for the production of healthy fruit trees, and in cases where the soil had become exhausted a dressing of wood ashes might be applied with advantage. J. B. WEBSTER.

GARDEN FLORA.

PLATE 536.

BOMAREAS.

(WITH A PLATE OF *B. OCULATA*.)

THE genus *Bomarea* is represented in gardens by about a dozen handsome-flowered kinds, all of which have sprung into existence as greenhouse climbers within the last ten years, or since the introduction of that grand species, *B. Carderi*, which was distributed from Mr. Bull's nursery in 1876. Most of the cultivated kinds have been figured in the pages of THE GARDEN, and



Bomarea Carderi.

their excellent qualities as greenhouse climbers are frequently commented upon by various writers in our columns. Along with the plate of *B. conferta* (now named *B. patacensis* by the Kew authorities) the handsomest of the *Bomareas* were shortly described (see Vol. XXIII, p. 84), and in the preceding volume some of the un-introduced kinds that could be recommended as garden plants. Since then the only additions to the genus are *B. Kalbreyeri*, a free-flowering, quick-growing species from New Grenada, the flowers of which are in pendent umbels, medium in size, and coloured orange and bright yellow, and the following species, the flowers of which are here very well represented.

B. OCULATA.—It is hardly correct to speak of this as a new plant when, according to Dean Herbert, he had it growing in his garden at Mitcham under the name of *Alstroemeria oculata*, and we have read somewhere that the plant was known in England long before his time. Ac-

* Drawn in August from specimens sent by Mr. J. Jackson, Whithy, and grown by Mr. W. H. Williamson, Ruswarp.



BOMAREA OCULATA.

cording to Messrs. Ware, of Tottenham, this species is hardy in their nursery, having stood out of doors in an open border for several years, and flowered freely in June. In habit *B. oculata* is similar to the majority of the species, the shoots growing to a length of from 4 feet to 8 feet,



Bomarea oligantha (natural size).

and bearing apical bunches of crimson flowers, which remain fresh for several weeks either on the plant or when cut and placed in water. It would not be safe to assume perfect hardiness in this species, because of what has been stated by Messrs. Ware, although probably in exceptionally well-sheltered situations in the south of England it would thrive out of doors. In a cool greenhouse, however, it proves quite at home, and for training up pillars, along rafters, or even upon trellises as a specimen plant, its habit, quick growth, and free-flowering disposition render it very useful.

B. multiflora is another free flowering kind of medium length of stem, graceful Liliaceae-like foliage, and compact heads of flowers, which are coloured rose and green on the three outer segments, the three inner ones being pale green with a few spots of rosy red. The form of the flowers and useful character of the plant generally are shown in the accompanying illustration. There need be no doubts that the species will flower freely under ordinary treatment, for even weak shoots will, as a rule, develop a few flowers, whilst on stout growths, *i.e.*, of the thickness of quills, the heads are full and well coloured. Bomareas, it must be borne in mind, do not branch if the points of their growths are picked out, the stem, being analogous to that of a Liliaceae, destined to bear only one flower-head as soon as it attains its full length, and unable to make good its growing point if this be removed. The plants, however, send up shoots in plenty from the rootstock; these, as soon as they have borne their flowers, may be cut away so as to add vigour to the young growing ones.

B. OLIGANTHA, a flower-head of which is herewith shown, is similar in habit and in other characters to the last, but it will be seen by the figures of the two that there is a difference in the form of the flowers, the outer segments of *B. oligantha* being narrow, meeting only at the base, and much shorter than the inner ones, whilst instead of being spotted they are uniformly rose-red in colour; the colour of the inner segments is bright yellow, spotted with dark brown. Although the specific name signifies few-flowered, this species has proved one of the most floriferous of all the cultivated kinds, and we have known it at Kew and elsewhere as certain to be in flower all through the summer, small plants bearing several fine heads together. Its fruit is ornamental, and the stems should, therefore, be allowed to remain till after the seeds have fallen away. The capsule is $1\frac{1}{2}$ inches long, and when ripe it splits open; its divisions curl back and expose the rows of bright coral-coloured seeds, which are pretty objects—indeed, almost as much so as the flowers themselves.

B. CARDERI may be referred to here, as, although the plant is now one of the best known greenhouse climbers, its magnificence as seen in the true form when well managed surpasses very much the prevalent idea with respect to its merits. The figure on the previous page of a flower-head of this species gives an idea only of the habit of the plant, the size of a head on a well-grown specimen being as much as 3 feet wide, and composed of about fifty flowers, such as that shown on p. 262, which is life size; their colour is bright

shown in the cut being the product of a much weaker shoot. The difference between the plant here described and another species often sold as this is apparent enough when the two are seen together; the inferior kind is *B. Jacquesiana*, distinguished by its long lanceolate leaves and a rather narrow loose raceme of flowers, which are smaller and less brightly coloured than in *B. Carderi*. We saw at Kew last year a flowering specimen of what was there named *B. Williamsiae*, but which was apparently only *B. Jacquesiana*, or a variety of it.

Since the plate of *B. conferta* appeared in THE GARDEN the plant has proved a much larger flowered and more beautiful climber, even than it was there represented to be. We have seen immense heads, composed of over fifty flowers, in several gardens during the past two years, and it is as well to note that the finest of these were the result of growing the plant in a warm, sunny greenhouse, instead of the cool treatment sometimes recommended. Those who have not seen one of the beautiful heads of flowers produced by this plant can form only a poor idea of its magnificence from a description. Each flower is about 2 inches long, tubular in form, not unlike a *Lapageria*, and has a long stalk, so that a head composed of fifty such flowers forms an immense bouquet. Someone has stated that *B. conferta* flowers all the year round; this, however, must be a mistake, as its flowering period is invariably between December and March. We saw it only recently from Glasnevin, and a plant in the succulent house at Kew is now developing several heads of bloom. There is one species, however, which does flower almost all the year round, namely, *B. oligantha*, which we have had in bloom from May to November.

For their cultivation the Bomareas require a liberal allowance of root-room, so that if grown in pots large ones should be used, whilst if planted out there should be ample surface-room for the roots, as they like to grow horizontally. A strong, loamy soil, with leaf-mould and brick-



Bomarea multiflora (natural size).

rose on the outer segments with a few spots of brown near the tips, the inner segments being greenish with spots and blotches of purple-brown. Such heads as this are produced only on shoots as thick as a man's little finger, and 12 feet to 15 feet in length, a head such as is

rubble or coarse sand, should be used, and plenty of water should be given when growth is developing, keeping the roots only moist whilst the plants show a disposition to rest.

Two years ago, at Kew, several species of Bomarea were planted in a sunny border out of

doors to test their hardiness, but they made very weak growth, and succumbed to the cold of the first winter. The term hardiness for plants that have not been thoroughly tested ought to be used with a great deal more caution than is sometimes the case, hardiness in one garden meaning, perhaps, that the garden is quite exceptional as regards protection, drainage, &c., so that what succeeds out of doors there would fail in an ordinary garden. Dean Herbert found this out when he removed his collection of bulbous and other plants from his garden at Mitcham to Spofforth, losing many delicate rarities in the latter place. Probably, it was on his experience only at Mitcham that he based his assertion with respect to Bomareas, of which he wrote: "The greater part of these beautiful plants are natives of elevated situations, and dislike a high temperature. They will be found to thrive best out of doors in this country in summer-time, and will survive the winter if planted pretty deep in light soil and covered with leaves in the cold season, especially if anything be laid on to throw off the



Full-sized flower of Bomarea Carderi.

wet." Has anyone had experience with Bomareas such as would bear out this statement of the dean's?
B.

5467.—**Moles.**—Why should anyone wish to kill moles? They are most useful creatures, and really do far more good than harm. They live entirely on grubs and worms; if these were not plentiful the moles would not trouble one. Leather-jackets, wireworms, and other grubs are injurious; and, if let alone, will injure turf very much more than the moles can. Knock the mole-hills to pieces and the Grass will not suffer in any way. I am certain that if moles were not allowed to be killed, gardens and fields would produce better crops. If, instead of paying, as some persons do, considerable sums to mole-catchers for killing these useful animals the money was spent in paying someone to protect the moles, it would be far better spent.—G. S. S.

Diseased Fuchsia (*F. Wagnara?*)—I have carefully examined the Fuchsia leaves, and cannot say what has caused them to go off. There are no insects on them, nor can I find any traces of them even under a microscope.—G. S. S.

NOTES.

A LATE SPRING.—Again to-day we have snow, and yester night, the 13th inst., several degrees of frost, so that a late springtime is a foregone conclusion. Everything is later than usual, all growth being held in check by the chilly north and north-easterly winds. Old weather prophets say a late spring portends a good fruit year, and I hope it may prove true. Fruit buds are very chary, even the Apricot and the Almond not as yet being in bloom. *Narcissus nanus* is fully a month later than usual in opening its flowers, and the same is true of *Scilla sibirica*. Crocuses are the only flowers that seem to scorn the weather. They have been locked tight in frozen snow morning after morning, and yet as soon as the snow melts near them they open their golden cups as brilliantly as if all was warm and sunny. Anemones have been quite ruined by the snow, but will soon recover when we get more warmth. A dark blue form of *A. apennina*, from Greece, is now in flower, whereas the common type is barely in full leaf. One result of a late winter is that we get a fine full flush of spring flowers when the warm days come.

IMPERATI'S SNOWDROP.—The Rev. F. Tymons recently sent me the largest flowers of this Snowdrop I ever saw, the outer sepals being $1\frac{1}{2}$ inches long, and of great breadth and substance. This is, without doubt, the finest of all the Snowdrops, and if a true stock could be obtained it would be very valuable. Imported bulbs sold under this name of late years have been abundant, but not true. Nothing can be more beautiful than this variety as seen at its best, a sort of empress among the Snowdrops, and to obtain a true stock ought to be the aim of all who appreciate these pearly blossoms. Who introduced this giant Snowdrop? Was it Mr. Atkins, or Mr. Wheeler, or was it Messrs. Backhouse, of York? No words could do justice to the immense buds sent me by Mr. Tymons, and many besides myself would be glad to know where roots of such a fine form could be purchased. I suppose this form is far from abundant in its native habitat, and even there is doubtless variable, the finer forms being mixed with inferior ones, as is the case with *Galanthus Elwesii*. The first roots, as found by Mr. Elwes, were of a fine large form, but the importers evidently scraped up everything good and bad together. I sometimes see *G. Elwesii* called the largest of all the Snowdrops, but *G. Imperati* carries off the palm.

CALADIUM ESCULENTUM.—For a central or prominent position in a warm plant house but few fine-foliaged plants can eclipse this tropical esculent in the size and fresh greenness of its leaves. It grows best planted out. A good plan is to build up a low mound of fresh turfy loam just as it is cut from the pasture, Grass side downwards, and to plant a good sound tuber of this plant on the top. It is a most rampant grower, and likes repeated doses of rich food, which is best supplied in the liquid form. A plant here last year grew over 7 feet in height, the largest leaves being 5 feet long by 4 feet wide, and of a beautiful fresh green colour, elegantly veined. When in full growth it is curious to see the exudation which takes place from a duct near the apex of the leaf during dull weather. All the veins from the mid-rib anastomose, or join each other as they approach the margin of the leaf where their extreme tips are connected with veins which run around the margin of the lamina. On bright hot days all excess of moisture is thrown off by transpiration from the stomata, but on dull, chilly days, when the stomata close wholly or in part, the natural drainage system of these big leaves is brought into use, and the result is very interesting to

observe. As a quick growing stove plant this giant *Caladium* deserves notice.

FRAGRANT LEAVES.—Apart altogether from sweet or beautiful blossoms, every garden should be rich in fragrant leaves of many kinds. A crushed Lemon leaf is most refreshing; so also the leaves of *Eucalyptus citriodorus* and those of the Allspice (*Pimento*) and Cinnamon. Outside in the garden the leaves of Lavender, Rosemary, and golden and silver-leaved Thyme should always be plentiful, and in the greenhouse we may have one or two sweet-leaved *Diosmas*, and a host of sweet-leaved *Pelargoniums* and *Aloysia citriodora*. These sweet smelling leaves are most useful if mixed with suitable flowers, the most distinct and piquant combinations being possible in this way. I like the fresh balsamic odour of the Blue Gum leaves, and, like Rosemary, they exhale a pungent perfume when burned. Lemon Grass is a great favourite in some hothouses at home, just as it is in Indian gardens. Forced Sweet Brier is not as yet a commodity purchasable in Covent Garden, I believe, but I saw some in a posy the other day, and its delicate fragrance, blended with that of *Freesia refracta alba*, was quite indescribable. There is a world of delight in the fragrant leafage as well as in the gay blossoms of a garden.

A JAPANESE ORCHID.—The Orchids of Japan are not as a class very easy to grow, but this beautiful *Bletia hyacinthina* is an exception. A shallow pan bearing about a dozen spikes is just now very pretty. It is nearly hardy; quite so in Devon where the plant grows and flowers annually, just like any other herbaceous plant. Here, however, we dare not as yet trust it outside, but grow it in a greenhouse, from whence it is taken to a warmer temperature as soon as its flower-spikes appear. It has spreading rhizomes studded with swollen flattened bulbs, and the leaves are of a bright green colour, furrowed or plaited like those of some Palms. The buds and blossoms are of a rich purple-lake or amethyst colour, and are very beautiful. The plant has been figured in THE GARDEN, and is so distinct as to merit a place wherever cool Orchids are appreciated. Speaking of Japanese Orchids, has anyone succeeded in blooming *Cypripedium japonicum*? It is a most distinct plant, with fan-like leaves, but so far I have quite failed to get it established. What are the conditions under which this plant luxuriates at home in the far East?

BEAUTIFUL TULIPS.—Well-grown pots of single Tulips are now very lovely, their petals having a satin-like brightness, besides which their soft grey leaves are almost as beautiful as are the flowers. Just now the Tulip is quite regaining its popularity as a fashionable flower, and the quantity forced every spring for the flower markets at Covent Garden and elsewhere is simply enormous. Nearly all these early-flowering Tulips are grown near Leyden, where the soil and climate suit them better than Hyacinths, these last being more generally met with in the bulb fields around Haarlem. It is curious that while hundreds of acres of early Tulips are grown in Holland yearly, the late blooming and harder kinds are not nearly so commonly met with. And yet while the early kinds are undoubtedly best suited for forcing in pots, the tall growing kinds are infinitely preferable as open-air flowers, blooming as they do in May and early in June. By planting them at different times and in different exposures a long successional blooming season may be secured. The old florists had special days for planting, one of their favourite dates being the 9th of November, or Lord Mayor's Day. The mixed "rogues," or seedling late Tulips, cost from thirty

to forty shillings per thousand, and many of them are beautiful as cut flowers.

THE SULTAN'S BALSAM (*Impatiens Sultani*) is one of the brightest and most floriferous of all recent introductions. It is the only stove plant I know which is literally and truly "always in flower." Even the tops of the shoots inserted in a bed of sand on bottom heat to root keep on blooming without intermission. Little bushes in 5-inch pots are covered with its bright-red flowers, and look very effective amongst Maiden-hair Ferns, especially *Adiantum farleyense*, with its lovely salmon-pink fronds among the older and greener ones. The only drawback to the more universal culture of this Balsam is the heat question. It must have a warm temperature, or its flower-buds fall, and the plant puts on a pallid and sickly appearance. Cuttings rooted in 2½-inch pots flower well, and if arranged along with little pots of *Isolepis*, *Panicum*, or the small green *Pellaea muscosa nana*, a prettier edging to a plant stage can scarcely be imagined. For my own part, I like small plants best, as the flowers then appear larger than they do on enormous bushes.

WALKING-STICK TREES.—Under this title I do not intend to speak of the pruned Poplars of Holland, which are often described as walking-sticks, or as "hop-poles" by the tourist, but I wish to allude to the traditions attached to growing walking-sticks from the time of the rod of Aaron, which "budded and brought forth almonds," until our own time. Perhaps the most celebrated "walking-stick tree" still represented is the Glastonbury Thorn (*Crataegus Oxyacantha præcox*). The legend of this is that Joseph of Arimathea when he landed in Britain brought with him a staff of a Thorn tree. On his arrival at Glastonbury he thrust it into the soil where it grew, and, forgetting that our climate is later than its own, it has ever since attempted to flower about Christmas time instead of in May! Doña Marcelina's Grape Vine (see p. 234) at Monticello, in California, is another case in point, the original slip having been cut as a horsewhip at the San Antonio Mission. A very lucky adventure it was, too, for Grape Vines bearing from two to three tons of Grapes every year are not common, even in Golden California. At Mentone there is a tradition that the Orange trees were introduced by a visitor, who thrust his Orange stick into the earth and forgot all about it; and the same is said of the Mango in tropical lands, for, like the story of Gelert, or the "Faithful Hound," this tradition of the growing walking-sticks is world-wide in its application. The pith of the whole matter seems to be that so much organised sap is stored up in naked branches of nearly all trees, that if placed in the earth they are likely to grow. The Bur-knot Apple, the Mulberry, Alder, and Willow are well-known examples amongst many others.

THE SNOW GLORY.—Truly this plant is the "Glory of the Snow" in our gardens this year, its flowers having been covered several times, and even now they are half hidden by a white fleece on this the 15th day of March. *Chionodoxa Luciliæ* has been a favourite ever since Mr. Maw was so lucky as to find it on the Nymph Dagh, near Smyrna, now nearly ten years ago. Well established, it is a most brilliant thing, slow of increase, perhaps, but a really good distinct addition to the list of really beautiful hardy spring flowers. It varies considerably in size and depth of colouring, and in my opinion the darkest blue forms are the most effective. So far as luxuriance goes, our greatest success has been a stout spike about 9 inches in height, bearing eleven flowers. A light, rich, sandy soil and full exposure to sunshine seem to suit this plant best, and for a

pocket in amongst mossy stones it is just the thing. To show it off to advantage, one might make rings or masses of the golden *Stonecrop*, and in the centre of each mass plant a few bulbs of this *Chionodoxa* and its ally, the Siberian Squill; or, better still, a good group of the Snow Glory might be planted near to an irregular mass of the *Sedum* for contrast. Like many other spring flowers, it requires companionship. Beautiful as it is in itself, it looks a little forlorn alone on a bare border.

LACHENALIAS IN BASKETS.—Beautiful as these Cape bulbs ever are, no matter how well grown, they seem to me to be more effective in wire baskets suspended from the roof of a sunny greenhouse. As so grown their mottled leaves hang gracefully, and the red-tipped spikes curve upwards to the light in a very elegant way. Last August we planted some bulbs in this way, and they are now in flower. The curious fact about these bulbs is that those which were planted pointing downwards at various angles, so as to grow out of the sides and bottom of the basket, have flowered first by a week or so, the last spikes to open their bells being those planted on the top of the basket in the normal way. The late Mr. Nelson was very fond of these bulbs, and often regretted that they were not more generally grown in gardens. He once told me that they were largely grown at Aldborough as window plants, and but few things could be more suitable for such a purpose, since the foliage, even from its earliest appearance, is beautiful alike in form, texture, and markings. I saw a spike of *L. Nelsoni* the other day bearing seventeen of its beautiful apricot-coloured bells. *L. luteola*, *L. tricolor*, *L. quadricolor*, and *L. pendula* are other well-known kinds, all beautiful as decorative plants when well grown, and their beauty endures for a long time to boot.

BILBERGIA NUTANS.—Bromeliads generally are most interesting, and many are strikingly beautiful when in blossom, others possess the boldest of foliage, barred, marbled, or lined in the most striking manner. Although not much appreciated in our gardens generally, these plants are valued more highly on the Continent, and the late Professor Morren, of Liege, was well known as the historiographer of the Order. One of the most elegant of all the *Billbergias* is *B. nutans*, which is now flowering freely. It is of an elegant habit of growth, each spike being covered with bright rosy bracts, the drooping Fuchsia-like flowers being of a pale apple-green tint, each segment being margined with deep blue. The segments curl upwards in a pleasing way, and the drooping anthers carry out the idea of a Fuchsia flower, as above suggested. This plant is so elegant in growth, so easy of propagation, and flowers so freely, that it deserves a place wherever plants out of the common are desired in the warm greenhouse. VERONICA.

The weather in Hunts.—Never in my recollection have I experienced such a trying winter as the present. I have known it more severe, but not to last so long. We have had frost here off and on ever since the 14th November, when we had 8°. On the 8th, 9th, and 10th December we had 10°, 12°, 14°. On the latter date we filled our icehouse, and since then we have never really had the frost out of the ground. Throughout January we had frost nearly every night, the lowest being 14°. Coming to February, on the 8th we registered 22°—our lowest. On March 7th and 8th each night we registered 20°, and now there seems no signs of frost clearing up. We are situated very low, being in the Fens. Our herbaceous borders have been for some time covered with snow. Roses, too, are feeling the effects of continued frost. A great many in the Rose garden

must be replenished. Nearly all our Broccoli will, I fear, succumb, or be but of very little use. Cabbages also are looking sadly. We are getting up young plants in readiness to plant out as soon as we can see some desired change in the weather. Brussels Sprouts have done well, but are nearly over. I never ate any so sweet and tender as they have been this winter. Fruit trees look promising, especially Pears and Plums. Birds require a deal of watching now, in order to keep them off the fruit buds. I think, on the whole, we may anticipate a good fruit year. This morning (March 9) we registered 23° of frost. —W. A. Cook, *Holme Wood Gardens*.

ROSE GARDEN.

FEBRUARY'S COLD AND THE ROSES.

THE February just closed has been one of the coldest on record, though we have had no abnormally severe frosts. It may almost be said to have frozen every day and night for weeks, and now and then we have had the ground resandwiched over with fresh layers of frost or snow, so that the average temperature has been about 32° instead of 40°. The month has also been abnormally dry as well as cold; in fact, in recent years February has lost all claim to its old title of February fill dyke or ditch, by becoming almost the driest month in the year. March, so far, has been really more like December than the most boisterous month of the twelve. Instead of blowing hard it has frozen sharp, the frosts playing a sort of short weather gamut ranging from 10° to 20°. Of course, this sort of weather, while it has hit the Roses rather hard, has so far compelled them to rest. Hence, there is even less signs of growth among them than there was in December; in fact, the rest and dormancy are so complete as to resemble in not a few instances the final sleep of death rather than the sleep of winter with a good many eyes open, to which most recent seasons have accustomed us. So far, so good; but I fear those who neglected to bracken or branch over their Teas, if there are any such among the readers of THE GARDEN, will find the frost bites far too deep for their well-doing in the coming season. Tea Roses are so useful in bouquet making, and many of them so fragrant, that they are being multiplied in all directions; and hence any great mortality among Teas will be heavily felt. And, as Teas must increase, whichever other classes or sections may decrease, it becomes the more important that they should be carefully cultivated and properly protected in the autumn. As to the former, a dry and somewhat elevated site is of great importance. Cultivators like Mr. G. Paul, of the Old Nurseries, Cheshunt, who grows Teas on the flat, find that much is gained in safety as well as vigour and superior bloom by growing them on raised beds 6 inches or 1 foot above the surrounding level or alleys. But sloping banks, where they are available, are really the most favourable sites for Teas, and these should have a dry base and a western or south-eastern rather than a southern aspect. The latter is too exciting in winter and too exhausting in summer for Tea Roses, and early excitement mostly means certain ruin to the first blooms of Teas in our climate. Overhead protection of some sort is, perhaps, of even more importance than the sites for Teas. After trying all things there is nothing like Bracken or the dried leaves of the common Brake. It is light, speedily dries, and possesses a cold-resisting or heat-husbanding power, hardly matched by any other possible protector within reach of the rosarian. Its natural lightness, semi-fluffiness of texture, unchangeableness of form, and indestructibility within the period when it is needed render it equally efficient in keeping out heat as in conserving it around the Rose shoots. Thus early growth is prevented, and the power of future growth in the branches is preserved. Having found the best Tea Rose protector in Bracken, the greatest and most difficult cultural art for the rosarian is to know when to remove it, and how, this year. The question of when, according to

present symptoms, will hardly press until the middle of April. As to the how, piecemeal is the safest, as the nervous gentleman, who divested himself of his underflannels a shred a day, affirmed. When remonstrated with about the waste, he declared he could afford better to waste his flannels than to pay doctor's bills and suffering rheumatism from the adoption of any course that involved a more sudden and violent change than a shred a day. Possibly our Tea Roses, could they speak, would indorse his opinion, and it is certain that most of the rosarian's successes among his Teas arise from his striking a happy mean between coddling them too much or too long and exposing them too suddenly and completely, that is, all at once. D. T. F.

MARÉCHAL NIEL ROSE FAILURES.

If it be true, and it is, that more may very often be learned from records of failure than of success, every rosarian must feel indebted to "W. I. M." for the vivid account of his experience with this charming Rose recorded in *THE GARDEN* (p. 229). This is so much in accordance with that of many cultivators, as at once to excite their interest and to command their approval. A remedy for what in our ignorance we may call the capriciousness of our favourite Rose is, however, most difficult to find. For years I have been urging on the raisers of Roses to try and give us a Maréchal Niel with all its merits intact, without its weaknesses, one of which at least—its tendency to strangulation—seems inherent or constitutional. Were this confined to any particular stock, or always associated with worked plants, the growth of the Maréchal on its own roots would furnish a short and sure remedy for this fatal malady. So far as strangulation may originate or be aggravated through disparities of growth between scions and stocks, the plan of fostering the growth of Brier shoots on the stock between the scion and the ground, as recommended by your correspondent, is a good one. It is, however, more sound and successful in theory than in practice, as the Maréchal Niel Rose is such a gross feeder, that the top growth puts the Brier shoots on short commons, and their growth is more nominal than really efficient in promoting the enlargement of the stem. As for the latter keeping abreast in circumference with a vigorous growing top of Maréchal Niel, it is simply impossible. The two stocks that approximate towards this in the remotest degree are Gloire de Dijon and Gloire de Bordeaux, or Pink Glory, as it is often called. But even these fail to keep pace with rapid growths of the Maréchal. By working the Maréchal at the ground line on either of these stocks or the Dog Rose, the evils of disparity of their growth are prevented and strangulation, so far as it originates in this cause, would be rendered impossible. But unfortunately, strangulation, through the growth of huge wart-like swellings, is by no means confined to this cause. These occur on the main shoots or chief branches, anywhere, without any apparent cause, and grow out and on until they strangle the plant or shoot by simply arresting the connection between the part of the plant above and below the excrescence. So far as my experience goes, these strangulating excrescences are exclusively confined to this Rose, and no scientific explanation has yet been forthcoming of their cause; neither has any means of cure yet been discovered, and I should be exceedingly interested and obliged if the Rose-growing readers of *THE GARDEN* would record their experience in relation to these strangulating warts that disfigure and destroy so many Maréchal Niel plants up and down the country, and which are so much more prevalent indoors than out. As to the so-called failures of "W. I. M.'s" small plants in pots that flowered so freely once and failed to do much afterwards, the free flowering in such a young state seems almost sufficient explanation. No Rose pile up or crowds in so much weight with its blooms as the Maréchal Niel. If anyone doubts this statement, let him scale a dozen blooms of Maréchal Niel against the same number of any other variety. The weight of the blooms repre-

sents to a great extent the expenditure of vital force, and after totting up the gross weight of bloom no one can be greatly surprised to find the plants partially or wholly exhausted. But as "W. I. M." shows so well how rapidly this fine Rose can be grown from cuttings into flowering condition, his suggestion to treat these precocious blooming plants as annuals is sound and good, and likely to yield far more bloom within a given space in a limited time than any amount of coaxing and culture bestowed upon the resuscitation of already exhausted plants. D. T. F.

Climbers for a cool conservatory.—In reply to "Rydal Mount," who is anxious to know of some good climber for the walls of a cool conservatory with a northern aspect, let me advise him to try *Ficus repens* to cover his wall, and if he would like his house half filled with fine glaucous green foliage, then let him plant *Boussingaultia baselloides*, which will do for either wall or pillar. He should then add for the sake of its chaste and lovely white flowers a plant of *Solanum jasminoides*, a charming cool-house climbing shrub.—W. H. CULLINGFORD, 7, *Phillimore Gardens, Kensington*.

WORK DONE IN WEEK ENDING MARCH 16.

MARCH 10 TO 16.

THOUGH there has been no more snow the frost continues as intense as ever. The highest reading of the thermometer in the shade during the week took place on the 12th, being only 35°, and the lowest night temperature 18°, or 14° of frost. The sun shone out brilliantly for about three hours on the 10th and 12th, and cleared away the last of the snow, so that we have been able to finish up our shrub-pruning and to make considerable progress in clearing up the attendant litter in shrubberies and on roads, as also to get a good part of our annual Ivy clipping done on mansion, stables, offices, and other walls. Also pruned another lot of Roses, between which are planted auratum Lilies, Hyacinths, Tulips, Narcissi, and as all except Lilies were showing through the protecting cocoa fibre, another thickness has been spread over to preserve them from injury by frost. Of course it will be left on till after the flowering season, and should the weather then prove dry it will be of equal value in respect of drought as it now is a protector from frost. Other outside work has been sifting a quantity of vegetable or leaf soil for potting purposes, also sifting wood ashes, the fine ash being reserved for kitchen garden use and the charcoal for potting purposes and for mixing with soil for fruit tree borders, a quantity of which is required for Peaches on walls soon as suitable weather sets in. Of work in the houses there is abundance, and having supplies of soil for potting in the dry we have been able to pot *Chrysanthemums* from small 2½-inch into 4-inch and 5-inch sized pots, according as the quantity of roots and strength of the plants required. Potted off *Carnations* and a few *Bouvardias*, and put in more cuttings of the latter; put in a quantity of cuttings of *Kleinia repens* and variegated *Mesembryanthemum*. We plant them in boxes, about 2½ inches apart, this being sufficient space till planting-out time; consequently they give us no further labour except the moving from one house or frame to another. I ought to add that they strike most readily if stood over hot-water pipes with the ends of the boxes resting on bricks. Tied Melons to trellis. Since the advent of sunshine the growth has greatly improved, and we find it necessary to water the bed once a week, and always use water a few degrees warmer than the temperature of the soil. Sowed Cucumbers and Chilies for frame cultivation, and Tomatoes for outdoor growth. Made a first sowing of *Primulas* and *Cinerarias*, and sowed in boxes for planting out in the mixed flower borders *Phlox Drummondii*, *Snapdragon*, *Pentstemons*, *Wallflowers* and *Sweet Williams*. Cuttings of several kinds of summer bedding plants are put in as they can be produced. The variety, or rather species, of plants we now use for this purpose is much greater than was the case a few years since, and the increase has mainly been in the direction of taller and harder species, so that the stiff, monotonous and gaudy effects are gradually disappearing; in fact, have got old-fashioned, and the new fashion now runs in the direc-

tion of what are called old-fashioned plants; and, like every other gardener, I confess to have been smitten with their beauty, and am fast becoming fashionable, if numbers and variety be taken into the reckoning. Still, having a geometrical garden to make extra gay for the summer and autumn months, necessity compels us to stick to some of our summer bedders, particularly the best *Pelargoniums*, *Lobelias*, and *Petunias*, but as we use with these standard *Fuchsias*, *Abutilons*, *Marguerites*, and many graceful foliage plants, we get abundant gaiety without undue formality, a type of bedding-out that, if it dies at all, will die hard. Indeed, my belief is that it will never quite succumb till there is a general remodelling or an entire obliteration of formal terrace gardens. Thinned fruit on early Peach trees and pinched back to the second joint from the base all shoots that were not needed for furnishing the trellis. The border, being an inside one, has had a good watering, the temperature of the water being from 70° to 80°, and the strawy mulching that was previously on the border was again well pressed down to keep in both warmth and moisture. Disbudded Vines of third vinery; this border is also an inside one, and it has been given a drenching with water at a temperature of from 80° to 90°, a thin layer of fresh strawy litter being spread over the border immediately after, which adds greatly to the neatness and is clearly for standing bedding and other plants on. As yet there has been no chance to move Pines, so as to give additional bottom heat; we therefore keep the temperature of pits at the lowest growing temperature and water rather sparingly, but by frequent examination take care that fruiters never get really dry. The recent sunbline has had a marked effect on Figs; both fruit and leaves are pushing forth vigorously. We still syringe at closing-up time only, and, as in the case of Vines, allow the temperature with sun-heat to go as high as it will so long as 90° is not exceeded. Nearly all our Vine, Peach, and Fig borders are inside, and therefore independent of weather, and in a season like this the advantages are immense, and where there are abundant supplies of water and ready means of applying the same, inside borders are preferable in any season, if only for the reason that manurial help (liquid manure) can be given at the time when it is likely to be most beneficial to the crop, and this obviously cannot be the case with outside borders, which, as likely as not, may at that time be deluged with rain. Grapes in bottles keep better than usual; they are examined once a week, and it is rarely we have to cut out more than a dozen decayed berries; 40° to 45° is the temperature we aim at maintaining in the room, and as the walls are hollow, frost could scarcely effect an entrance were it not heated by a hot-water pipe, but by way of precaution in this severe weather the heat is turned on for an hour each evening. Except a few *Bergamotte Esperen*, good dessert Pears are over, but we have a quantity of stewing Pears in excellent preservation, the best being *Catillac*, *Beurré Rance*, and *Bezi Mai*.—HANTS.

FRUITS UNDER GLASS.

FIGS.

ALTHOUGH the ice king still holds his own, the earth is as hard as adamant where it is unprotected by snow, and skating is the principal outdoor amusement—a most unusual pastime in this temperate part of England in the middle of March; forcing gardeners have at last one ray of hope, as the atmosphere is now clear and the sun shines brightly every day. The glass, it is true, sinks to some point in the teens every night, and the north-east wind is piercing enough, but still we have bright days, which enable us to run up our houses for an hour or so after closing, and the occupants already seem grateful. Figs, as all fruit-growers know, never have too much sun and light, even in our brightest summers, and yet many of us close our first house in November or early in December. Trees so started this season have passed through the first stage quite up to the resting period without the aid of solar heat, and yet they look well and show no signs of dropping, but then night temperatures, through force of circumstances, have ruled low, and after all that has been said in favour of express speed, rest by

night is one of the prime pivots on which successful culture in this country revolves. Hard, dry, fire heat can of course be forced into any house, but notwithstanding the fact that the Fig and the Melon, through the ripening stage of their growth, will stand a great deal more than would be good for the Vine, they like a soft moisture-laden atmosphere during the time they are forming their wood and leaves and swelling their fruit. Assuming, then, that trees in pots, aided by the assistance of a moist, steady bottom heat from fermenting Oak leaves, have completed their first swelling, and are free from red spider, the most important point in the daily details will be a judicious use of the syringe and a steady supply of diluted liquid a few degrees warmer than the mean of the plunging bed. The Fig being such a gross feeder, trees in well-drained pots will take a very large quantity of food in this the best of all forms with impunity; but once allow the roots to feel the want of water, the chances are strongly in favour of the most forward and, as a matter of course, the most valuable fruits dropping from the trees when they ought to be swelling for ripening. Examine trees that were potted early in the autumn, and if new roots are found working on the surface apply large pieces of light rich turf, grass side downwards, and rough lime rubble or old hair plaster to draw them upwards and renovate the now partially decayed bed for the last time. When these pieces of turf are filled with hungry feeders keep them constantly moistened with warm liquid, and encourage them to pass over the rims of the pots into the decaying leaves, where they will find an endless supply of food, which will put an end to danger from dropping, and greatly improve the size and delicious flavour of the fruit when it is ripening. The temperature having hitherto ranged low, a sudden rise will not for the present be advisable, but when we have a thorough change and the flowering process is complete, a gradual advance to 65° or 68° by night and 75° to 80° through the day will be beneficial. Pay particular attention to syringing, now twice a day, as spider is an inveterate enemy, bathe the foliage well above and below, drench the dry- corners, and close in time for the house to run up to 85° or 90° on bright sunny afternoons. Large trees that have become too large and unwieldy to undergo annual potting, even if that practice were advisable, may now have a good quantity of solid rotten manure applied with the turf and calcareous mulching, as the short spur-like pieces of wood which they make are always thickly studded with fruit, a sure sign that they are in the best possible condition for carrying good crops to maturity. Trees of this description, as I have often pointed out, must be relieved by timely thinning as well as feeding, as the pots are literally crowded with coiling roots and hungry fibres. In such cases the mode of treatment which I have found most successful is as follows, and I have kept trees 9 feet in height in the same pots for several years in succession. Each pot, perhaps 20 inches in diameter, is placed on a turf-capped, dry brick pedestal, built up from the bottom of the plunging pit; all external roots are cut off close to the drainage holes and rims as soon as the leaves fall, and water is withheld until the end of October. A narrow encircling wall of light, rich turf, commencing at the top of the pedestal and

terminating slightly above the rim, is then built up round each pot, and the trees, as far as the roots are concerned, are ready for starting in November. All intervening spaces between the turf-coated pots are filled in with fermenting leaves, the roots are liberally supplied with hot water at a temperature of 90°, and fresh root action quickly follows. New roots from the crocks as well as the rims speedily take hold of the new turf, while constant turning and renovating prevents them from running into the fermenting material; but so soon as the fruit reaches the completion of the first swelling, turning is discontinued, when roots from the wigbound pots are allowed to ramble at will. The feeding of such trees is of course an important item, but pinching, a terribly abused operation, is quite unnecessary, as every growth is short and furnished with a good terminal bud.

Succession houses in which the trees are planted out will now require regulating and clearing of pot trees which may have been introduced for a start. Where the orthodox method of training the main shoots horizontally and cutting back every alternate lateral growth for young wood

thoroughly watered before they are excited into growth, and the house may be well syringed once a day for the present. Trees in cold houses and cases, unless we have a great change in the weather, must be kept as quiet as possible, otherwise the keen, cutting north-east winds by day and severe frosts every night may yet nip the embryo fruit. As trees in these structures cannot produce more than one crop annually, there is still plenty of time, not only to ripen the fruit and wood, but also to cut out superfluous branches and train them for the summer. The secret of success greatly depends upon annual root-pruning, liberal mulching and feeding, and allowing wide spaces for the foliage and fruit-bearing branches.

PLUMS AND CHERRIES.

If not already thinned, the fruit in the house or houses devoted to the culture of these charming trees will soon be ready for undergoing that operation. It is not well to be in too great a hurry, as all the fruits do not set properly, but when the trees have shed their petals and the house has been well syringed, the difference between the perfect and the imperfect will be plainly perceptible.

If well watered before the buds commence swelling, the borders should now be examined with the view to their receiving a second supply, and if it be thought necessary to mulch any of the trees, the manure or top-dressing may be applied as a preliminary to the operation. It is not, however, a good plan to give a copious supply of water to any tree immediately after the petals fall, as a check or a flush at this critical stage is sometimes injurious. Neither is it safe to withhold water after the borders approach the dry side; therefore the giving or withholding a moderate quantity must be governed by existing conditions, including the state of the weather and the position of the border. Should the nights continue cold and frosty and days bright and arid, syringe when the temperature touches 50°, allow it to rise with air to 60°, and repeat the operation when the ventilators are closed on fine afternoons. Damping the walls and other surfaces on dull cold days will suffice, and 40° to 45° by night will be quite high enough until we have milder weather. Disbudding or pinching will now re-

quire attention, but this is not a heavy business, as, properly managed, Plums and Cherries do not make many gross shoots when once furnished with plenty of spur wood. But what little they do make, unless the shoots be leaders, must be pinched when they have made four or five leaves, and grubs, at the same time, must be keenly sought for. These destructive enemies, it must be borne in mind, often spring suddenly into activity, and do considerable mischief before they are detected. A sharp eye must, therefore, be kept on the foliage, and as soon as closely folded leaves appear daily hand-picking is the only remedy. Red spider, owing to the maintenance of a low temperature, is not at this time troublesome. Green fly is easily destroyed by smoking, and black fly, if taken in time, can be annihilated by dipping the points of the shoots in strong tobacco water and syringing the following morning.

PINES.

The general potting and rearrangement of Pines, like many other operations, have no doubt been delayed by the inclement nature of the weather. In modern places where heated potting sheds are



Flower-sprays of *Aster elegans*. See page 252.

from which the second crop will be gathered is followed, the shoots now carrying the first crop must be pinched when they have made four or five leaves. Stop or remove all side shoots, as they cannot be expected to produce fruit if they do not shade or crowd the main foliage, and lay in at full length all terminal growths until they reach the extremity of the trellis. If the trees are trained on the fan principle, an abundance of room for every shoot to grow freely on the extension system is of importance, as they then produce as many Figs as leaves and become perpetual bearers. Brown Turkey is one of the best varieties for this mode of culture, as it is very prolific, and the system being so simple and free from all pinching operations, the greatest novice can carry it out to perfection. All that is needed is plenty of room for summer growth and cutting away old shoots when they reach the extremity of the trellis.

Late houses may now be shut up and started with sufficient fire-heat to maintain a minimum temperature of 50° to 55° with a rise of 10° by day. If confined to internal borders, as the roots of house trees should be, the borders must be

attached to the stoves and the old-fashioned mode of making one of the lights suffice for a door is unknown, the potting of early Queens may have been got through in February; but it is just questionable if all disturbance of plants and beds, unless the latter have become very cold, has not done more harm than good. Assuming, then, that the bulk of the past month's operations are still in arrear, and that the hints contained in the last calendar, through force of circumstances, have not yet been acted upon, all I have to say is, have everything prepared and in readiness for use when the favourable time does come. Fermenting and plunging materials are sometimes greatly improved by delay, which enables one to give them an extra turn over, and certainly all potting compositions containing rich manures or highly concentrated artificial stimulants gain by lying in a heap for some considerable time after the ingredients are thrown together. So far, time, we may suppose, has not been lost, and as Pines are not like soft, quick-growing plants which soon become pot-bound, I am inclined to think those who have exercised patience will yet be best off.

As all may not have suffered so severely as we have in this district, it is perhaps only right to say early potted plants, hitherto kept dry, should now be looked to, and if really necessary well watered, not indiscriminately, but individually, either thoroughly or not at all, as dribbling or watering to keep want away are two terrible evils in Pine houses. Experienced growers can tell by feeling the leaves in the dark when plants want water, and so long as there exists a doubt their course is a little extra atmospheric moisture to prevent waste until the roots have taken hold of the compost. The next point which must be held in view is the newly-formed bed. Cold dull days may have favoured a declining temperature, but a sudden change to bright sunny weather and the application of more water may produce an opposite effect, which must be checked in time, otherwise serious consequences may follow. On the other hand, tan or leaves may have heated until they have become too dry for the healthy growth of the roots of the plants, and yet it may not be convenient to lift them and turn the bed. Should this be the case, a quantity may be turned off into the paths, when a thorough watering with hot water at a temperature of 100° will most likely set them right for the present, and produce a soft genial moisture so essential in all Pine stoves.

Fruiting plants.—Examine newly started Queens every week and see that they do not feel the want of water. Although we have had very little sun, the pots and plants having been kept in a high and rather dry temperature, their now active roots will take liberal supplies whenever food in a liquid form is needed. Water, it is well understood, should never be given unless Pines actually require it, and then each plant should receive a sufficient quantity to moisten the crock roots as well as the surface. Mild stimulants, including soot and guano water, or clarified liquid made from the excrement of sheep or stall-fed cattle, may be used alternately, as plants, like animals, enjoy change of diet. Mild and often is the great secret in the application of stimulants to plants, and, I think, I may say to animals also. Damp all paths and the surface of the bed occasionally, and fill the evaporating pans with similar liquid; but avoid wetting the foliage either with this or pure water during the time the plants are in flower. When properly set, they may be lightly dewed over with the syringe, and the temperature of the house may range from 70° at night to 85° by day and 90° after closing, with sunheat and plenty of moisture.

Successional plants.—If the potting of these is still in arrear no great harm has been done, as we have not yet got clear of the winter. If the pots are full of roots a little stimulating water will do them no harm, as they must be kept in a moist growing state to fit them for shifting. Keep newly potted stock well up to the light and rather close until new growth sets in, then gradually increase the supply of air and moisture, but avoid shading or coddling, as either of these modes of

treatment results in a weak spongy growth of narrow elongated leaves from which the plants never recover.

Eastnor Castle, Ledbury.

W. COLEMAN.

TREES AND SHRUBS.

GIANT ARBOR-VITÆ AND WHITE CEDAR.

IN spite of the host of articles in botanical and horticultural publications since the introduction of these trees—two of the most remarkable and useful evergreen Conifers which have ever found their way to this country—no little confusion still exists in the minds of cultivators with regard to both. Specimens from a large number of correspondents having reached me either totally wrongly named, or with the names transposed, it is evident enough that in many quarters the errors into which Gordon and some other writers fell many years ago are still perpetuated; the accompanying illustrations, however, together with the descriptions herewith given, should render matters clear on these points to all readers. Whether or not either tree will ever assume dimensions approaching those attained in its native country, or become valuable as timber trees under suitable conditions in Britain, the two are certain to remain favourites for ornamental planting in the park and pleasure ground on account of their perfect hardiness, their glossy bright green foliage, and their graceful and distinct habit.

Of the true *Thuja*s only three species, according to some authorities, are known to exist. One is a native of the Atlantic States (*T. occidentalis*), a second is peculiar to Japan (*T. Standishi*), and the third and most valuable is *T. gigantea*, from the north-west coast of the United States. A large number of forms of each exist in gardens, but in the present article only *Thuja gigantea* and its varieties will be further treated.

THE GIANT ARBOR-VITÆ (*Thuja gigantea*).—The Giant Arbor-vitæ, or "Western Arbor-vitæ," as it is called in Professor C. S. Sargent's "Catalogue of the Forest Trees of North America," was introduced to this country, in 1853, by Messrs. Veitch, through their collector, William Lobb, to whose energy and enterprise our gardens are indebted for a large number of very beautiful and useful plants. This fine tree, according to the "Botany of California," is frequent in the Coast Ranges and Cascade Mountains of Oregon, but rather rare in California. It is said to range from San Diego county to Sitka. It resembles the *Libocedrus* a good deal, so much so, in fact, that the two may be easily confounded except when in fruit. The smaller size, the less graceful habit, the more conspicuously glandular leaves, and the smaller cones, with scarcely mucronate scales of the eastern species, *T. occidentalis*, as well as the brownish colour it assumes during the winter months, are characters by which it can be readily distinguished from the western *T. gigantea*. The following concise description is given in the "Botany of California": "A tall graceful tree (often 100 feet to 250 feet high or more, and 3 feet to 12 feet in diameter), narrowly pyramidal, with

spreading and somewhat drooping branches; foliage light green and shining; leaves acuminate and sub-pungent, very obscurely glandular, male flowers a line long, cones somewhat clustered near the ends of the branches, half an inch long, the scales with a thin, acute, usually appressed mucro, seeds a little shorter than the wings, which are three lines long, distinct and slightly unequal." The *Thuja plicata* of Donn, which is given as a mere synonym of *T. gigantea* in the "Botany of California," is not taken into account here, as for all practical purposes it is abundantly distinct, and, indeed, is looked upon as possessing specific rank by Loudon, Parlatores, Koch, Veitch, and others. Being a native of the same districts as the Giant



Male cone of *Libocedrus decurrens* and detached scales, upper one showing stamens.

Arbor-vitæ, seeds have, no doubt, been introduced and distributed under the name which, for arboricultural purposes, should only be applied to the more rapid-growing and altogether more stately and beautiful tree which is here figured. Donn's *Thuja plicata* was first introduced to this country in 1796 by Archibald Menzies, who accompanied Vancouver as surgeon and naturalist in his voyage round the world; during the same year and by the same naturalist, *Araucaria imbricata* was also introduced. Through the kindness of Mr. R. Lindsay, curator of the Royal Botanic Gardens, Edinburgh, I have had fresh specimens sent me of "five distinct forms of *Thuja gigantea*, all of which were raised from seed sent to Edin-



Libocedrus decurrens; mature cone and seed, embryo and section of seed (magnified).

* *THUJA GIGANTEA*.—Nuttall in "Journal of Philadelphia Academy," vol. vii., 52; Sylva, vol. iii., 102, t. 3; Newberry in "Explorations and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean," vol. vi., p. 56, fig. 22; Watson, Gray, and Brewer's "Botany of California," vol. ii., p. 115; Veitch, "Manual of the Coniferae."

Synonyms, *T. Menziesi*, Douglas; Carrière, "Traité Général des Conifères," p. 106.

T. Lobbi and *T. Craigiana* of gardens.

burgh by Jeffrey in 1851 while collecting for the Oregon Association." Unfortunately, some of these were not in fruit, but as far as one can judge from branches alone, two of them seem exactly identical with the *T. plicata*, so widely grown long before the introduction of what we may look upon as the true *T. gigantea*. The description given of each of these two forms by Mr. Lindsay appears to suit *T. plicata* (as understood by Loudon, Koch, Veitch, and others) much better than *T. gigantea* as here figured, and as described in Veitch's Manual. No. 4

was taken "from a tree 15 feet high and 12 feet in circumference of branches, and might pass for a form of *T. occidentalis*." No. 5, "from a bush 6 feet high and 12 feet in circumference of branches, leaves brownish, resembles No. 4, but closer set and altogether more compact." I may here state that Mr. J. Smith, the curator of the Royal Gardens, Kew, who has for many years paid a good deal of attention to cultivated Coniferae, agrees with me in excluding the two Edinburgh plants from the *Thuja gigantea*, as understood by nurserymen and tree planters, and in placing them under the *T. plicata* of Donn. The other specimens from Edinburgh are only forms of what most growers look upon as the true *Giant Arbor-vitæ*; their dimensions are: No. 1, 32 feet high and 31 feet in circumference of branches; No. 2, 24 feet high and 27 feet in circumference; No. 3, 20 feet high and 30 feet in circumference. Mr. Smith tells me that on an estate to which he paid a visit some time ago, where both *T. plicata* and *T. gigantea*

single specimen, or in rows or masses to form a screen either to shut out unsightly objects or to act as a shelter against rough winds. It is almost impartial as regards soil, and no tree bears transplanting better; it is also perfectly hardy. A beautiful symmetrical specimen at Linton Park, which in 1881 was 50 feet in height, is figured in Veitch's Manual.

According to Professor Sargent's catalogue, the wood of the *Giant Arbor-vitæ* is light-coloured, soft, easily worked, and moderately durable; it is used for shingles, and is often sawn into boards, although these are liable to split and warp when exposed to the sun. In the museum (No. 1) at Kew are several interesting specimens; among these are sections of the wood, a stave, a hat, and a shawl made from the fibrous bark, and mats also made from the bark. These mats are used by all the Indian tribes for sleeping on, and for covering their legs in the

THE WHITE CEDAR (*Libocedrus decurrens*).*—So far as is at present known the genus *Libocedrus* embraces eight species, of which a couple are natives of Chili (both these are in cultivation), two are from New Zealand (only one of these has as yet found its way to British gardens), and each of the following countries possess one: New Caledonia, Japan, China, and California. All are highly ornamental trees, but the most valuable is *L. decurrens* from the last-named country.



Twig of *Libocedrus decurrens* bearing seed cones.



Twig of *Libocedrus decurrens* bearing cones of male flowers

were planted on a rather large scale under precisely similar conditions, the latter averaged about 30 feet in height, whilst the former, the same age and planted the same length of time, was from 8 feet to 12 feet in height at the outside.

Apart from any possible value as a timber tree, the *Giant Arbor-vitæ* is one of the most useful of all Evergreens, as it is a rapid and graceful grower, and is equally effective if planted as a

canoes, &c.; each tribe has a different pattern. The roots, too, are utilised, and "Hamana" native fish-hooks made from them are exhibited, with the articles already mentioned, in museum No. 1. A number of seedling forms or sports, varying a good deal from the type, are in cultivation. The names of most of these are sufficiently indicative of their distinctive characters. Among the most decided are *atro-virens*, *erecta* (*fastigiata*), *glauca*, *pumila*, and *variegata*.

This was first introduced into this country by the Oregon Botanical Association through their collector, Jeffrey, who sent home seeds in 1853. The committee of this association, not being aware of the prior description of Nuttall, published the species as *Thuja Craigiana*, the specific name being given in honour of one of their number, Sir William Gibson Craig, a gentleman celebrated for his zeal for and knowledge of arboriculture, and more especially of coniferous trees. Another element of confusion arose when Carrière, erroneously supposing that this was the species described by Nuttall as *Thuja gigantea*, shelved the name of *Libocedrus decurrens*, and gave it the name of *Thuja gigantea*. A curious instance of how names become changed or misplaced even in botanical establishments is shown by the fact that in the very birthplace, so to speak, of *Thuja Craigiana* (which, as above stated, is a synonym of *Libocedrus decurrens*) that name is now applied to the *Giant Arbor-vitæ* (*Thuja gigantea*). Scarcely any other pair of trees has been surrounded by more confusion than the subjects of this article.

In its native country the White Cedar (or Bastard Cedar, as it is called in Dr. George

* *LIBOCEDRUS DECURRENS*.—Torrey, "Plantæ Fremontianæ," p. 7, tab. 3; Watson, Gray and Brewer in "Botany of California," vol. ii., p. 115; Veitch, "Manual of the Coniferae."

Synonyms. *L. gigantea* and *L. glauca* of gardens. *Thuja Craigiana*, Balfour in "Description of Coniferae Collected by Mr. Jeffrey" (not of gardens).

T. Skinneri of some gardens.

T. gigantea, Carrière, "Flore des Serres," ix., 199, figs. 3-5.

Hedera decurrens, Koch, "Dendrologie," zweiter Theil, zweite Abtheilung, p. 177.

Vasey's "Catalogue of the Forest Trees of the United States") is a tall tree (becoming 100 feet to 150 feet or more in height, by from 4 feet to 7 feet in diameter), with scattered lax spreading branches and bright green leaves in two decussate pairs at each joint, closely adnate excepting the short acute tip, the lateral pair being without glands, and nearly covering the flattened, obscurely-pitted inner one. The accompanying illustrations render unnecessary a description of the male flowers and cones. The distribution in a wild state is from Oregon to San Diego, California, in the Coast Ranges, and in the Sierra Nevada, up to 8500 feet or more elevation. The wood is light and strong, and makes excellent cabinet-work, boxes, &c. In the museum (No. 1) at Kew are pieces of the timber, and also a large photograph (presented by Sir Joseph Hooker in 1877) of a group of young trees in the great national park of North America, the Yosemite Valley. Judging from the slow rate of growth in this country, there seems no prospect of the species assuming with us the majestic aspect it possesses "at home." The deep, bright green of the handsome foliage, and the dense columnar habit affected by all the specimens I have seen in England, impart to them a distinct and almost peculiar appearance. It is quite hardy—according to Koch, it withstands perfectly the intense cold of the winters in North Germany. Requiring but little space, it should find a place even in the most select collections of hardy trees, on account of its rich, deep green colour and very effective general aspect. GEO. NICHOLSON.

Royal Gardens, Kew.

Taxus brevifolia (T. adpressa).—This plant did not originate in the year 1838, as stated at p. 221; as a matter of fact, it was found in a bed of Thorn seedlings in the Bache Nurseries of the late F. & J. Dickson, in March, 1828, by one of their employes, James Barnes—no doubt an accidental seedling which had germinated two years previously; so this would make the date 1826, or exactly sixty years ago. We have recently discussed the matter with an old friend who was at the time employed in the Bache Nurseries, and he clearly recollects the finding of the seedling, working up of a small stock by the propagator, Daniel White, by grafting upon the Irish Yew, the subsequent unfortunate mischance of selling the plants to the late Mr. Knight and his refusal to return them, likewise the annoyance of F. & J. Dickson by the mishap. The name *brevifolia* was given by F. & J. Dickson, and *adpressa* by Mr. Knight, who, by-the-by, we believe, had not at that time taken Mr. Perry into partnership. We have frequently sown seeds gathered from the plant, but they have invariably produced the common English Yew. This fact may simply illustrate the influence of the stock upon the scion, as the plants from which the seed was gathered were grafted upon the common English Yew.—JAMES DICKSON & SONS, *Newton Nurseries, Chester.*

Raising fallen trees.—There is little to be added to the advice given by D. J. Yeo on this subject in THE GARDEN (p. 223) but the one material addition that a jack is invaluable for starting the trees from the semi-horizontal towards the perpendicular line; and as the chief difficulty is in the start, this is of the utmost importance. A jack a yard or so long, and with a rise of a foot or even less, will set the heaviest tree in motion, and, once in motion, block and tackle, arranged as recommended by your correspondent, will raise the tree into its original position. A simple mode of keeping it safe after it is set up is to heavily

weight the rent side of the ball with earth or stones, or, better still, secure the bole with a rod of wire or iron for a twelvemonth after it is raised to allow the fresh-made roots time to develop into holdfasts. When these precautions are neglected the first gale not seldom topples the tree over again, and the last state of such trees is worse than the first. It is also a good plan to lighten the tops of the trees somewhat when raised, for the dual purpose of lessening the demands on the lacerated roots and reducing the purchase-hold of the wind upon the newly-raised tops.—D. T. F.

A FEW GOOD WALL SHRUBS.

BIGNONIA RADICANS.—A free-growing deciduous climber from North America, that will succeed in some parts of the kingdom; it bears trumpet-shaped orange-coloured flowers, and is a handsome and very distinct looking plant.

KERRIA (CORCHORUS) JAPONICA.—The double-flowered form of this plant is one of the oldest

son with the red *Cydonia* for a wall. It will thrive and flower profusely in any aspect, even facing the north, where few plants get their wood ripened sufficiently to enable them to bloom. The length of time it continues in flower in the early spring months is not the least of its merits. It is also not particular as to soil or locality, thriving where many things not nearly its equal can scarcely be coaxed to grow. Amongst the different sorts now in cultivation the white and the rose-coloured forms are beautiful plants, as also the variety *Maulei*.

ESCALLONIA MACRANTHA, an evergreen plant from Chiloe, with red flowers, should find a place in those parts of the kingdom where it can bear the climate; in cold localities it is liable to be injured by frost. Its handsome glossy green foliage is effective even when out of flower.

JASMINES.—The common white Jessamine is too well known to require more saying about it than that it is deserving of being grown if only for its agreeable perfume. The winter-flowering *J. nudiflorum* is another of the most useful plants that can be grown on a wall; its free-growing disposition is such as to enable it to thrive and bloom profusely in any position and almost any locality; it is one of the few flowers that come in to brighten up the dreary winter months.

FORSYTHIAS.—*F. suspensa*, a deciduous Japanese species, with handsome yellow flowers, in appearance much like those of the naked flowering Jasmine, is another desirable winter bloomer that is suitable for a wall, as when so protected its flowers have a better chance of opening than when grown in the open ground; it is a profuse bloomer. *F. viridissima*, a deciduous Chinese plant, that also has yellow flowers, produced in winter, is likewise useful for a wall.

HONEYSUCKLES.—There are few more appropriate plants for the wall of a house than these. The Dutch varieties give a succession of flowers, and on that account are especially deserving of cultivation. The evergreen kinds and the scarlet trumpet are desirable plants. They look best when let to scramble about amongst other things, so as to hang loosely.

PASSIFLORA CÆRULEA.—This species is of moderate growth and is a free bloomer, with the interesting character of the flowers common to the larger species. It should have a sunny position.

WISTARIA (GLYCINE) SINENSIS.—This well-known Chinese plant is a beautiful object when in bloom. It will succeed

on either a high or a low wall, as its branches seem to be indifferent whether they are trained horizontally or in an upright direction. It has a good effect when trained on the top of a wall of moderate height occupied by other plants; in such a position, either in or out of flower, it is effective. Although a free-growing plant, it does much the best in good soil.

MAGNOLIAS.—The Carolina species, *M. grandiflora*, and its variety *exoniensis* are the best for a wall, which should be of considerable height, so as to admit of the branches extending fairly. When studded with their large beautiful white flowers in the setting of ample glossy green leaves the plants have a noble appearance.

ARISTOLOCHIA SIPHO.—This is one of a genus of the most singular flowering plants in existence, but in this species the flowers are not so conspi-



Fertile branchlet of *Thuja gigantea* (detached cones, natural size).

and best known flowering shrubs, and is often planted against the wall.

CEANOTHUS.—The Mexican *C. azureus* is the best known of the kinds; it is a neat, but free-growing, evergreen plant, with, as its name implies, pale blue flowers. It and several others are good wall plants; amongst the best may be named *C. Arnoldi*, *C. dentatus*, *C. hybridus* *cæruleus*, *C. azureus albidus*, and *C. Gloire de Versailles*.

CHIMONANTHUS FRAGRANS, a Japanese plant, with red and yellow flowers, and *C. grandiflora*, a Chinese species, with yellow flowers, are both worth a place, although being winter bloomers their flowers are sometimes cut off by frost.

CYDONIA (PYRUS) JAPONICA.—Amongst flowering subjects there are few that will bear compari-

cuons as in some of the tender kinds; nevertheless, it is well worth growing for the flowers, as also for its large cordate leaves. It is a native of North America.

VIBURNUM PLICATUM.—For the time that this plant is in bloom few things have such a telling effect, the shoots being literally borne down by the weight of its large globular bunches of white flowers. The deeply plaited leaves have a distinct and pretty appearance. It is deciduous, and comes from China.

PYRACANTHA.—Amongst the berry-bearing plants adapted for wall cultivation the red-fruited *Pyracantha* (*Crataegus*) holds a leading place. Where well managed, so as to bear the full complement of its bright-looking berries, it is a beautiful object during the winter months, and through the rest of the year, when not in fruit, its healthy evergreen foliage has a fresh appearance. The yellow-berried variety, though less attractive, is worth growing.

COTONEASTERS.—The natural habit of growth, combined with the pretty evergreen foliage and bright red berries borne by *C. buxifolia* and *C. microphylla*, adapt them for growing on low walls where plants that attain a large size would be unsuitable. For using in this way few things are so well fitted; they will thrive almost anywhere. Both kinds are natives of Nepaul.

RUBUS (Bramble).—The American varieties of Bramble have handsome foliage, and during autumn, when the fruit is colouring and has arrived at maturity, the plants have a pretty appearance. They are free growers, and with a little attention make good wall plants.

AMPELOPSIS (Virginian Creeper).—The handsome foliage of *A. hederacea*, green in summer and changing to red in autumn, makes the plant effective so long as it carries its leaves. Its rapidity of growth adapts it for covering a large space in little time, on which account it is valuable. *A. Veitchii*, a neater habited plant, that clings fast to a wall or anything to which it has the chance of attaching itself, is also a most desirable subject; it is a rapid grower; in autumn the foliage assumes an exceedingly bright red colour, varying in intensity according to the particular aspect it occupies. It has not the graceful elegance of the older and yet more common species previously named, but it is, nevertheless, a beautiful plant.

EUONYMUS.—Both the green-leaved and the variegated varieties of *Euonymus japonicus* are amongst the best of evergreen plants for covering walls, which they furnish effectually, but they will not bear the severest winters in many parts of England, being sometimes injured even with the protection which a wall affords. The little *E. radicans albo-marginatus* forms a dense close covering, requiring scarcely any training to keep in order.

AZARA MICROPHYLLA.—This is a very pretty evergreen plant with small leaves, which clothe the shoots densely. The branches are quite flat and spreading, which naturally befits it for covering walls, but it is somewhat tender, and like all others of a doubtful nature should never be planted where its absence would cause an unsightly blank, for it usually happens with plants incapable of bearing a low temperature that they go on for years if there happens to be an absence of severe frost, after which all is undone in a single night.

The plants noticed are not all that can be used for covering walls, but they comprise the best kinds, and will be found to present as much diversity in their general appearance as needful. Even with the best selection it requires judgment

in planting, without which the desired appearance will be wanting. In choosing plants to clothe a wall there is often an impression that all should be sufficiently uniform in growth to reach the top, the result of which is that the space when covered presents an objectionably even, panel-like appearance; whereas if some of the kinds employed did not reach more than half way up with those growing on the right and left filling the space above, the effect would be much better. But when plants that attain different heights are thus associated, those which only occupy the lower part of the wall should be evergreen, as if the reverse of this occurs the appearance will be defective in the winter when the deciduous kinds are devoid of leaves. Anything in the way of even formality, by confining any plant to a straight line where it meets those adjoining it, should be guarded against. The arrangement ought to be such as will admit of something like a balance between the deciduous kinds and the Evergreens—that is, they should be planted alternately, not several Evergreens together and then a like number that are deciduous. Obviously if this occurs, unduly large spaces will be bare in winter, whilst similar breadths of the surface will be clothed with the Evergreens. With the idea that the plants that are growing on a house, or an ordinary wall, should look trim and even, they are frequently kept much too close to admit of the freedom so desirable, either by using the knife or keeping the shoots closely pinned in to the wall; just the reverse of this should be aimed at, allowing to each plant as much liberty as consistent with the necessity for not letting the strong growers encroach on the weaker ones.

T. BAINES.

ORCHIDS.

SPRING NOTES ON ORCHIDS.

EAST INDIAN HOUSE.—We have not required blinds yet, although fixed in position the second week in this month. The sun may shine out with considerable power at any moment, but while frosty winds blow so keenly they may not be needed, and but little air is necessary. When the sun is shining directly on the glass, sprinkle the paths and side stages with water, otherwise the sudden evaporation from the leaves may be injurious. The changeableness of March weather is proverbial. In the early morning it may be cold, dull, and cloudy; there is, therefore, no alternative but to push on the fires, only many inexperienced stokers commit the grave error of filling the furnace as full as it will hold with fuel, and by the time this is in full blaze the sun shines forth, and the excessive heat in the pipes may be injurious. It is always best on these late spring mornings, when the temperature is as low as it ought to be in the houses, to make up a small, quick fire, which can be damped up about 9 a.m., when it is seen that the sun is likely to shine; if not, add a little more fuel to maintain the temperature at least 5° higher than the lowest night temperature. It is now time that the deciduous *Calanthes* were potted; ours have been up till now under the stage in the *Cattleya* house quite dry, but they show signs of starting to grow; we will, therefore, at once shake them out and repot them. The pots are nearly half full of drainage; over this some loam with the fibre shaken out of it is placed. The compost we use is fibry loam, a little peat, a small portion of dry, flaky manure, a sprinkling of coarse white sand, and small bits of charcoal. *Thunias* are potted at the same time, but for these we use turfy peat instead of loam, and the late Mr. Joseph Spyers, who grew them well, placed a layer of turfy loam from which all the clayey particles had been shaken over the drainage. They ought both to be placed in a light corner of the warmest house. The old stems of the *Thunias* must be supported with sticks; not one of the stems will

stand upright without support. Many Orchids which grow in this house succeed best with Sphagnum Moss growing freely over the surface, but, owing to the plants being kept rather dry than otherwise during winter, the Moss has become rather patchy—dead in some places, partly so in others. It is best to remove this dead and decaying material and replace it with fresh Sphagnum; but this season we find it very difficult to get it good, and if not good it does not answer well.

As the season advances, it will be necessary to pay considerable attention to the state of the plants in case thrips may be present. If the houses could be fumigated with impunity, it would be easy enough to get rid of this troublesome pest; but many things suffer so much injury when fumigated, that it is better to destroy the thrips in some other way. Tobacco water will settle them if it is applied, diluted with sufficient rain water. I also add about 2 ounces of soft soap to each gallon of rain water. This kills thrips, green fly, and red spider; possibly many other insect pests lurking in the leaves and other crevices would also fall victims to it.

One of the most noble Orchids at present in flower in this house is the spring flowering variety of *Angræcum sesquipedale*. It seems to be a better variety than the old species which usually gladdens our eyes with its ivory-white flowers at Christmas-tide. I have measured a flower, and find it is 7 inches across from the tip of one petal to another, and 6½ inches the other way. We have put our plants of *Cattleya gigas* and the variety *Sanderiana*, also *C. Warneri* and *C. aurea*, into the cool end, as it is also the lightest place in this house. *C. Warneri* has made considerable growth, and the others are also starting freely. The right quantity of water to give these and some other species of *Cattleyas* and *Lælias* is not known to many cultivators; but a sure guide is the state of the roots, not so much the state of growth. If the roots are inactive, but little water will be required; nor should it be given in dribbles; but when the compost seems dry, give sufficient water to soak the whole material to the bottom of the drainage. I have allowed specimen *Cattleyas* to remain three or four weeks without giving them any water at the roots. Small plants must not be allowed to remain long without water at the roots, at least not to be dried up. I am alluding to those that require rather more heat than the *Mossiæ* type. It is now a good time to repot specimens of *Cypripedium Spicerianum*, as they are starting to grow. As this is a free-growing species, the plants sometimes require dividing, and to do so they must be torn to pieces by the hands, being careful, at the same time, to retain on each portion as many roots as may be possible. We use about half turfy loam and turfy peat in the potting material. *C. niveum* may also be potted now; it likes a large proportion of loam in the potting soil; nor must the plants be placed in too deep; if this is done, some of them will die off at the neck, and the others will not do very well. It is not necessary to maintain a higher temperature than 60° at night, with 5° or 10° higher by day. Sun heat has raised the day temperature to 85°, and when we can shut the house with this temperature in the afternoon it pleases us greatly.

Ilford.

J. DOUGLAS.

Orchids at Kew.—We rarely visit Kew without seeing a few at least of those out-of-the-common Orchids which are generally known by the name of botanical curiosities, although some of them are only considered such because their value as garden plants has not been recognised. In keeping an eye on the small and curious among Orchids as well as on the more popular ones, Kew plays a part of greater importance than at first would appear, and we should be sorry to see such work neglected and mere display encouraged. It is also observable at Kew that recently much has been done to provide a show of the popular every-day Orchids such as the connoisseur would call very commonplace, but which to the uninitiated are full of interest and beauty. During the

last month or so two houses have been gay with flowering specimens of such Orchids. At the present time the following are in bloom, viz.: *Odontoglossum crispum*, *Pescatorei*, *Sanderianum*, *gloriosum*, *Cervantesi*, *Erstedii majus*, and *Rossi*; *Dendrobium Wardianum*, *crassinode*, *Pierardi*, *nobile*, *fimbriatum oculatum*, *aureum*, *luteolum*, and *crepidatum*; *Cypripedium concolor*, *Haynaldianum*, and others; *Celogyne cristata*, *elata*; *Angraecum citratum*, *Laelia harpophylla*, *Phalaenopsis Stuartiana*, *Sanderiana*, and *amabilis*. The above are mostly represented by well-flowered plants, some of them exceptionally good. To the botanically inclined, the most notable of the Orchids in flower are *Sarcochilus Hartmanni*, *Eria Lindleyana*, *Dendrobium Williamsoni*, *D. gracilicaule*, *Maxillaria porphyrostele*, *Cypripedium Schlimi*, *Spiranthes speciosa*, *Ansellia africana*, and other uncommon kinds. As we said before, Kew never has a great show of Orchids, but always enough to give a good idea of the family in its various aspects, and this is about as much as we can expect such a garden to do.—M. J. N.

Disa grandiflora.—We are informed by our correspondent at Cape Town that a great stir has been made against the export of this favourite Table Mountain Orchid, *Disa grandiflora*; public meetings have been held, and it is thought that an edict will be passed forbidding any further spoliation, lest the plant should be exterminated.—ALEX. WALLACE.

Oncidium Phalaenopsis.—A specimen of this charming little Orchid has been sent to us by Mr. Moore, of Glasnevin, where it has been in flower for some time. The variety differs from the type in the flowers being of a much lighter colour. The lip is about 1 inch across, pure white, freckled and spotted around the centre with carmine. The upper three sepals are blotched and barred with claret-purple, and the crest is bright yellow. A prettier Orchid is not in existence, and it could be wished that it were less rare than it is.

Phalaenopsids at Henham.—Mr. Eden sends us a photograph showing the interior of the Phalaenopsis house in Lord Stradbroke's garden at Henham Hall. Enormous specimens of *P. Schilleriana* are shown, bearing long, widely branched spikes, which fall gracefully about in all directions. The plants are growing in suspended baskets, beneath them being a general collection of stove plants, fine foliaged and flowering. It is evident that Phalaenopsis culture is thoroughly understood at Henham.

MARKET GARDEN NOTES.

THE aspect of the market gardens throughout this district (Hounslow), and especially those areas in which vegetables only are produced, is a wretched one; indeed, green material of all kinds has been so scarce, that with few exceptions prices have impelled rapid clearing, and anything really green beyond a piece of autumn-planted Cabbage plants is rare. There were few breadths of Turnips raised owing to the summer drought, and even Spinach did so badly, that a decent breadth has not been seen. Even where there were any of these latter vegetables nearly all evidences of their existence have faded away, for everything green has been cut and marketed, no matter how indifferent in quality. A large grower remarked a few days since that they had this year sent to market stuff that in many previous years would have gone into the pig-stye. Misfortunes incidental to the previous year's dryness might, however, have been borne could something be done now to promote the cropping of the soil, which so long has remained comparatively unproductive. But Jack Frost, at present at least, remains master of the situation, and although it is hoped that he is performing for both the soil and the cultivator very useful service in pulverising and purifying the ground, yet he so materially hinders work, that it is most difficult to find for men any kind of employment. Amidst the fruit trees and bushes pruning has long been got through, the best shoots put in as cuttings, and the refuse burnt. Advantage has also been taken to dress amidst the bushes with long manure, but the putting of that dressing on is very difficult where that, too, is

not already accomplished. Of course, the chief labour now should be directed to the open ground, where all kinds of vegetable crops should be in process of sowing and planting, but very little progress has been made. In one large field near here a piece of hardy Peas sown in November, and which came through well and looked admirably early in February, is now wrecked, probably only fit to plough in. Other early sowings have so far failed to show, and in many cases the seed is very materially suffering. The best of seed when in process of germination can hardly withstand the constant succession of sharp frosts which have prevailed, and which have been greatly helped in the work of injury by snowfalls, or of intervals of warmth-promoting thaws, which only left food for activity for the frost at night. Not only do market gardeners grieve over the difficulty in being unable to find employment for their men, but they are concerned because cropping cannot be proceeded with to any considerable extent, and there is the expectant trouble that not only will all ordinary crops be later than usual, and thus produce a superabundance at one season, but it will be difficult to find the needful labour to crop rapidly whenever the weather shall admit of its being done.

In many directions Wallflowers and Violets, the two staple market flowers of the early spring in this locality, and often at this time of the year providing work and something very profitable, if not very bulky, for market, not only give no bloom, but have severely suffered; indeed, the later series of frosts, coming after the plants have been debilitated by long hard weather, have done serious mischief to plants of all kinds not absolutely hardy. The growers of cheap plants find trade not merely bad, but almost impossible. In ordinary seasons that form of trade would now be very active; but not only is it at a standstill—and here the unfortunate hawkers suffer also—but plants are both late and seared, so that even with an early change for the better, plants of these common hardy things would need some time to recuperate ere they could form decent saleable stuff. The continued frost is also causing fruit growers considerable anxiety for their Gooseberry bushes, as the birds have long been hard driven and find little food. Whilst the winter has not been so severe as to cause mortality amongst the birds, it has kept them short of food, and their natural supplies are being rapidly exhausted; hence there is fear that the buds of the bush fruits may suffer.

SOWINGS OF SOOT are therefore employed with good effect, but these would be more effectual could some little moisture be found to induce it to attach itself to the bushes. The chief hopes of the market grower lie in the belief that, in the first place, the season will be a fruitful one, not only in relation to fruits, but also in the produce of the soil, and also that a hard winter, if it means a late spring, will also be succeeded by a genial one. In one respect market growers seem to lack ordinary foresight in making such poor provision for the employment of their hands during the winter. Some few of the best men are always employed, but those labourers who know their employment is very uncertain and may be terminated at any moment can hardly be expected to show that regard for their employers' interests that permanent hands would. If, therefore, employers would arrange for a big job of trenching of vacant soil every winter, by dressing the surface with long manure, or indeed any vegetable refuse that might be buried, but for the time would serve to exclude frost, they would not only in this way find work for their men, but would, because of the vastly improved cultivation of the soil, reap a rich reward in improved crops for several years to follow. There is hardly any greater need in field market gardening than deeper working of the soil.

A. D.

Grand National Dahlia Show, 1886.—The arrangements in connection with the Grand National show of Dahlias, to be held on September 3 and 4 at the Crystal Palace, have now been completed. The prize schedule has been printed and circulated

amongst the former subscribers and exhibitors, the same well-known and trusty florists have been selected to award the prizes, and the same executive committee has been appointed as a substantial aid to the honorary secretary. In regard to finances, the show cannot be thoroughly successful unless liberally supported by growers and admirers of the Dahlia, who will therefore, we trust, keep the officials busily occupied in sending out receipts for their donations. Those, also, who believe in the beneficial influence of flower shows may well lend a helping hand. Contributions should be sent to the honorary secretary and treasurer, Mr. Thomas Moore, Botanic Gardens, Chelsea, S.W., who will gladly acknowledge them. We may add to the foregoing that the second of the Dahlia competitions for the possession of the Turner Memorial Prize Cup will take place at the Crystal Palace on the occasion of this show, and will greatly increase the interest with which it can be watched by those who are admirers of this noble autumn flower.

The average temperature for February of the current year is 5° lower than it has been during the past century, and that for March is, so far, expected to show a still lower average. But not only in Europe has the weather been severe, for even in the Tropics the cold season has been more true to name than is generally the case. Calcutta is by no means noted for its chilly temperature, and yet a thermometer placed in an exposed northerly position registered as low as 36°, the lowest temperature ever heard of in or near that place. In Florida the Oranges, Lemons, and Bananas have not had a good time, the fruit, and in some cases even the trees themselves, having been destroyed. Even in the West Indies they have had something like a real Christmas at last, old top coats being at a premium, and even jokes about snow on the hills were not laughed at as an absolute impossibility. In the days of Clu-ius the weather in France was so severe, that wine was sold in lumps by weight, and in the year 1700 in England the thermometer fell to 31° below zero, and one is not surprised to read that "all garden plants were destroyed," since even the bells in the churches were cracked or broken into fragments on being rung! Our present winter is unique in its coldness apart from actual frost. During 1860 and 1880, for example, we had very severe frosts; but this year's cold is due rather to a long-continued depression from say August to March rather than to extreme depressions below freezing point. The occurrence of these world-wide cycles of cold do not appear to be easy of explanation.—F. W. B.

WE learn from M. Louis Kropatsch that M. FRANÇOIS ANTOINE, director of the Imperial Gardens at Vienna, died on the 11th inst. His high reputation as a cultivator, botanist, and artist is well known.

QUESTIONS.

5472.—**Size of kitchen and fruit garden.**—I am anxious to know what quantity of ground is required to give a full supply to a gentleman's house of fourteen persons (adults) of vegetables (including Potatoes), bush fruits, such as Gooseberries, Currants, Raspberries, wall and other fruit trees. Also what number of men would be required to keep such a garden in good cultivation.—G. C.

5473.—**Books.**—I should be obliged if any reader of THE GARDEN would furnish me with the names of some books of an extremely elementary character on gardening, forestry, and on rural cookery, explaining the use of vegetables. The object in view is to form a list suitable for a library anywhere in the Highlands of Scotland. The difficulty is to meet with books simple enough to suit people who hate trees, because they interfere with the practice of cutting coarse hill Grass with a reaping hook; who have an intense contempt for flowers and shrubs; and whose only use of vegetables, other than Potatoes, is to put into broth, green Peas being used for no other purpose, to say nothing of "kail."—M. C. E.

LATE NOTES.

Names of plants.—*J. C.*—*Salvia Grahami*.—*W. M. N.*—*Narcissus Pseudo-narcissus Horsfieldii*.—*Subscriber*.—1, *Acacia armata*; 2, *Agathaea celestis*; 3, *Ophiopogon Jaburan variegatum*; 4, *Asplenium laserpitillium*.—*W. M. P.*—"Fairy flower" appears to be the seeds of one of the species of *Aselepias*, common in North America.—*G. G.*—*Eranthemum cinnabarium*, *Begonia incarnata*.

Name of fruit.—*Crickmore*.—Sam's Crab Apple.

BOOKS RECEIVED.

"Bees and Bee Keeping, Scientific and Practical." Vol. I. By Frank Cheshire, F.L.S. Upcott Gill, 170, Strand.
"Christy's Guide to Poultry Rearing." Christy and Co., Fenchurch Street, E.C.

WOODS & FORESTS.

THINNING OAK WOODS.

A FEW words upon this subject just now will not be unprofitable, as during this and the next month whatever trees are intended for felling this season must be marked. Where the woods are free of undergrowth this marking of course can be carried on at any time during the winter, but as in most cases the underwood is an important factor, this must be cleared, or at any rate cut down before any progress can be made with marking for thinning the trees.

DISPOSING OF THE UNDERWOOD being the first step towards thinning the timber trees, it will be best to speak of it at once. So far as this season is concerned, it is now too late to enter upon anything beyond cutting out small coverts, but as the subject cannot well be dealt with piecemeal, we will speak of it as shortly as is consistent with its importance.

On all estates where the area is sufficient, it is the practice to apportion certain sections to be dealt with annually. The length of time to which underwood is allowed to grow varies from ten to fifteen years. This period for work of this nature cannot be fixed with mathematical accuracy, but as a rule the aim should be to allot the woods into ten or a dozen sections, one of these to be dealt with annually. Work in the department of the underwood should be commenced as early as is practicable in the winter, as weather and other contingencies will be sure to lengthen the time further than could be seen at the outset. The way in which the wood can best be disposed of will depend to a great extent upon the facilities existing. In some cases it may pay the owner to employ men to cut the wood; in others it will be better to sell to the merchant at per acre. In passing it may be well to say that where men are not regularly kept for the work it generally turns out that the owner fares better in making the best bargain possible with the dealer. The reason of this is obvious enough. The owner, in the absence of regular men, often has to employ chance hands, who do the work more or less inefficiently, and get a higher wage for doing it. In addition to this the estate owner often does not know the best market. Against these drawbacks there is the saving of the wood-dealer's profit. When balanced, as it has been said, it mostly turns out that this had better be sacrificed at the outset. When this is done whatever sum per acre is agreed upon is nett return.

DIFFERENT KINDS OF UNDERWOOD require to be dealt with in different ways. What has been spoken of hitherto is such as can be worked up into hoop wood, Hop poles, stakes for garden use, &c. This would be Ash, Alder, Hazel, and the like. For these things a special trade exists. In some woods, however, the undergrowth is very rough, and unfitted for little beyond the fire. Where this is so, the owner will get but little for his wood, and it will answer his purpose to get it cut and made into fagots himself. As well as there being this difference in the kinds of wood there is much difference in various parts of the country in the purposes for which it is employed. In Sussex, for instance, almost everything is worked upon the spot where it grows, *i.e.*, into Hop poles, hoop wood, &c. In some parts of Wilts and Gloucestershire little of this is done, and the bulk of the larger growth is carried to the bobbin mills.

AFTER THE WOOD HAS BEEN CUT the condition of the trees and their position in respect to each other can be seen. As this opportunity occurs only once in ten years, or, in other words, at the

close of the season when the underwood is felled, it is the *sine quâ non* of the whole business that this opportunity be made the most of for marking out such trees as should be removed. To do this thoroughly and well requires a good deal of discrimination. Of this class of thinning the Oak wood is the type. As is well known, when it has to be barked, the Oak is a tree which does not need to be felled before the end of April or the beginning of May. This gives the intervening time to the underwood dealer to remove his wood.

IN MOST OAK WOODS there is a proportion of Ash. When this grows upon stools it goes with the underwood in the form of poles, but when it rises as a sapling it is left to grow on into timber. This is so far as the underwood cutter is concerned, but when the question of thinning the timber is considered, a decision as to whether it is to be allowed to remain on for another ten years must be come to. In marking for thinning Oak and Ash has both to be dealt with together, as the bearing which one tree in a wood has upon another is most important. Although, however, both are marked at the same time, the period for felling will be quite different.

ASH TREES IN AN OAK WOOD which have been marked for felling should be cut out at once before the sap begins to ascend, as the small inconvenience of going twice over the ground is nothing compared to the advantage of having the wood felled in its proper season. One thing which must be always borne in mind when Ash is being marked in a wood of this kind is the fact that for another ten years no other cutting can be made. In the life of an Oak, ten years is not, in a general way, a matter of great import; but with the Ash it is otherwise. From its nature and the use to which it is in most cases put, it will be best to err on the safe side; and if there is any doubt as to whether an Ash tree can, or cannot, be left with propriety for another decade, it will be, on the whole, wise to mark it for felling now.

MARKING OUT THE OAKS, where there are no other trees, can be continued through this and next month, or indeed up to the commencement of the barking season, but it should not be left to be done in a rush. In this operation, although the uniform distribution of the crop should be the aim of the marker, absolute evenness must sometimes be dispensed with to save a greater evil. One great point in making selection of the trees to be cut is to relieve any tendency to overcrowding. This is not always governed by the closeness of the stems of the trees to each other. It is not unusual to find trees which do not stand more than a yard apart, but which are, nevertheless, not crowded. It is very common to find trees at 3 yards or 4 yards apart which are badly crowded. In determining which trees shall stand and which shall be felled, there is therefore much to be thought of beyond the mere distance from each other.

TREES DAMAGED IN STEM OR BRANCH should, unless there are other considerations outweighing the adoption of the rule, be marked for felling even if their being cut should leave a partial blank, as no good will come of leaving a tree which is obviously making no progress. One of the hardest things to do in thinning Oak timber in woods is to deal with a firm hand with young trees when in vigorous growth. The temptation is always strong to leave what for other reasons should be removed.

THE MANNER OF FELLING will in most cases be by the saw—the axe only being used when the trees are very small. The way in which payment is made for felling is very various. In

certain districts it is the custom to pay the workmen a price per load of 50 cubic feet for cutting. In other places a sum per tree is given based upon the average size. A further price per cord is paid for cutting out the logs for firewood, and a price per hundred for fagots. This may be done by the vendor, who, of course, retains the cord and fagot wood; or an arrangement may be made with the purchaser to take this to pay the cost of the felling. In other cases a lower price per foot for the timber is accepted, the purchaser paying the cost of felling and the vendor retaining the cord and fagot wood.

BARKING THE OAK is a business which some few years ago was a remunerative one, but now the return from the bark does not greatly exceed the cost of its removal from the tree and to the market. Oak bark, however, if harvested in the same condition does not always possess the same value, and it does not follow that the bark from the most valuable timber tree is the most useful. As a general rule, the reverse is true, as coppice bark, or that which comes from poles or small trees, is more highly valued than that which is taken from large timber trees.

The general principle of the survival of the fittest is applicable to the thinning of Oak woods, and crooked and deformed trees should, where possible, be condemned. The actual distance apart at which trees should be left will depend to a considerable degree upon the character and condition of the underwood. Where there is a good growth and of useful kinds of woods, and moreover in a district where it will command a fair price, more space should be given it. Where it is rough and of little value, and the timber is likely to become the more profitable crop, so much consideration need not be given it.

WILTSHIRE FORESTER.

WOOD-PAVED ROADS AND PATHS.

It would almost seem that those who advocate the use of wood for roads and paths about ordinary dwellings in preference to the gravel, macadam, or ballast that has hitherto been employed had forgotten how quickly wood perishes when in contact with a damp surface, as compared with the non-perishable nature of the materials it is proposed to supplant, and which, were it not for the wear they are subjected to, would be as good at the end of a dozen generations as they were when first put down. I can instance a case or two that will give some idea of the non-lasting nature of such work. Some time back at a place where I had to make some alterations there was a large Weeping Ash that was converted into an arbour by fixing a light iron framework around within the branches; to this they were secured so as to bring their ends down to the ground; a circular rustic seat was fixed inside. With a view to being dry under-foot and to preserve the rustic appearance of the whole, the owner would have the floor paved with wood in the way suggested by "Wilts." Elm blocks about 8 inches thick were used; the soil was dry and sandy, and, in addition, the blocks were laid on 3 inches of coal ashes. When completed, the floor had a nice appearance and looked as if it would last for a considerable time, but in half-a-dozen years it was so far rotten that it had to be removed. So far as regards any wear that it was subjected to, it might be set down as nothing, for in such a place there was only the feet of those who used it, which, needless to say, would have no appreciable effect in wearing the floor. It might be urged that there was no concrete underneath the floor in question that would prevent the moisture rising in the way suggested by "Wilts," but if there had been, it obviously would have made little difference unless there had been a roof over-

head to have kept the rain off. In another place that came under my notice where a clearance had been made of a large orchard, a walk leading from the dwelling to a conservatory at some distance away was paved with blocks made of the trunks of the old Apple trees; this did not last so long as the floor of the arbour before it was so far decayed, that anyone walking on it was in danger of putting their ankles out. Wood cut in short lengths absorbs the wet from above, even if it is laid on material that does not admit of moisture rising from below, to an extent that does not allow of its lasting. Where concrete is laid underneath wood paving that has to carry considerable weight, it requires to be all but thick enough so bear the weight even if the paving was absent, otherwise the blocks will break through it, and the cost of such concrete would be more than double that of a road made of ordinary materials.

The wood paving now in use in the large towns is the most costly of all materials for roadways that have ever been introduced. In the leading thoroughfares in London it lasts little, if any, more than eighteen months, although doubtless the work is done as well as it is possible to do it, resting as it does on a bed of concrete thick enough, one would think, to almost carry a railway engine. It is not likely that a private road would have to bear as much heavy traffic in several years as any of the principal streets in London are subjected to every twenty-four hours. If there was no other cause at work to effect the destruction of wood pavement except the traffic that passes over it, then it might do to use wood for private roads. But, as already intimated, if a road so constructed was wholly unused, the perishable nature of wood under such conditions is such that a few years' time would effect its destruction. There is abundant evidence to show that under water, buried in the ground, or quite dry, many kinds of wood will last for an indefinite time, but between wind and water, in the way that wood paving in the open air necessarily must be, its endurance is short. No doubt if heart of Oak or Pitch Pine was used, they would last considerably longer, but cost and the objection attached to these, in common with other kinds of wood, make their use for the purpose out of the question.

There is another thing connected with wood-paved roads that it is necessary not to lose sight of; no more frost than sufficient to congeal the surface of the ground renders wood-pavement all but impassable for horses that have any weight to draw. This may be seen any frosty morning in the London streets where wood is used, when to see the tortured, struggling animals falling and straining themselves to get foot-hold is distressing beyond endurance to anyone acquainted with the nature of horses, and who has feeling for them. In this respect, during frost, wood is much worse than asphalt, though the latter is more slippery than wood when it is in a condition between wet and dry.

Taking it all in all, I venture to predict that anyone who tries wood-paving on private roads will not repeat the experiment. T. B.

Timber trees in ravines.—Mr. J. B. Webster's arguments seem to be selected by him very much for the occasion. It is amusing to find him one week contending that the length and straightness of trees in ravines is not due to their being drawn up owing to the position they occupy, and the next week censuring me for not producing "clean drawn-up poles" for pit props, which "drawing-up," it appears, is to be accomplished

by conditions exactly similar to those existing in ravines, as I have pointed out, but evidently not present to Mr. Webster's mind when he wrote about props. If, as he teaches, trees can be drawn up as desired in ordinary plantations anywhere, how much more likely is that to happen in gullies and ravines where the drawing-up conditions are intensified. I do not require his evidence from Swiss valleys and Californian mountains. Any woodman with his eyes open can read the lesson any day in the woods under his charge.—YORKSHIREMAN.

BRIDGES ON ESTATES.

THERE are very few estates of any magnitude where bridges in one form or another are not required. In some cases rivers may have to be spanned. When this is so, a higher order of engineering than the estate manager is expected to possess will be called into requisition. In the majority of instances, however, the streams will be of dimensions sufficiently manageable to be dealt with by the ordinary staff. The most primitive kind of bridge probably is that formed by a log of wood laid across the waterway. Indeed, the highest example of engineering skill is nothing more than a development of this idea. This bridge, consisting of the simple log or scantling of wood, is met with a hundred times in the day in traversing any considerable stretch of country by means of the field footpath. To span ditches in this way it may appear that the waste of any kind of timber would serve the purpose. This is scarcely so. Where the ditch, which is generally in close proximity to a gate or a stile, is very shallow and at no time contains much water, a little carelessness may be excusable, but where it goes beyond this, such a simple thing as a defective plank to bridge the ditch may lead to serious consequences. It may seem almost superfluous to refer to such a thing here, but it is really worthy of notice, as it is these little things which often escape attention. In positions such as this it is not unusual to find a small unsawn log thrown across with the upper side chopped to something approaching a flat surface. When this log is of Oak and contains a good proportion of heart wood it will generally last a number of years. When, however, sawn material can be had it is hardly the best shape of bridge to be adopted under the circumstances. In cutting up wood, and especially Oak, which is really the wood which should be used when it consists of a single piece, it very often happens that from some defect, such as a dead knot or a ring shake, the tree turns out unfit for the purpose for which it was originally intended. When a log has been sawn through the centre and defects such as these occur—defects which do not appreciably diminish the strength or durability of the material—it may in many cases be set aside to advantage for the maintenance of such bridges as these. Oak such as this would last a generation.

A step further in bridge construction is when a footpath has to be carried over a brook or running stream. When the width is not great and the path but little used, the simple addition of a small post on each bank of the waterway, and a length of small scantling to form a rail by the side of the plank or log bridge will be enough. When the requirements cannot be met with in this way, the use of two logs, or wooden girders, laid parallel to each other across the stream will become necessary. On these logs, or girders, short planks of a length corresponding to the width of the bridge must be laid transversely and well bolted down, the rail being adopted for protection on one or both sides. In erecting bridges of this kind the builder must to some extent be guided by the descriptions of timber at

hand, but where possible Oak only should be used for the logs or girders. For the transversed flooring, Elm, or Larch, or even Scotch Fir may be pressed into use, as a defective plank will be readily seen and replaced. For the girders, however, which are not visible to the eye, it is most important that strong and lasting material should be employed.

Attention has hitherto been devoted to foot bridges, or to bridges such as a saddle-horse may cross if necessary. Very frequently, however, it is the case that bridges have to be constructed for the passage of wheeled conveyances from one part to the other of the estate. Where the traffic is heavy, or constant, it generally happens that iron, brick, or stone is brought into use. In instances, however, where the bridge has only to be used at rare intervals, such expense is unnecessary. A further development of the last named structure will meet the need. Instead of two, the number of logs or girders thrown across the stream may be increased to four, or six, as is required, and the transverse flanks made stronger to carry the greater weight. When the width of the water becomes too great for a single span with the bridge constructed in the simple way pointed out, a pile, or piles, in the centre of the stream will often help to carry a very considerable portion of the load where the strain is naturally the greatest. When it is inconvenient to find a footing in mid-stream, diagonal struts from the bank to the centre of the bridge will often answer well.

It would be easy to follow this subject much further, and it is certainly an attractive one, but the limits of what would come under the care of the ordinary wood manager does not go much beyond this. Up to this point, however, the work is so simple and the principle so elementary that the least skilled mechanic could scarcely err if given the proper material. As it has been said, Oak should be used for the girders. For the flooring circumstances will determine. Where small logs which are perfectly straight can be had a centre cut will sometimes answer the purpose, and the rough surfaces may be laid uppermost. When sawn planks are used, from 2 inches to 3 inches will be a good thickness. If in Elm, the thickness need not be so great. In Scotch or other Fir, an allowance must be made for its inability to stand so great a transverse strain. A very rough kind of temporary bridge is sometimes made of logs thrown across, with fagots in place of planks for flooring, the interstices being filled with sods of earth. This, of course, is a mere makeshift and can hardly be called bridge building.

PONT.

Prunus Myrobalana for hedges.—H. D. Palmer (p. 245) has omitted one merit of the Cherry Plum as a hedge, that at intervals a plant may be allowed to grow up and be grafted with fine Plums. I learnt this from Messrs. Ewing, of Norwich, and have now a row of fine young Plum trees in one of our hedges. The Cherry Plum is a good stock. I am told that a drawback to its use as a hedge in fields where cattle are that they eat it, but of this I have no experience.—GEORGE F. WILSON.

Covert shrubs (A.).—Try common *Rhododendron ponticum*, which makes good cover in a damp place, and so does the common *Mahonia Aquifolium*. Both are grown and sold for this purpose in the larger nurseries.

Planting and its effects on climate.—Am I right in thinking that the presence of forest or woodland has a tendency to modify the defects of climate? To render the tropical plains of India less scorching, and in districts such as the West Highlands and Ireland where the rainfall is excessive, to mitigate the evil; as the roots of trees provide natural drainage, while the branches and foliage may be said to use up the water falling in the form of rain, and above all by trees affording shelter from the cruel blasts to which our western seaboard is exposed. It is, I know, awkward to speak of trees "using up" rain, but my meaning will be obvious; rain falling on a bare hillside seems to have nothing to do but to be drawn up by the sun, to form clouds, and fall down again.—M. C. E.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

PRUNING ROSES.

NOTWITHSTANDING the fact that springtide has fairly set in, the time for the general pruning of Roses has not yet come. Not a few of them, however, have already been rather severely pruned by the long continuance rather than the absolute severity of the frost. Unprotected Teas, late blooming Perpetuals, and such semi-tender Noisettes as *Triomphe des Rennes* and *Céline Forestier* have been already pruned over-much; and this suggests the first, and this season one of the most important, parts of pruning, viz., the completion of what the frost has left unfinished. On carefully examining frost-bitten Roses, black blotches or rings will often be found on the last season's or even much older wood; these are quite different from the frost-bitten extremities on the terminal points of the shoots, and often occur near to the base of shootlets or branches. Occasionally they are little more than large specks on the upper surface of the boughs, and at other times they are found to have penetrated to or through the pith of the wood. In all such the shoot should be pruned right back below the frozen parts, for if these are left they are sure to develop into gangrene or canker, that will sooner or later, and sooner rather than later, result in disease and death. Another and less obvious injury is frequently inflicted by frost that is equally destructive, though the injury is less apparent. Shoots or branches thus smitten by the cold have a jaundiced look; the wood is of a somewhat golden hue along its entire length. Shoots or branches in this condition are seldom blotched with mere frost-bites; on the contrary, the entire substance of the wood appears to have been chilled and partially dried up. The golden hue of the wood is not the symbol of ripeness, but of approaching paralysis; hence it saves time and husband's the resources of the plants to cut these semi-jaundiced shoots right out close to their base.

Yet one more mode of pruning after the frost remains to be dealt with, and that is the shortening back of old frozen shootlets to points one or more buds below their injured parts. This is not always possible, for not seldom does the cold destroy the last year's wood almost right home—that is, to the older wood. And in such instances it is of course impossible to cut below the frozen part. But in some instances only the upper end of the shoot is frost-bitten, and where a choice is offered it is sound practice to cut several buds below the apparent injury, inasmuch as the real injury has run down very sensibly beyond the apparent. Very much is also gained alike in the strength of the break and in rapidity of breaking by cutting sufficiently low in these cases, whatever may be urged in favour or against short or close pruning in other instances.

Another preliminary to general pruning should yet be attended to, and that is the thinning out of all weakly or exhausted shoots all over the Rose bush or tree. By removing these first the shoots that need cutting back will be more easily reached, and the degree of such cutting may be readily and wisely determined. The removal of

all weakly shoots will also help to prolong the life, augment the vigour, and enhance the beauty of our Roses. As to the actual degree and amount of pruning in so far as it relates to the cutting back of last year's wood, so much latitude must be allowed and is claimed by every rosarian, that no hard-and-fast rules can be laid down. The safest and the likeliest to avoid controversy, and perhaps the one on the whole the most useful, is to let everyone be persuaded in his own mind of the rightness and reasonableness of his practice. The experienced rosarian, while ever ready to learn, looks back along the highways and byways of his past success, and repeats his prunings on the same lines as led to them. But these were not measured out by eyes in number or inches in length, but rather by the eagle eyes of observation—common sense and knowledge controlled by sympathy and affection. The novice may be told that he may cut his young shoots back, ranging over the wide area of from 2 inches to 20 inches, and be equally right in both his prunings. The majority of Roses grown for the perfection of their individual blooms, such, for example, as the major number of Hybrid Perpetuals and Teas, may be pruned back from 1 inch to 6 inches, three being a fair average. Again, the weaker the Roses, prune them the harder and the closer; the stronger, prune them the less and the longer. These general rules are almost all that can be offered for the guidance of beginners until the science and practice of Rose pruning becomes so perfected that each species and variety can be pruned by rules carefully evolved from the results of general practice and experience. Each additional season's pruning, if carefully performed and the results tabulated, will bring about that better time so devoutly wished by many when mistakes in Rose pruning will have become impossible. Meanwhile it may be well to state that these remarks do not apply to the pruning of Roses for picturesque effect, and leave the question of whether the latter should be pruned at all, and how and when, just as it was before they were written. D. T. F.

Marechal Niel.—Warts, which often appear on this Rose, may be turned to good advantage by inducing roots from them to penetrate the soil. A large plant of it here to my knowledge twelve years old was induced to push roots from a wart 1 foot from the soil by packing turf up to it from the tub in which it was planted; at the same time it threw out strong young shoots, some of which were eventually separated with roots attached to them and potted, when they quickly made fine plants. The plant in question has been released from its supports several times and bent down so as to induce fresh roots and shoots to push from slight warts, and a more vigorous and floriferous plant than it is could not be desired. I never saw flowers of a deeper colour nor finer than it produces. Even at the present time it is bearing lovely blooms.—*GEORGE BOLAS, Hopton.*

Climbing Roses.—Of these one of the best is *Gloire de Dijon*, a vigorous grower, very hardy, and one which soon covers a large space and blooms freely nearly the whole season through. *Marechal Niel* is also a great favourite and deservedly so, as it bears large, rich yellow blossoms that are deliciously scented, but, unfortunately, this Rose is a little tender, and only succeeds well in warm, sheltered spots. Climbing *Devoniensis* has a strong rampant habit, and bears beautifully-formed, delicately-tinted flesh-coloured flowers. *Cloth of Gold* is likewise a grand old Rose, and *Solfaterre* is also one of the best, as it blooms freely in clusters, and is canary or sulphur in shade. The yellow and white *Banksians* are grand wall Roses, the way to treat these being to lay in the main branches and spur them every winter or spring, just thinning out the breastwood by cut-

ting out the strongest, as it is on shoots of short length and moderate strength the blossoms are formed. The others mentioned require very different management; owing to the flowers being produced on the buds on the long shoots made during the previous year, the secret of success lies in leaving and training as many of these as there is proper room for, cutting away all the rest close down to the base. Before planting Roses of any kind the ground should be deeply dug or trenched and well enriched by mixing with it a heavy dressing of rotten manure, and if the plants then have their roots spread carefully out they will get a good start and soon travel up a high wall, especially if, during the summer, they are kept mulched and watered occasionally, and have a soaking or two with liquid manure. Another good old Rose for the fronts of houses is *Aimée Vibert*, which is remarkable for its floriferousness; old plants of it become literally smothered with large clusters of pinkish white blossoms that make a magnificent show.—S. D.

POPULAR PLANT NAMES.

ONE may willingly grant the right of naming to any florist who rears a new plant from seed in our gardens. Personally, I do not care whether a new *Amaryllis* be called *Pamela* or *longifolia gigantea*, but what I do care about is to know which is the best way of the two, and especially am I anxious to know that all garden seedlings which are to be sold publicly should previously have had their names confirmed and registered—if considered right, or rejected if wrong—either by the Royal Horticultural Society or other responsible body. As it is, amateurs and others who purchase plants are simply at the mercy of any charlatan who likes to impose upon them. If Mr. Douglas "sends out" a new *Auricula* or a new *Gladiolus*, I am sure he believes it to be in advance of other similar kinds; but laws and rules are not for honest men. I do not think the Royal Horticultural Society infallible. Its floral committee said in 1878 that *Cypripedium Lawrencianum* was too much like *C. barbatum*, and so not worthy of a certificate, while many of their "first class" plants have long ago gone to the rubbish heap; still I am sure they do the best they can, and I would gladly give them power to veto rather than tie their hands. As for the great Welsh Peerless *Narcissus*, James Dickson is its only right and properly confirmed name, its second name, *Sir Watkin*, being given and confirmed by nothing except simple courtesy. No one knows certainly whether this *Narcissus* was raised from seed by any florist, or whether it is wild in some part of Europe, and so became introduced to Welsh gardens. All that is now known is, that Mr. Pickstone never raised the plant from seed, as was once by some supposed, and the fact that in one particular district in Wales this plant has been in the cottage gardens from the earliest memory. Mr. Douglas was especially unfortunate in selecting this *Narcissus* as an example of erroneous naming, since the Royal Horticultural Society confirmed the name James Dickson in the usual way, and this is really its name by all the rights of priority.

Mr. Douglas asserts that everyone who raises a plant should have the right of naming it, and to this I agree if the name selected be a simple English one; but if a florist of the old school should persist in calling a seedling *Petunia grandiflora flore-pleno magnifica crispata*, I hope the Royal Horticultural Society will assert their position as arbitrators and suggest a short and pretty popular name, refusing to certificate any garden seedling, in fact, under a Latin name on any account whatever.

Wild species, i.e., distinct natural types, may be named in Latin, figured and described in the usual way, but all mere slight variations of these, and certainly all garden derivations from them, ought only to receive popular English names. This rule should be established as general and absolute, and not as applicable to only this or to that genus in particular.

Of course, we live in a free country, and we have what is known as free trade also; hence one need not hesitate to believe an advertisement (*Gardeners' Chronicle*, March 6, p. 320) which informs us of a new fruit, an unexpected combination, a cross between the Raspberry and Mulberry! I do not doubt the *bona-fides* of the case. I am sure the advertisers would be the last in the trade to wilfully deceive a single purchaser, but at the same time my knowledge of botany convinces me that such a cross could never have taken place, and I challenge anyone to exhibit a living plant in fruit and to give proofs of its being what it is stated to be. If such a plant is ever passed by the fruit committee of the Royal Horticultural Society as a *bona-fide* cross or hybrid between the Raspberry and the Mulberry, I will not eat my hat, but Mr. Cutler may draw on me for £10 for the benefit of the Gardeners' Benevolent Institution, since I shall in this way obtain a double satisfaction for my money.

I am rather anxious to see a leaf even of this unexpected combination, because a very honest old friend of mine firmly believes that he once effected a cross between a Gloxinia and a Foxglove; and so if this new fruit is really the result of two such diverse parents as the Raspberry and the Mulberry, I shall of course have to confess my ignorance as to what is possible in the garden.

I have made this little digression simply to show Mr. Douglas that the Royal Horticultural Society still has work to do, but the question is will that work be performed? For example, Mr. Douglas says if anyone raises a new plant he has the right to name it. So be it; this much I grant, if an English or popular name be selected. But there are many sides to the question. For example, a nurseryman may purchase unnamed seedlings together with the right of naming them; or, if an amateur buys an Orchid at Stevens', and it is different from any named variety, he has also an equal right to call it after himself if he likes so to do. This is liberty with a vengeance; but I will even go so far as to grant that a raiser or a purchaser even has this right if they will exhibit their plants as named by themselves and accept the decision of the Royal Horticultural Society in the matter. On Mr. Douglas's own showing the floral committee decided that Mr. Measures's *Cattleya bicolor* was merely a form, not sufficiently distinct, as he infers, to warrant its receiving a Latin varietal name, and yet the committee did not at once alter the name on the card, did not exercise that power of veto they undoubtedly do or should possess, but simply expressed an opinion which the reporters probably did not hear, and did not alter the name on the label which the reporters would undoubtedly have seen; hence, a mere form of *Cattleya bicolor* has gone forth as *C. bicolor Measuresiana*. Mr. Baker recently said that the specialists made too many names, but Mr. Douglas shows us that the floral committee aid amateurs in these their naming propensities. I still adhere to the principle of all I wrote on p. 156. In addition, let any exhibitor give a provisional name to the plants he exhibits, but at the very least the committees of the Royal Horticultural Society must have the power of confirming or rejecting these names. The society has three committees, among which this necessary work could be divided thus:—

SCIENTIFIC COMMITTEE.—Naming, or confirming, or rejecting the names already given by purchasers, discoverers, &c., of wild species or types. All the Latin names would be given or confirmed by this committee.

FLORAL COMMITTEE.—Naming, confirming, or rejecting the names already given to varieties or derivations from wild species or types in cultivation, or which have flowered after importation. All names given or confirmed by this committee to be English or popular names.

FRUIT AND VEGETABLE COMMITTEE.—The duties of this committee would be precisely similar to those of the floral committee, except that their work would be confined to fruits and vegetables; all names for which should be English or popular ones, as is, indeed, now the rule.

The whole question is a simple one, and the matter resolves itself in our adopting and confirming right names instead of wrong ones; of our being on the side of law and order, instead of that of disorder and chaos to which Mr. Baker has referred. This is not merely a question concerning Orchids or Daffodils, but comprehends the right and proper naming of all plants whatever—wild as well as cultivated, Nature's types as well as garden variations.

F. W. B.

NOTES OF THE WEEK.

Celsia Arcturus.—Mr Hartland sends from Cork flower-sprays of this pretty greenhouse Mullein. It is smaller and more slender in growth than *C. cretica*, which name is often applied to it in error. Another flower of the double *Sparmannia* is also sent by Mr. Hartland to show how much finer it gets as the weather improves. The flowers are larger, the cluster more dense, and the colour is purer. It will doubtless prove to be "a good thing."

Saxifraga Stracheyi.—Among a large gathering of spring flowers from Messrs. Paul's hardy plant nursery at Broxbourne is this handsome and not common Saxifrage. It belongs to the Megasea section, having large fleshy leaves, but these are produced later in the season. The flower-stems resemble those of *S. ciliata* and others of the same group. They are pale pink and of a reddish tinge in the centre. Other noteworthy plants in the gathering are *Sisyrinchium grandiflorum* and its white variety, the hardy *Cyclamen Coum* and *Leucojum vernum*.

Snowdrops.—About eight years ago I got some bulbs of *Galanthus plicatus* and planted them in my fernery, where they have continued ever since. They have done very well and seeded freely. Last year I took them up and replanted them in the same place, and on their opening a few days since I was surprised to see that several of them had departed from what I consider the type (of which I send a flower), and in general appearance seemed to resemble *G. Elwesi*. Of course they are not identical, being smaller and wanting the deep green blotch at the base of the tube, &c.; but they are very suggestive that our so-called species of *Galanthus* are only varieties. Surely such must be the case with *G. Imperati*, which seems to be only a large and well marked form of *G. nivalis*.—E. H. EGLES.

*** A curious case of reversion to the common type, but the flowers sent, though like *Elwesi*, have not the characteristic green blotches on the petals which belong to that Snowdrop. Of course, the plicate leaf of *G. plicatus* is a structural deviation from the *G. nivalis*.—Ed.

Hypoxis stellata.—There are only very few really ornamental plants among the numerous species in the genus *Hypoxis* which is related to the well-known *Curculigo*. They have dense tufts of Grass-like foliage, or a bulbous rootstock, from which the leaves spring trigonously. *H. stellata* belongs to the bulbless set, and has graceful, curving, bright green leaves, borne in a thick tuft, the erect one-flowered scapes springing up among the foliage. As the name suggests, these flowers are star-shaped, over 1 inch across, green outside, white within, except for a large, eye-like patch of bright blue. When open they are very pretty, but as this happens only for a few hours during bright sunshine, they are somewhat disappointing. Grown in a cool greenhouse or frame, this plant forms a nice tuft and flowers freely, and if placed in a position where it will catch full sunlight, its flowers may be seen open whenever the sun shines upon them. Most of the plants of this genus have yellow flowers, one of the best of these being *H. Rooperi*. Others are worth growing for their silver-haired foliage, which is as bright and attractive as the leaves of the Silver tree (*Leucodendron argenteum*). *H. stellata* is a native of the Cape, and is now in flower in the Cape house at Kew.

Cereus Mallisoni.—None of the climbing or Rat-tail *Cereuses* equal this, so far as regards the production of flowers, and few excel it in richness of colour. Grafted on a stock of *Pereskia* 2 feet or so long, and made to branch freely at first by

pinching out the points of the growths, it will form a pretty specimen like a Weeping Willow in miniature, whilst when bearing freely its large, bright crimson flowers, about four times as large as the best of the *Epiphyllums*, such a specimen is most ornamental. It is said to have originated in a cross between *C. flagelliformis*, the well-known Rat's-tail Cactus, and *C. speciosissimus*, the flowers of which are a beautiful combination of scarlet and purple almost bluish under some lights. *C. Mallisoni* inherits the habit of the former with the large flowers and nearly all the brilliancy of colour of the latter. If anyone would grow into a large pyramid a plant of *Pereskia* Bleo, and then graft upon it a number of pieces of this *Cereus*, he would, in a year or two, have a plant of exceptional character and beauty. At Kew there is a fine bunch of the stems of this *Cereus* growing from a stem of *C. Macdonaldiae*, upon which it has been grafted, and this is now flowering freely.

Pavonia Makoyana.—This is by far the best of the cultivated *Pavonias*, as it grows into a sturdy shrub, branches freely, and flowers abundantly all along the upper parts of its shoots. In a mixed collection of stove plants, and specially in large houses, it is most satisfactory, as it thrives in a comparatively shaded place, and never fails to flower freely during the first three months of the year. We are enabled to speak thus highly of this almost unknown plant after having observed it for several years in the Palm house at Kew, where, growing under the shade of the gigantic Screw Pine, and near a door which is continually opening, it has remained in perfect health and is now flowering freely. Its stem and branches are erect, the upper portions clothed with dark green foliage and axillary flowers about 2 inches long, the calyx large and bright crimson, almost hiding the petals, which are purplish, as also is the long stigma, which protrudes beyond the mouth of the flower. Planted out in a stove, this handsome plant would form a very ornamental shrub. In pots it thrives very well, plants not more than 1 foot high flowering freely. It is a native of Brazil, and belongs to the *Malva* Order, in which it is placed by some botanists under the genus *Goethea*.

THE WHITE JAPAN ANEMONE.

ALL are now familiar with this noble hardy plant, but, like casts of the *Venus* of Milo, one cannot see too many of them. Like some other fine plants, it has the precious quality of showing considerable differences according to soil, climate, and position. We were never more struck with the plant than in Mr. Whitehead's garden at Southwood, Bickley, last autumn, where it was very tall and stately among Pines near the rock garden, somewhat sheltered, but in a sunny position. It is needless now to speak of the remarkable value of this Anemone as a garden plant—perhaps the most valuable "sport" found for years in European gardens. Its vigour often leads us to suppose that it is a reversion to the original type, and that the coloured forms of Japanese Anemones in cultivation are themselves varieties of a fine white wild species.

Rot-proof scrim.—Mr. Coleman, in referring to some remarks of mine on this subject, wishes to know whether the rot-proof scrim canvas is identical with the oiled material recommended by him. The rot-proof scrim is prepared by what the inventors term the Willesden process, which consists in metalising the threads to the extent of rendering them impervious to moisture. Judging from the texture of the material, one would naturally credit it with the properties claimed for it. It is green in colour, and therefore more agreeable to the eye than ordinary canvas, which is too glaring when new and soon becomes soiled and unsightly. This weather-proof material is considerably dearer than ordinary scrim. If it could be made at a cheaper rate, it would doubtless meet with more attention. It is the very thing that is required both for protecting and shading.—J. C., *Byfleet*.

FRUIT GARDEN.

APPLES AND APPLE ORCHARDS.

PERMIT me to endorse the pungent remarks from the *Field* on both of these subjects (p. 232 of THE GARDEN). The idea of testing Apples by their aroma is about on a level with that of judging Grapes by their colour, or Peaches by their size, both practised by some jurors. Not long since the writer raised something like a hornet's nest of jurors and committee-men about his ears by insisting on tasting Peaches and Grapes before awarding prizes at a great show, though the tasting test upset the pleasing-to-the-eye-ones in a moment. It is even more important to taste Apples, and "J. H. H." is not a bit too severe on anyone who would condemn or dismiss an Apple untasted. Everybody conversant with good American Apples must admit that the Baldwin and Newtown Pippin can hardly be beaten, unless by a perfect Ribston Pippin. I also agree with "J. H. H." that in most recent assessments of merit the King of the Pippins has been placed far too high. It is a beautiful, fertile, and useful Apple enough, but to place it first for flavour is a serious error, either of knowledge or judgment. The general state of our Apple orchards deserve all that "J. H. H." says of them. To use the language familiar to the stable, the majority of them seem on their last legs—their glory, if ever they had any, has departed—neglect, decay, lingering death, is written large on their mossy branches, riven boughs, and Lichen-covered trunks. A more depressing task could hardly be assigned to a buoyant horticulturist than a month's inspection of the orchards of Great Britain. I know nothing by experience of those of Ireland, but from the fact that Irish Apples are seldom or never heard of in our markets I fear they are in no better plight. And yet our trade in foreign Apples is large and profitable, and our climate is at least equal or superior for Apple culture to that of Canada or America. Apples being on the whole tolerably sure croppers, and keeping sufficiently long to afford time to command a fair choice of market, ought to be the most profitable of all our fruits. And they are, notwithstanding that our lack of care and skill in their culture, selection, and packing are all combining to boycott native Apples in our markets. Wholesale and retail dealers purchasing foreign Apples know exactly what they are buying finding the bulk throughout all the same, and all are as like the sample as any two Apples are like another. Having once learned by experience of their qualities of keeping and eating, these are repeated year after year with but little variation. This constancy of result has enabled them to obtain and hold the front place and command the highest prices in our markets.

No sooner do they leave the foreign and invest in home Apples than most of these conditions are reversed. The samples of the same sorts vary more widely in size and quality, and the number of varieties is excessive. Were it possible to reduce our marketable Apples to half-a-dozen or at most a dozen varieties, and to have these delivered of almost a uniform size and quality as the Baldwins and Newtown Pippins from America, there seems no reason why the home-grown fruit should not become as popular and, what is even more to the purpose, as profitable as the foreign. But many new orchards must be planted, and these as well as those already in existence must be subjected to more careful and skilful culture, and

the bottom wire or to the border at the end of the first year, and proportionately shorten the second and third years, &c., under any system? If he would only put his practice beyond doubt by recording exactly what he did do, I should feel obliged.—J. S. W.

PRUNING TO PROMOTE VIGOUR.

THAT pruning is a necessary operation under certain circumstances probably no one will deny, but while much has been written as to its effects, there has been little or nothing to prove that "J. S. W." is wrong in his assertion that pruning does not increase the strength of a plant or tree. There are many who think that hard pruning strengthens a weak plant or tree, and therefore, given a plant in an unhealthy condition, the first thought that occurs to such people is to cut it back, which they forthwith proceed to do, an operation that has killed more than it has cured. This is mistaken practice, but easily accounted for when one considers the comparative strength of the young shoots in many cases produced after hard pruning; these, however, do not show added, but concentrated vigour. One of my earliest gardening recollections is that of seeing a house of Vines in bad condition cut down to within a foot of the ground; they broke strongly and grew quickly to the top of the house. In winter they were shortened to half their length, and the following summer they were allowed to bear a few bunches. The next year they were left full length and bore a fair crop, but next year they were no better than before they were cut down. How could it be otherwise? Cutting down could not strengthen them; they gained something by having no fruit to support one year and little the next, but one crop exhausted them. Since then I have seen many instances of Vines, fruit trees, and plants of various kinds in a debilitated condition cut down, and always with the same result, unless accompanied by other measures. "B. S." gives an instance of a Pear tree planted ten years ago which made little progress until severely pruned, but it is possible that he may be mistaken as to the true cause of improvement. In the course of ten years he may have tried other treatment which had not produced the desired effect immediately, but which may after all be the true cause of the improved condition of the tree. Whether this be so or not, neither "B. S." nor "D. T. F.," who refers to the case, explain how hard pruning alone introduced such vigour into a dying tree. Perhaps "D. T. F." was rather hasty in attributing the latent vigour of "J. S. W.'s" Thorn trees to the pruning rather than to their previous unrestricted growth. Suppose a Vine has been grown with two rods, spur-pruned and at pruning time one is removed, will the one rod continue to draw up the same amount of food as the two did, or will the balance of supply and demand be quickly restored? Suppose, again, that a Vine grown for many years with a single rod is extended and a second trained up, will not the Vine make roots in proportion? and if sufficient food be supplied to the roots, will not



White Japan Anemone in shrubbery. From a photograph taken in the garden at Southwood, Bickley, last autumn.

all inferior fruit given to the pigs, cows, or horses on the spot where grown before home-grown Apples will take the place and command the prices in our markets that they ought to do.

D. T. F.

Heading back Vines.—As "T. B." declares (p. 233) that he never approved of heading back young Vines and never practised it himself, has he any objections to telling us what his practice in that respect really was when he was in a private place in Lancashire or elsewhere, as he is credited with heading back severely? Did "T. B." practise the old-fashioned long-rod system, and did he or did he not cut down his young Vines to

ther this be so or not, neither "B. S." nor "D. T. F.," who refers to the case, explain how hard pruning alone introduced such vigour into a dying tree. Perhaps "D. T. F." was rather hasty in attributing the latent vigour of "J. S. W.'s" Thorn trees to the pruning rather than to their previous unrestricted growth. Suppose a Vine has been grown with two rods, spur-pruned and at pruning time one is removed, will the one rod continue to draw up the same amount of food as the two did, or will the balance of supply and demand be quickly restored? Suppose, again, that a Vine grown for many years with a single rod is extended and a second trained up, will not the Vine make roots in proportion? and if sufficient food be supplied to the roots, will not

the two rods be as vigorous and fruitful as the one? In the first case, I say the one rod will not continue to draw the same supplies as the two did; and in the second case, the second rod will not rob the first; and I cannot understand why a large Apple tree should not produce good fruit if properly treated. "T. B." compares the fruit borne by small trees in rich soil with that borne by standard trees in orchards. I freely admit that a few very fine fruits can be grown on these small, highly-fed trees; but the kind of fruit "T. B." describes as being on standards is oftener due to exhaustion of the soil than to want of pruning. As soon as standards show signs of deterioration in the size and quality of their fruit the soil should be carefully removed from the roots on one side of the tree; lay the underspit aside and fill in with the surface soil which has been enriched by top-dressing, raising any roots in the operation that are going too deep. The soil from below may then be spread on the surface. At the end of a year or two, if the trees are large, the other side should be treated in the same manner. This will effect such an improvement as neither top-dressing nor pruning would do. Standard fruit trees are too often treated as though they were able to take care of themselves; and under such circumstances, it is to be wondered at if they produce inferior fruit? W. CRANE.

Ballywater Park, Co. Down.

PRUNING TO FEED FERTILITY.

VITALLY significant as are the two phases of pruning already discussed, this is equally or more important, for our prunings to promote vigour or to mould that vigour into fertility would be to little purpose were they not followed by another that provided fertility with abundant supplies of food, and finished its products in the highest possible perfection. It is this perfecting of their products that strains all the resources of plant life and function to the uttermost. In their struggle for supplies, when the language of every swelling fruit and ripening seed is, "Give, give more and yet larger rations," the skilful pruner interposes and comes to the aid of fertility by the regulation or suppression of mere vigour. Never, however, is the advice more needed than when the pruner thus attempts to incline the balance of vital force in favour of fertility and to the discouragement of mere vigour, for the latter is needful for the bringing up of supplies which the products of plants during their final stages eat up and convert into produce. Hence it is obvious that excessive pruning might really close the ports and shut out all the cargoes of food waiting for delivery. And this is in fact often done in practice. Growth is so ruthlessly suppressed, that the crops are starved off for lack of food. On the other hand, they are not seldom flooded or washed off, as practical men say, by an excessive volume of sap entering the fruits or being swept past their base; thus the nett result, the loss of the crop, may be brought about by either a lack or an excess of food. The business of the skilful pruner is to intercede or mediate between the two extremes of a plethora and a want of food, and to see that as nearly as possible the food shall be delivered where it is most needed—that is, where the fruit or seeds are the most plentiful.

In plants not pruned expressly for the feeding and furnishing of fertility this is very far from being the case. Prodigious supplies of plant food are absorbed or manufactured by the roots and sent into the tops to supply every possible want of the plant. Through lack of pruning or stopping, which is but another name for pruning, most of this food is swept along in strong currents right past the fruit and is expended—much of it virtually wasted—in the production of gross wood,

mere food for the knife the following season. Through such greivous losses of vital power and food the fruits are underfed, and consequently undersized and of inferior quality. On the other hand, the excessive suppression of growth, as already stated, prevents sufficient supplies of food from reaching the fruit, as growth is the parcels delivery company, fetching up its constant supplies of food and drink to the fruits. Stop the carriers, and of course the supplies must cease; no, not entirely, as the fruits in their earlier stages are carriers as well as consumers of food. They fetch up and carry their own supplies of food in a regular systematic manner—in a word, perform most of the hauling or distributing functions of leaves. Hence during their earlier stages of growth even an excessive number of fruit may not lead to an exhaustion of the supplies of food, as probably each calls up from the roots or assists in making all, or may be more than all, it consumes. But as it advances its character, functions, and secretions change, so that it becomes a consumer and ceases to be a producer of food; and so soon as this stage is reached, all superfluous fruit should be removed—pruned off, for virtually fruit thinning is a very potent means of pruning to the more liberal feeding and perfect finish of those left, just as assuming the supply of food to be the same, two pigs at the trough would each have three times the supply of six. But the skilful pruner not only regulates the amount of plant food, but sends it to or keeps it where it is wanted. By pinching or cutting off the heads of growing shoots near to his fruit he sends the supplies direct into his fruits instead of permitting them to run away into growing shoots.

It is not needful to affirm that all the food that would have run away into these shoots will find its way into the fruit at their base to prove the importance of such operations on the feeding of fertility. Doubtless not a little of the potential or actual force of plants is wasted in the process of diversion. But it suffices the pruner to know that his cuts ahead of his fruits increase their food supplies, and thus enlarge their size and improve their quality. The aid of the pruner at this stage is the more needful, as by his previous prunings and culture he has developed an abnormal and unnatural amount of fertility; and it is only reasonable that, as we have added to the load by every art at our disposal, we should to the utmost of our ability assist the plant to feed the heavy crop of fruit that we have heaped together upon it. Of course there are other modes, such as top-dressings, waterings, &c., of doing this, but these derive their potency by adding to the amount of food. The pruner's power, on the contrary, is almost wholly limited to improving and controlling the distribution of the supplies and doling it out to growth or produce at will. Like a turnkey on the main line of supply, he cuts off or permits to flow on the vital fluids and food of plants at pleasure, and thus guards the fruit against being starved off on the one hand, or flooded off on the other. The pruner is, in fact, the middleman, that cannot be dispensed with, mediating between supply and demand on behalf of perfect deliveries of fruit or other produce. Left alone in the battle of life and for food, with the heavy burdens that cultivators impose, either the plants would succumb or the crops would be cast off in the struggle. Fruit dropping and other evils so provokingly common as often arise from unskilful pruning during the season of growth as from excessive cropping. Properly pruned plants have a sufficiency of food forwarded to each part to feed each individual fruit well from the start to the finish, neither more nor less. Growth is the pump employed to fetch up the food as well as the factory in which to prepare it, it being the business of the pruner

to convey it where it is most wanted, and to see that natural forces have full and free scope in the conversion of the fruit or seed into perfect products.

A few examples will make all this more clear than any number of words, and these shall be taken from three classes of plants with which most readers of *THE GARDEN* are familiar—Cucumbers, Melons, and Grape Vines. I grant that each of these plants are grown successfully on what is called the extension as well as the restrictive methods, as well as by every possible mode lying between these two extremes. But this will not affect the cogency of my illustrations, which are merely to show the effect of stopping the shoots one, two, or three leaves ahead of the fruit on the finishing and feeding of the fruit or bunch contiguous to the stop. Stop a Cucumber shoot a joint in advance of the fruit, more food is sent into the fruit and it swells more rapidly in consequence, is the daily and hourly experience of practical gardeners. For a few hours the shoot, losing its head, may bring up a less volume of sap, but presently the Cucumber itself creates its own demand, and a diversion of sap is made which mostly lasts until the individual Cucumber is finished, and so on with successive shows and stoppings and prunings to the production of much more fruit in less time than if the cultivator had not so pruned his plants as to feed and finish his Cucumbers.

Similar treatment in the main with differences in detail to adapt the pruning to the altered character of the plants is equally successful in Melon culture. Unless stopped immediately the fruits are set, Melon plants in full vigour not seldom flood or starve off their fruitlets in their earlier stages. But the pinch of the fingers or cut of the knife momentarily checks the flow of the sap, or dams it back to the firmer fastening on of the young fruit. The fruit itself in a young state performs similar functions to leaves, absorbs, elaborates, transforms the fluid into its own substance, and having, through the cut of the knife, got a more liberal supply of food, makes good and strong its hold on the general resources and food supplies of the plant until it melts into luscious perfection. Towards the conclusion of its life, however, the Melon seems to lose the power of catering for itself, and hence it is desirable to allow one or more branchlets to make a little growth ahead of the fruit during its finishing stages. These perform the dual functions of supply pipes and safety valves, and thus safeguard the ripening Melon alike against the two opposite evils—short supplies and any such excess as not seldom ends in bursting the fruit.

The Grape Vine affords even more forcible and familiar illustrations of pruning to feed and finish fertility. The stoppage of every fruit-bearing branch beyond the bunch is proof of the universality of the practice of pruning with this object, and this altogether apart from the mode of training adopted. The widest extensionist stops his shoots ahead of his bunches even more closely as a rule than the closest contractionist, and with equally beneficial results to the Grapes. Nor is the practice confined to one, but runs into many stoppings for Vines. In many cases no growth is permitted beyond the development of from one to three leaves ahead of the bunches. All successive breaks or laterals are vigorously suppressed almost as soon as they show. It must be remembered, however, that in all the three cases cited the fruit, if allowed to suspend itself, becomes an active factor in providing its own supplies. The weight of the fruit draws supplies toward it, and thus, by a process too

subtle for words to describe, becomes an active rather than a passive agent in its own feeding, and this process of self-help out of the general feeding trough continues almost to the end of the life of the fruit, that is, till perfect maturity is reached. Thus, as fertility reproduces itself, so does the fruit possess great powers of self-feeding, and thus assists the pruner for food and finish to complete his work with greater ease and more complete success.

One word more about the finish of fertility. Other things besides food are needful to this; these are chiefly light, heat, and air, and the more skilfully we prune for food the more powerfully will these other factors be brought to bear on the completion of maturity. Neither can fertility be said to finish with the ripening of the current crop. That is one goal; but there is another—the fertility or fruiting force of next year's wood and buds. The prunings best for the feeding of the fruit of the current year will also prove best for the finishing of the wood and buds for an equally good or better crop the next year. Thus fertility becomes not a mere crop by fits and starts, but an incessant and unbroken series of constant returns, the results of natural forces and laws under the guidance of the highest art.

D. T. F.

CANKER IN FRUIT TREES.

I HAVE come to the conclusion that canker is neither caused directly by insects, nor by the roots having gone down into a cold or wet subsoil, but by severe frost, and, therefore, judicious pruning will do more to cure the disease than anything else. Much good, too, might be done if those who are about to plant would make searching inquiries in and about their immediate vicinity as to what varieties grew clean and free from canker, and *vice versa*, and plant only such sorts as were well spoken of, there being no doubt that some kinds, in certain localities, are very much harder than others. The garden of which I have had charge for some twenty years lies very high and dry on the side of a steep hill facing the west. The soil, which is moderately stiff, rests on 2 feet of good yellow loam, and this again on sandstone; therefore, it is so well drained naturally, that it would be impossible for the roots of Apple trees to get into a wet subsoil. Preparatory to planting, the soil was thoroughly broken up, and in due course some eighty-eight varieties of Apples were planted, which made uncommonly good growth for some eight years. During that time they were pruned every year in such a way as to keep their heads well open to the influence of sun and air, and also to keep them in perfect shape. All their annual growths were cut back to the thoroughly ripened wood, and during this time no trace of canker was seen, and their fruit was bright and good. After this they were allowed to grow as they pleased, their centres being permitted to become filled. All went well until the third winter, when, after some severe frosts, canker made its appearance in earnest, breaking out at nearly the top of the first year's growth that was left entire, and by so doing proving that something was wrong with the wood, which undoubtedly was not ripened. The disease did not appear in all of them, but only in the less hardy kinds, such as Ribston Pippin (which after a year or two was nearly killed), Borsdorfer, Melon Apple, Golden Winter Pearmain, Newtown Pippin, Hollandbury, Alfriston, and a few others. We tried various remedies, the best of which was cutting back and regrafting with kinds that were free from canker. Our eighty-eight varieties were planted all mixed, no two trees of any variety being together, so that their behaviour under different circumstances could easily be noted. In one line, for instance, we had a Blenheim Orange, next a Ribston Pippin, then a Golden Noble, and so on. The Blenheim Orange without exception did grandly, while next to it the Ribston Pippin was nearly killed, Golden Noble being entirely free from disease. Now if soil or insects were the cause, why select the Ribston Pippin and others, leaving intermediate trees untouched? We tried lifting and re-

planting the diseased trees (the roots of which appeared to be perfectly healthy), but this did not remedy the evil; cutting back and regrafting proved, as I have said, successful, combined with our system of pruning, and to this day the trees thus operated on are pictures of health. Now, unhealthy roots in our case could not have caused canker, as the regrafted trees had nothing done to their roots. A Ribston Pippin nearly killed and standing between two perfectly healthy trees was regrafted with Golden Noble, which did grandly, and gave the tree a new lease of life, growing quite free from canker and producing finer fruit than the single grafted ones first planted. The regrafting, too, in addition to curing canker, improved the fruit.

EAST HILL.

Neglected Apples.—Mr. Coleman suggests that my Winter Pearmain is the Herefordshire Pearmain, but I have the latter, also having grown it for twenty years; in my list it is called Royal Pearmain, according to the nomenclature of the "Fruit Manual." This Pearmain is a robust grower, but not relatively so good a cropper as the old Winter Pearmain, nor are the fruits quite so large. They are conical in shape, but less angular than the Winter Pearmain, and always show a considerable coating of russet. It is first rate either for cooking or dessert, and keeps well till March. The description given in the "Pomona," quoted by Mr. Coleman, exactly describes the old Winter Pearmain as I have it. It is really a first rate Apple. I cut my last fruit to-day, and the juice oozed out before the knife quite freely, the flesh proving of a crisp pleasant character and so good flavoured as to resemble that of a Ribston Pippin at Christmas. No wonder where known it is esteemed as a first-class market Apple. Another little known Apple is the Winter Peach; I have two trees of it and they rarely miss fruiting, whilst usually they crop freely. The growth is very erect from free stocks. The fruits resemble those of the old Hawthornden, but are covered with bloom. They keep well till the end of March, and probably where there are good cool Apple stores much later. That there are so many good keeping Apples, and withal good in quality also as well as free croppers, is a fact that cannot be too widely known when so much favour is being shown to early kinds only.—A. D.

—We grow here Court Pendu Plat, the striped Beaufin, the old Beaufin, and the old Winter Pearmain, all varieties well worth adding to any collection. I look upon striped Beaufin as one of the best of kitchen Apples; it is also a good bearer. Court Pendu Plat is also a good dessert Apple. Allow me to tell Mr. Coleman that Barnack Beauty is one of the best of kitchen Apples and a sure bearer. I will send him some grafts of it in a few days.—R. GILBERT, *Burghley*.

Hard pruners.—We now know that "T. B.'s" safe halting-place is half way between the two systems, viz., extension and hard pruning, and it would be well if he would tell us accurately what his system is. As to what he calls my dilemma, I fail to see it. Certainly, the greatest quantity of fruit in a given time is the best test of fertility and best proof of the value of extension. Those who have adopted extension have all testified to that effect, and the important fact has to be borne in mind that neither "T. B." nor any other opponent of the system have yet been able, either in their own practice or that of others, to produce such examples of productiveness and fertility as the extensionists have produced and recorded, nor yet anything at all to approach them. That, at all events, is a fact they have not yet got over, condemn the system as they may. The remarkable examples recorded by Messrs. Coleman, Hamond, Iggulden, Challis, myself, and others since the system was first advocated in THE GARDEN can afford to take care of themselves, and are arguments on which such practitioners can safely rely. What is more, in all these cases the system has been carried out to its fullest extent exactly on the lines condemned by "T. B." Maiden Peach trees planted one year and "perfecting an average

of eight dozen fruit each tree" the year following, as has been done at Wilton House, for example, as described by "W. I. M." in THE GARDEN, would have been regarded as a marvel not so long since by "T. B." and others, and simply knocks moderate restriction and half-way methods clean out of the reckoning.—J. S. W.

KITCHEN GARDEN.

SCARCITY OF VEGETABLES.

THE present dearth of vegetables is a source of bitter complaint. It is, however, easily accounted for this year, but I have heard similar complaints years ago in the coast towns of Somerset and Devonshire when seasons have been favourable for the production of all kinds of garden produce. Green vegetables cannot be obtained in south-coast towns except at prohibitive prices, and yet within half an hour's drive of these towns there are hundreds of acres of land on which corn cannot be profitably grown. Both soil and climate are perhaps equal to any in England, and yet those who cultivate this land will neither turn their attention to the growth of vegetables nor its owners allow it to be broken up into small tenements to enable others to do so. Men with capital have, I know, a dislike to convert their farms into market gardens, but that is no reason why the community should not get out of such land what it is right and proper they should get. There is no occasion to plead for such large towns as Plymouth, Exeter, and Bristol; these are already well supplied. It is the smaller towns which suffer every year more or less from a dearth of vegetables and fruit. These have in the main to depend on the large centres for their supplies of choice vegetables, and on many occasions I have been astonished at the price charged for such things as Asparagus, Celery, Tomatoes, Endive, and Cauliflowers; even Vegetable Marrows can only be obtained at exorbitant prices, yet within an accessible distance of such places excellent land is being devoted to corn crops which, we are told, do not pay, and the growth of vegetables which would pay is neglected. In the neighbourhood of all our seacoast towns there is within an easy distance plenty of land on gentle slopes naturally deep and fertile which, if let out in small holdings, would soon be taken by men with sufficient capital to establish a lucrative business.

In order to bring the choicer kinds of vegetables down to a reasonable price for the residents of small towns, it is evident that they must be grown near where they are to be consumed, and the grower must come into direct contact with the consumer. One of the most successful farmers I ever knew made it no secret that from a well cultivated garden two acres in extent he sold sufficient produce every year in the early summer months to pay the wages for many weeks of all the people employed on a farm 500 acres in extent. True, he had an exceptionally productive garden, but all practical men know that such favourable conditions would not have availed him anything unless he had worked them in the most profitable manner. Such examples surely show how much may be done by well-directed energy. The class of produce grown too must keep pace with the times. Market men must import into their business new and improved varieties of both fruit and vegetables. The standard sorts of twenty years ago are in many cases now superseded by superior kinds, more especially as regards Peas, Kidney Beans and Cauliflowers. Even in the matter of such simple subjects as the Radish many of the growers still cling to such old and coarse sorts as the long Salmon. They do not appear to recognise the fact that appearance is a strong factor in their business. If they did, surely they would not overlook the merits of such sorts as the French Breakfast and new Olive-shaped Radishes.

But will it pay to grow fruit and vegetables in such districts as are here referred to, would be a

proper question to ask, and if I were invited to give an answer, I should unhesitatingly say, Yes. I should do so the more readily because, knowing something about the prices paid by residents in such towns, I am sure that any practical man could make it pay. I have known 8d. paid for a small Vegetable Marrow at the end of August, and 1s. for a very poor Cucumber not more than 7 inches long. All through the autumn Cauliflowers and Green Peas are luxuries in most of the seacoast towns, and such as are obtainable are imported from other large markets. But what increases the expenses of the business so much is the fact that land cannot be obtained sufficiently near such towns to enable the grower to retail his own produce. I have visited a good many market growers in my time along the coast, and I find where a man retails his own material he has a shop in the town, and then there is a drive of two or three miles to the outskirts before one reaches the garden or grounds. But even if one has to provide for the double expense of bringing his produce that distance, surely the price at which it is sold will leave a good margin for profit. What perplexes one is the fact that in the course of a walk or drive to the gardens of many of this class of growers we have to pass on the way plenty of land favourably situated for such a purpose, but which the owner cannot or will not detach from his farms so as to make it available for another class of cultivators. This perhaps accounts for the scarcity of market gardens near provincial towns. J. C. C.

FORWARDING VEGETABLE CROPS.

THE heavy falls of snow and severe frost experienced since March began, and even before that, have been decidedly against kitchen garden work, and when favourable weather comes there will be innumerable arrears to work up. Of late we have been pushing forward work in the pleasure grounds and elsewhere in order that, when an improvement takes place in the weather, all hands may be turned into the kitchen garden. Our night temperatures for the last three weeks have ranged from 8° to 18° of frost; the wind has blown hard and chilly, and green crops have suffered severely. Autumn-sown Cabbages look as if they had been immersed in boiling water; autumn-sown Onions have almost disappeared; Peas above ground have a blue hue; Spinach has shrunk almost to nothing; Brussels Sprouts are quite withered; and although different kinds of Broccoli are fairly healthy, they are greatly reduced in size. I am now referring to the plants; of heads we have none, nor are we likely to have any for some time to come. Altogether, open-air vegetables will be scarce until the spring is well advanced. Parsley is missed as much as anything when scarce, and this, too, has diminished almost out of sight. Anything in the form of green material is sure to be valuable in the immediate future, and nothing should be thrown away that is likely to become useful. Where ground now occupied by any Cabbage stumps, Broccoli stems, and such like is wanted for cropping, lift all carefully and lay them in by their heels in any odd corner. If Turnips have been laid up in a large heap, spread them out in one layer, growing end uppermost, in a dark shed or cellar, and the blanched tops which they will soon emit will be found to make a delicious dish. Many who, like ourselves, were tempted to plant Potatoes and sow Broad Beans, Peas, Onions, Carrots, Parsnips, Radishes, Cabbages, &c., during the short spell of spring-like weather which we experienced in February may feel anxious as to how they will pass through this trial; but if they are in fairly sheltered sunny spots, and were put into the soil when it was dry and friable, they will germinate freely when the weather improves. Potatoes are most liable to get injured, but as ours were planted along the bottom of a south wall, we are in no fear that they will sustain any harm.

FORWARDING CROPS is the main concern now. We have always in hand a number of what we term "cutting boxes." They are generally made of odd pieces of wood from the sawmill, and measure 2 feet in length, 15 inches in width, and

4 inches in depth. The bottom boards are nailed on a little apart from each other, and this allows the water to run through. Some weeks ago we filled a number of these with some fine loam and leaf soil and sowed them with Onions, Leeks, Celery, Cauliflowers, Brussels Sprouts, Lettuce, &c., and now we have of these fine healthy batches. They have been raised in a temperature of 50° by night and 60° by day, and they are dwarf and dark green in colour. They are gradually being introduced to lower temperatures, and one of these days they will be in a cold frame. Should the weather become genial, some of them may be planted at once in permanent quarters, but the majority will be dibbled in closely in a sheltered spot under a wall, and all will be ready for planting some weeks earlier than any we can rear in the open. Should severe weather continue, they will be treated differently. A shallow frame will be emptied of whatever it may contain. A little fermenting material to the depth of 1 foot or so will be placed in the bottom; then over this about 4 inches of good soil will be placed, and the little plants will be dibbled in about 2 inches apart each way. Fine healthy plants will soon be the result of this treatment, and if the weather should be in their favour when planted out about the middle of April and onwards they will not be so much behind after all. A very little bottom heat is sufficient in which to start them into growth, but too much would be ruinous. When the plants are in frames it is an easy matter to take the lights off and expose and harden them as the weather will allow, and I am very much in favour of treating the plants in this way, especially in the case of a late spring.

EARLY CARROTS IN FRAMES.—When these are sown on the top of a good hotbed they are not long in springing up, and they very soon become crowded. Sometimes thinning is delayed until they have become a mass, and then it is a difficult matter to draw any out without injury to those which remain, but to prevent this and secure roots of the finest possible quality many of them should be thinned out before they have formed their rough leaves. There is no danger of spoiling the crop if at this time they are thinned out until they stand 1 inch apart at least, and by the time they require thinning again some of those drawn out will be large enough for use.

PEAS.—Duke of Albany is new and expensive, and I see it frequently recommended as superior to Telegraph and the best of all for exhibition, a statement with which I do not agree. I have grown Telegraph annually since it was first distributed, and I have also had Duke of Albany some time before it was in the hands of the public, and I must say that it is not superior to Telegraph, to which, however, it comes nearer both in appearance and quality than any other Pea I know. Indeed, the two are so much alike, that if a row of each was growing side by side I would defy their raisers or introducers to point out the difference between them. The seed of Telegraph is round, that of the Duke wrinkled, and here their sole difference begins and ends.

TOMATOES FOR THE OPEN AIR.—To fruit Tomatoes successfully in the open-air the plants should be large in size by the middle of May. The most successful crop of open-air Tomatoes I ever saw was on plants 15 inches and 18 inches high when planted out by the end of May, and the greatest failure occurred with plants which were mere seedlings when they were turned out. In the former case a great deal of fruit formed in June and quantities of the ripe produce were gathered from the middle of July onwards. In the latter instance the plants did not set any fruit until August, and the period between the time when the first of the fruit was ripe and when the plants ceased fruiting in the autumn was very short. With strong early plants in a sheltered position and against the wall fruit may be gathered in the open from the middle of July until the end of September, and I think the greatest secret of success is in having robust and forward plants at planting time.

A HARDY BROCCOLI.—Sutton's Late Queen has withstood the winter better than any Broccoli we possess. One could hardly detect that it had been out in the frost, it is so healthy, and apart from this I have for many years found it the best of all Broccoli to produce a certain supply of excellent heads from the middle of April until the end of May. It is most compact in growth and merits universal cultivation.

TOMATOES FROM CUTTINGS.—There is no better way of securing a fine batch of good Tomatoes than propagation by cuttings. Last October we rooted a dozen to keep them over the winter as stock plants. These were repotted and set in a warm place early in February. They soon began to grow, and produced a great many side shoots, which were taken off as cuttings, placed in small pots, put into a little bottom heat, and now they are far in advance of the seedlings which were showing at the time when the cuttings were put in. Judging from past experience, they will bear fruit before the seedlings; indeed, we find the cutting plan of raising them to answer so well that I have ceased to care about seed unless it be to introduce a new variety. All plants growing freely will supply a large amount of cuttings now, and if these are put in and rooted, they will, I venture to say, surpass those raised from seed six weeks ago.

GLOBE ARTICHOKE.—With these I fear the winter has dealt hardly. They are never remarkably hardy at any time, and a winter of unusual severity plays sad havoc with them. We have seen the time when we would have had the winter mulching from them before this, but it will be best to allow this to remain for a few weeks longer this spring. Where the material which was put round them was very light and contained little nourishment it would be an advantage to replace it with some rich manure, which would stimulate the roots when rain has washed its fertilising properties below the surface.

EARLY TOMATOES.—There is no better way of securing early fruit than by growing the plants in pots or boxes, restricting them to one or two stems, and keeping them well up to the glass and light. Last year we had a fine crop early in May from plants which were grown in 10-inch pots. Into these they were shifted from 6-inch pots about this time last year, and they were placed at once on the back shelf of a lean-to Pine house. There they made short, fruitful growths, and the side shoots were broken off as fast as they formed, only one or two main ones being allowed to grow until they had formed three or four dozen fruit; then the ends were pinched out and all extension was restricted. Liquid manure was applied as soon as the fruit was formed in large quantities and the crop was thoroughly satisfactory. We are now following out our practice of last spring; it is the best we ever tried. We also grow some in boxes, and find them do equally well. The boxes are 1 foot square, the same in depth, and as they fit on to some of the shelves and into some corners better than pots, we prefer them on that account. The plants grow freely, and fruit forms abundantly in a temperature of 70° by day and 60° at night, and the fruits will form and swell in either a very humid or moderately moist atmosphere so long as they are near the glass and light.

AUTUMN-RAISED CAULIFLOWER PLANTS.—We always sow our autumn Cauliflower seed in the open, and when the plants are large enough some of them are taken up and planted in frames, while others are allowed to remain in the seed rows. Sometimes we have seen the latter winter perfectly well, and be as healthy and fresh in spring as the frame ones; but this is not the case this winter, as those which were left out are now dead. The frame ones, however, are in good condition, and will be planted out as soon as we have fine weather. In planting, it is always a good plan to draw out deep drills and put the plants in these, as should more cold or windy weather follow, this affords them a great deal of shelter. There is no

use in trying to grow fine Cauliflowers on poor ground, and the soil for their reception should be heavily manured and be in first-rate order before planting. We have also found it very beneficial to tread round the plants firmly as soon as they are planted, as they grow more robust in a firm than in a loose soil. J. MUIR.

Marjani, Glamorganshire.

THE HERB GARDEN.

HERBS play an important part in first-class cookery, and though their culture does not require any great amount of skill, yet some thought is necessary in order to keep up a proper succession of young thriving herbs, especially of such as are in daily use. The herb garden should occupy a position by itself as a special feature. It should be laid out in beds of suitable size. Aspect is not a matter of much importance provided the land is well drained, but it should not be under the shade of trees. Frequent renewal and removal is the best system to adopt in the culture of such things as suffer from the effects of a severe winter. Young plants make a better fight under adverse circumstances than old ones exhausted through much cutting and picking. Herbs of perennial habit are often best treated as annuals. Take Sage, for instance. Many who do not adopt a regular system of propagation and renewal lose their old plants in severe winters. Sage is very easily increased either by means of cuttings, layers, or seeds; side shoots pegged down and the stems covered with soil now will soon form roots, and may then be transplanted. Cuttings or slips planted from this to the middle of May will all, or nearly all, root and make good plants. It is a good plan with Sage to put in a bed of cuttings in rows 8 in. apart each way, and leave them to grow into a mass, which they will do by next autumn; the old bed may then be cleared, and if manured and turned up for the atmosphere to work upon it, it will by the spring be fit for Mint or some other plant that will form a suitable rotation. When seeds are used they may either be sown in the border and transplanted or in a box in heat, and be hardened off and planted out in due course.

THYME may be treated as has just been recommended for Sage; cuttings of it inserted now will form a useful supply by the autumn; seeds also may be sown now. There are several varieties of Thyme, but two only, the erect green and the dwarf Lemon, need be grown. Mint should always be obtainable when lamb is to be had, and as it forces easily in a temperature of from 55° to 60°, there is no great difficulty in getting green Mint whenever it is required. The best way in which to make a new bed of Mint is when the young shoots in spring are about 2 inches above ground to cut them with a knife just under the surface of the soil, so as to get a few small roots attached to them, and to plant the shoots so obtained with a dibble in rows 6 inches apart. It is a good plan

to have a patch of Mint under a north wall for use during the hot weather in summer, and another in a warm corner somewhere to come in early in spring. Peppermint is only used for distilling, and in private establishments this is not so much done now as formerly.

TARRAGON is somewhat tender in some places and should be planted in a south aspect. It is easily increased in spring by planting cuttings with a bit of root attached to them, or by slicing off good sized offsets from the old plants; cuttings may also be taken from the forced plants in heat. The stock for forcing should be lifted and potted in autumn, selecting strong roots, introducing them into peat as required. Green Tarragon is usually required all the year round. Winter Savory may be increased now by division, as may also Tansy, Pennyroyal, Balm, and Camomile. Fennel sometimes suffers during severe winters. I have known it to be quite killed by frost, but this does not often happen. And when it does, a packet of seeds sown in heat

planted out towards the end of May. Sometimes the seeds are sown on a south border about the middle of May, and not transplanted; but I prefer sowing in heat to get an early start; but climate and local conditions generally should have some influence in this respect. With regard to Borage, we seldom sow it, as we always have enough come up from seeds which drop from the plants during summer, and they will transplant if they do not come up in the right place. Chervil, to come in in succession, should be sown several times during the year. The first sowing should be made now on a south aspect; the next sowing should follow in a month's time in an open situation. Sow in May on a north border for use during the hot weather, and again in autumn in a southern aspect for winter and early spring. It is a good plan to put up a few roots of the autumn sowing to be sheltered in case of severe weather. Chervil bolts sometimes prematurely if left too thick. The plants when large enough should be singled out to 4 inches or 5 inches apart.

E. HOBDAY.

Sowing main crop of Carrots.—Land that has been freshly manured is not suitable for Carrots. It causes the roots to fork and the Carrots to grow large and coarse. We always give our Carrot bed a good dressing of charred material from the rubbish heap, mixed with refuse soil from the potting-shed. This is applied after the ground has been deeply cultivated in winter to the depth of several inches, and some time when the surface is dry it is forked in. If maggot is dreaded, a good top-

dressing of scot and lime is given at the same time. The middle of April is quite time enough to sow the seeds, and the drill system is the best because of the facilities thus afforded for surface stirring. Many of the principal seed firms now pass Carrot seeds through a machine, which effectually clears away their beard, and makes their distribution when sown regular and easy; but where this is not done, rubbing the seeds between the hands with a little sand intermixed will effectually separate them. Draw the drills half an inch deep and 15 inches apart. Firm the land well before sowing if dry. And Carrots should not be sown in wet weather; better wait till the surface is dry. The best kinds for the main crop are the half-long Carentan and James's Intermediate.—E. H.

SHORT NOTES.—KITCHEN.

Pea Duke of Albany.—This is, without doubt, one of the best of Peas. It was raised by Mr. Abbott, who is managing a large market garden at Park Lane, near Doncaster. Its height is between 5 feet and 6 feet; the haulm is stout, and the pods large and well filled. Of this sort, for pulling green, he planted last season two acres, and the crop was so profitable as a market Pea, that six times that area will be cropped this year.—VIDE ET CREDE.

Seakale culture should be extended, for in a season like this when every green vegetable has become brown with incessant freezing and thawing it is most useful. Cuttings of the roots planted now will be strong enough to force next winter. They should be about 4 inches long, and should be planted with a dibble in deep, rich land in rows 15 inches apart, and 12 inches asunder in the rows, just covering the crowns; seeds also may be sown if root cuttings cannot be obtained.—J. H.

Early vegetables.—Those who have not a good stock of young Cabbages, Cauliflowers, and Lettuces should now sow under glass on a gentle hotbed. Even in small gardens some effort should be made to get glass protections to shelter Cauliflowers and Lettuces in winter, and to forward Carrots, Potatoes, Turnips, &c., in spring. French Beans planted now on a slight hotbed will be fit to gather in June.—E. H.



Linum trigynum; flowers yellow. See page 284.

will soon get up a new stock. The old plants may be divided now if an increase be desired, but this plant does not wear out on one spot, as Sage and Thyme does. Rosemary and Lavender may be easily propagated by means of cuttings in a shady border now. Lavender should be frequently renewed, but in most places Rosemary will grow into a shrub of considerable size. I can see from where I am writing a Rosemary bush 5 feet high and as much through, and it increases in size annually. Horehound, Hyssop, Wormwood, and Rue may be increased by cuttings or seeds.

ANNUAL HERBS.—These include Basil, Sweet Marjoram, Summer Savory, Borage, and Chervil. Basil, Marjoram, and Savory should be sown in boxes now in a warm pit, and be hardened off and

TREES AND SHRUBS.

THE PATAGONIAN FITZROYA.

(FITZROYA PATAGONICA.)

CONTRARY to the usually expressed opinion regarding the tender nature of this handsome and interesting Fir, we feel quite justified, from the results of actual experiments both in England and Ireland, in recommending it as a suitable and valuable addition to the pinetum, more particularly in the warmer maritime portions of Southern and Western Britain.

We are induced to thus uphold the tree not only from the fact that we have found it perfectly hardy, but to try and dissuade planters from being influenced in an undue manner by the semi-tender nature with which it is frequently branded.

For general planting, be it remembered, we do not recommend it, while for chosen spots and where a collection of the newer Coniferae is being formed, we would say by all means give the Fitzroya a fair trial, and in a great number of cases success will crown the attempt. One thing, however, it may at the outset be well to bear in mind, and that is that the tree in question, like several others that could be mentioned, is usually more tender in a young state than when a height of several feet is attained—at least such we have found the case, for a specimen here, perhaps the best of its kind in this country, of 17 feet in height, has certainly suffered severely from protracted frosts during the past eight years than some well-known shrubs that were growing under similar circumstances and in close environs, and that are considered quite hardy, or at least nearly so, throughout Britain generally.

It is, perhaps, incorrect of me to say that the Fitzroya is more tender in a young state than when more advanced in years, for on examining three dozen plants raised in our home nursery from cuttings not one has suffered from the effects of the last half dozen years' frost, and I am informed by the foreman in that department that not a death has occurred, although the young plants have been fully exposed in a north border.

The worst time is when a height of 3 feet or so has been attained, and when the young plants are placed out permanently and growing vigorously, although even under these conditions we find home-raised plants to be far less subject to the influence of frost than such as have been purchased.

A native of the Patagonian mountains, the Fitzroya was introduced to us by Lobb in 1849 (though previously discovered by Captain Fitzroy, and to whom it was named in compliment by Sir J. D. Hooker), but although about thirty-six years have elapsed since that date, and whether from scarcity or the dissemination of rather erroneous notions regarding its tender nature and unsuitability for the climate of Britain, few indeed are the individual specimens to be found even in well managed and extensive pinetæ.

In its native country, we are told, the Fitzroya attains heights varying from 6 feet to nearly 100 feet, and with a stem of 8 feet in diameter, the difference in stature depending much on the elevation at which it is found.

The following description taken from home-grown specimens will fully illustrate the appearance of the Fitzroya as grown in this country: The whole tree has a decidedly easy and ornamental appearance from the branches, which are irregularly placed and rather slender, being bent downwards at the tips, thus imparting a semi-

weeping contour, which is, however, more decided in healthy, fast-growing specimens than in such as have been unfavourably placed and consequently become unhealthy. Apart from being in a healthy, vigorous state of growth, I believe some trees possess this peculiar mode of growth in a much greater degree than others, for in some instances the branch tips hang down for fully a foot in length like tresses of the finest plaited whipcord; branchlets short and inclined to droop, and thickly covered with foliage. The leaves are variable in length, but usually about one-fourth of an inch, very irregularly arranged in whorls of threes or fours, sessile, ovate-oblong, of a deep yew green, and with two silvery lines both above and below. These lines are, however, most prominently revealed in the leaves of the young shoots, and are frequently absent from those of older growth, while the silvery markings on the upper sides of the leaves are far less common than those on the under side. Cones about quarter of an inch in diameter, and composed of nine scales in three whorls, the upper and lower of which are small and unfertile, while the intermediate one has two seeds, sometimes three, at the base of each scale. They are borne in quantity on the trees at Penrhyn, are terminal, and usually, but not always, solitary.

The healthiest, although not the largest, Fitzroya I have ever seen was growing on the pleasure ground at Churchill House, in the north of Ireland. The situation might best be described as medium, between sheltered and exposed, and the soil a rich, free, well-drained loam that received due and careful preparation previous to the tree's insertion therein. It presented a most distinct and ornamental appearance from the long, drooping, cord-like branch extremities, as well as healthy, thriving appearance, and if still standing, for it is more than half-a-dozen years since I saw it, must now be a goodly specimen indeed. On the wind-swept Isle of Man Mr. Farrant tells us "Fitzroya patagonica is singular and graceful, but I fear in our climate will never make a tree," this information being more favourably delineated in a letter that I had recently from that enthusiastic cultivator.

Mr. W. Coleman likewise makes known to us the whereabouts of a fine specimen of the Fitzroya which was, fourteen years ago, from 12 feet to 18 feet in height, well furnished and in the best of health. At that time it was growing in the shrubbery at Cole Orton Hall, Ashby-de-la-Zouch, but whether it is now standing Mr. Coleman does not say, but it would certainly be welcome information for me to know that it is. Some others of your correspondents would be doing good work in letting us hear of thriving trees of the Fitzroya that have come under their notice.

At Penrhyn Castle the largest specimen is growing within 100 yards of the sea at Port Penrhyn. I measured it to-day and found the dimensions to be as follows: height, 17 feet; girth of stem at a yard from the ground, 21 inches; diameter of spread of branches, 9 feet. Five years ago this tree was transplanted from what I considered a rather inconspicuous position to the front line of an ornamental as well as useful tree border that runs partially around our home nursery, but, sad to say, although every precaution was taken both in removal and planting, it has never yet recovered the original healthy appearance, although I have but little doubt that it will do so in years to come—at least, if care and attention are even second-rate factors in the recovering of sickly trees to a healthy thriving condition. Being of a large size when removed, and not having been transplanted for a number of years previous to its final despatch to the

border above referred to, had no doubt much to do with its present appearance, which, although perhaps not decidedly unhealthy, is yet sufficiently so to betoken, even to an inexperienced eye, that something is wrong. The soil is loam of average quality, the aspect south-west, and the situation partially sheltered. Great numbers of fruit have been produced by the tree in question, but as they are unfertile, the Fitzroya being dioecious and no male flowers produced, they are useless for the purpose of reproduction. Cuttings, however, strike freely when placed in sandy soil and in a cold frame, advantage of which has been taken here and a quantity of fine, healthy young trees produced.

It has frequently been stated that the Fitzroya when grown in this country produces no continuous leader, but this is quite the reverse of our experience, for two of the trees just referred to have clean, straight stems of fully 6 inches diameter at butt, and with a gradual taper from base to tip, what is also strikingly noticeable in young trees in the nursery border. The bark is flaky and spongy, somewhat like that of *Sequoia sempervirens*, and of a dull brownish colour. Young trees raised from cuttings of the above tree seem less subject to the influence of frost than plants the produce of seed sent from its native country.

I have just noticed how well this tree stands pruning. Young shoots are pushed out freely from back-pruned branches, so that hard cutting in where required, as no doubt it will in many cases, may be resorted to without fear of harm.

A. D. WEBSTER.

PLANTING RAILWAY STATIONS.

I QUITE agree with "J. D. W." (p. 227) in thinking that the aspect of country railway stations might in many instances be greatly improved by the judicious planting of a few suitable trees and shrubs, and possibly a few flowering plants. In some instances this has already been done, but, as a rule, so unskillfully, that it may be questionable if any improvement has thereby been effected. I can hardly, therefore, altogether agree with "J. D. W." when he says (alluding to the planting of trees) "that in whatever way it may be carried out it cannot fail to bring about improvement." On the contrary, I am inclined to think that should it be considered desirable to plant such places at all, the greatest care should be paid to do the work effectively, and also to select the most suitable species for the purpose. By all means avoid the acceptance of the thinnings or surplus trees or shrubs from gardens, as the planting of these is almost sure to lead to disappointment. This assertion, of course, does not apply to cases in which local landowners are in possession of a properly managed nursery, where trees and shrubs are prepared for removal by being annually transplanted. Unfortunately, however, a nursery ground is not always an adjunct to a garden establishment, and where the promiscuous thinnings of plantations are used for such purposes, the result, as has just been stated, will generally be unsatisfactory, as, however carefully such plants may be taken up and replanted, most of them will probably die during the first season, and it will be found to be some considerable time before those which survive can be said to have recovered from the unavoidable check which they have sustained. The cause of this is, of course, to be ascribed to the injury and mutilation of the roots while being extracted from the soil in which they may have become established by being undisturbed for years, as well as being removed from a sheltered, if not a crowded, situation to one generally more exposed. All this, of course, does not by any means apply to trees and shrubs procured from properly managed nurseries, where, as has been said, such plants are prepared for removal at almost any season by having been annually, or at least frequently transplanted, and their roots consequently kept close at home, so to speak. Under such

circumstances their removal is effected without risk and without serious check to their development. Therefore, as suitable plants of the desired varieties can all be obtained at the various nurseries throughout the country at very moderate cost it is anything but economy to use unsuitable plants, even when they can be obtained free of cost.

As has been already said, properly prepared trees and shrubs, more particularly evergreen species, may be successfully planted at almost any season, but early autumn is without doubt the best time to perform such operations. And in all cases the situation which such plants are intended to occupy should be duly prepared for their reception, by drainage if found necessary, as well as trenching or deep digging, and in such situations as the vicinity of railway stations the introduction of a portion at least of suitable soil is desirable, in order to assist the plants in making a fresh start. Where necessary, too, they should be supported by stakes for a time, as well as fenced in, or in some way protected against external injury. It need hardly be necessary to say that should dry weather set in soon after such trees, &c., have been planted water should be freely supplied to them. "J. D. W." says, "That in some cases the staff of workmen employed in the vicinity of the various stations would be found sufficiently acquainted with the work of planting to do it satisfactorily, &c." No doubt this will mostly be found to be the case, but at the same time it may be doubtful if amongst them might always be found men possessed of the necessary knowledge of the requirements, habit of growth, and the dimensions ultimately attained by the different species of trees used for the purpose, so as to be able to superintend their proper distribution, as it should always be borne in mind that a tree or plant, however beautiful it may be, when growing in the wrong place, or where it ought not to be, must consequently be regarded as a weed. And there are possibly few owners of gardens and pleasure grounds who do not regret that some favourite specimen does not occupy a position different from what it does. Many drawbacks of this kind might have been obviated by the exercise of a little judgment or consideration at the time of planting. On this account it is always desirable that the arrangement, if not the planting, of ornamental trees should be superintended by someone who possesses a knowledge of their habit of growth, &c.

IN PLANTING with the view of embellishing and rendering more attractive the appearance of our various railway stations, only trees and shrubs of ornamental character should be used. "J. D. W." mentions the Larch, Spruce, and Scotch Fir; I should be inclined to reject all three, but particularly the two first. The Larch is an exceedingly useful tree, but can hardly be considered to be ornamental, and the Spruce in very many situations becomes unhealthy, and is very prone to lose its lower branches, and thus become unfit to be used as a screen to shut out objects which it may be desired to conceal. But, as "J. D. W." says, there are many varieties among the *Arborescentes* very suitable for this purpose, and possibly none more so than *Thuja Lobbi*, *Thujopsis borealis*, &c. There is, indeed, nothing so deleterious in the atmosphere of most country railway stations as to prove inimical to the development of any of the species of *Coniferae*, but where it may be desired to plant deciduous species, the Western and Eastern Planes, particularly the last, in addition to being exceedingly ornamental, are found to thrive in and near to large towns where few other trees can be made to grow. The Birch, the Lime, and the Mountain Ash, &c., may all be used for the purpose with very good effect. And in cases in which deciduous trees may happen to exist near stations the appearance of such trees may frequently be improved by the training on their stems climbers of various kinds, such as the Virginian Creeper, Clematises of various kinds, Honey-suckles, climbing Roses, and the various varieties of Ivy. I happen to know a country railway

station, or rather the principal station of a provincial town, where there extends a portion of embankment between the station and a bridge which spans the public road at a distance of some 70 yards or 80 yards. It faces due south, and is in full view of the adjacent town. This portion of embankment from its situation may be said to have almost asked to be planted, and the railway authorities a few years ago did so with various kinds of trees and shrubs, but without any attempt at arrangement or particular care holes being merely dug large enough to contain the roots, and the plants left to their fate. As might have been expected, most of them died, and the few which have survived will never in any way tend to improve the aspect of the approach to the station. The conclusion one can hardly help coming to therefore is this, that if such matters are not performed properly it is better that they should not be attempted. Had this embankment to which I have alluded been prepared for the reception of trees by being properly dug, and say a line of trees, either deciduous or evergreen, been planted along the higher part, and the face of the embankment been planted thickly with, say, the common Holly or some other evergreen shrub, the spot might now have been a thing of beauty which, from its position, could hardly have failed to have been much appreciated, and the expense of planting it properly need not have greatly, if at all, exceeded that which was expended to no purpose. Before trees are planted it would always be well for the planter to take into consideration what may probably be the aspect and dimensions of such trees on the expiration of some quarter of a century, more or less, as the planting of trees is or ought to be performed more for the future than for the present time. I have now in my mind's eye an exceedingly pleasant drive of considerable length leading to a mansion, with a double row of thriving young trees on each side of it. These have been planted some ten or more years, and are already becoming effective; but this is to some extent marred by the introduction of sundry unsuitable trees. Most of them are Limes, and it would have been well had they been all of this species, but there are here and there a Black Italian Poplar, an Ash, a large growing species of *Salix*, a Horse Chestnut, &c., which have grown out of all proportion with the opposite tree, with which it certainly ought to some extent correspond in dimensions, but which is, in some instances, found to be a Laburnum, a Mountain Ash, or other species which can never be expected to attain great size. This style of planting may possibly have been followed with the view of securing variety, but this might surely have been secured without altogether sacrificing uniformity.

P. G.

Walking-stick trees.—In reference to this subject (p. 263) I may state that one of the finest trained Fig trees I have ever met with originated from a walking-stick. An old gardening friend of mine, when cutting down a Fig tree, saved a long straight matured branch, intending to use it for a walking-stick, and as he was very feeble he did actually walk home with it, a distance of about a mile. The stick was left in the back kitchen, and no further heed was taken of it till spring, when it was found that the moist place in which it was standing had caused it to burst its buds, and the consequence was my friend took it back to the garden and inserted it in the ground against the gable end of a coach-house. Here it struck root and grew rapidly into a fine tree, the wall at the highest point being not less than 20 feet high. It had a long clear stem, and suckers were seldom troublesome—a decided advantage. The gardener in question has long been dead, and the place has also changed owners, but perhaps there are others besides myself who have seen this tree at Leasam House, near Rye, in Sussex, and who can vouch for the truth of the story. I am living within driving distance of Glastonbury, and I find the famous Thorn there has lost its charm as far as the natives of the county are concerned.

We, too, have a fine old tree of the same variety, which annually attempts to bloom over parts of the tree before other Thorns. I have seen a few blooms open at Christmas, but only once, though it is always well in advance of the rest. I cannot ascertain how the tree came here, but the very oldest inhabitants are of opinion that it was cut out of a hedgerow, in common with a great many other Thorns, when a road was diverted and a park created. It must have been in its present position long before this park was formed out of ordinary farm land, and if the Glastonbury Thorn originated at Glastonbury, ours must have been a seedling from it, the seed being brought, it may be, by birds.—I.

HEDGES AND HEDGE PLANTS.

To describe every plant which is found in, or which may on occasion be pressed into use to form hedges, would be to run over almost the whole list of our hardy trees and shrubs. Although, however, this would be the case, there are many species which are very much more desirable than others, and which will comply with the conditions for which hedges are primarily planted in a way the others would not. There can be no doubt that on the whole the most widely distributed hedge tree, the white or common Hawthorn, in the point of suitability to the varying circumstances under which hedges are required, and in its adaptability to different soils and situations, must carry off the palm. Except in the case of ornamental hedges, whatever else may be absent, it is very unusual to find the Whitethorn without a place. There are, of course, exceptions to every rule, and in certain situations the soil may be against the growth of this tree; but take the hedges in almost any landscape or district of country and the Hawthorn will be predominant. It is hardly the place here, perhaps, to speak of the advisability or otherwise of raising mixed hedges, or, in other words, hedges of a variety of different species planted or growing together pell-mell, but in passing it is worthy of remark, that however objectionable and fatal to a perfect line of hedge this practice may be, such an assemblage of shrubs is much more picturesque, and affords much more food for the student of trees and tree growth than any hedge of one species, however neat and effective, can possibly be. It is a puzzle as one passes mile after mile of hedgerow of every imaginable form, dimension, and composition to conceive the way in which such heterogeneous masses come into existence, and in something approaching right lines. It has been said that this is hardly the place to discuss the question of the impropriety or otherwise of using such diverse material in the same line of hedge, but as the question is so wound up with the subject, it is difficult to avoid reference to it.

Shortly, then, taking into consideration the generally accepted principle that to keep a close and effective hedge a host of different kinds of trees must not be jumbled in together, it is difficult to believe that the majority of hedges one meets with was ever planted at all, or at any rate for the purpose they now serve.

Somebody described a hedge as being a thicket of bushes, and this is veritably what the greater number of old hedges consist of, as any idea of plan or uniformity is entirely lost. Take the average field hedge of half a century's standing and look at it tree by tree, and you get a collection vastly more diverse than the timber trees which stud it. It would be absurd to assume that these hedges were never planted, and it seems equally absurd to think that any planter, or rather every planter, should make such a numerous selection of subjects. The only explanation that seems possible is that as the species

which originally formed the line of fence died out, the other kinds sprang up and filled up the blanks, until in course of time very little of the original hedge was left.

A very common accompaniment of the White-thorn is the Sloe (*Prunus spinosa*), and next to it among deciduous plants for hedges is probably most important. This Sloe, or Blackthorn, in positions where it will grow readily, is very dense in its habit, and, therefore, even when divested of its leaves, thoroughly well adapted to the formation of impervious hedges. In this respect it rivals, if it does not excel, the Hawthorn, as its growth is more tortuous and sturdy. At any rate, speaking for one's self, should the emergency arise of forcing a passage through a Thorn hedge, we would prefer making the attempt in the case of the Hawthorn to that of the Blackthorn.

Leaving for the moment such thorny subjects, another very well-known hedge plant, and one which on account of its fruit may be regarded as a favourite one, is the common Hazel. As well as being a hedge plant, this is a very widely distributed species in the shape of underwood in plantations, and is perhaps better adapted for growing in such positions than it is for hedges. Whether this is so or not, much will depend upon where the hedge is situated and the purpose it has to serve. If it is on the summit of a bank flanked by a ditch, and is designed to form the fence round a wood or plantation, nothing could be more suitable; and if, in other instances, it is required more as a screen than a hedge, it will answer admirably.

In many hedges, and, it must be admitted, speaking generally, in the most imperfect ones, the common Elder is of frequent occurrence. The comparative looseness of its habit of growth and its tendency to exterminate its neighbours is the greatest objection to its use. Where rapidity of growth is important, and the Elder can be allowed to follow its bent unrestrictedly, it may be employed to some advantage; but, as a rule, it appears as an interloper rather than a matter of choice. On some soils—and it embraces a rather wide range—the common Dogwood (*Cornus sanguinea*) is found in abundance in the hedgerows. This is a tree, however, which until it grows to a considerable size does not offer the resistance which a hedge should be capable of doing. It is a very usual thing for cattle to graze on week after week, contentedly, when only surrounded by a hedge which would give way to the first onslaught of an animal, but such forbearance or lack of knowledge of the facts ought not to be counted upon. A hedge worthy of the name should certainly be stubborn enough to prevent the egress or ingress of such animals as it is intended to fence against, and anything short of this cannot be looked upon as being satisfactory.

Certain species of Willow—notably the Goat Willow—in some cases make very good hedges, but it is seldom this kind of tree is found alone. Its occurrence at intervals on a Hawthorn hedge is much more frequent. The drawback to all this class of hedge tree is the lack of thorns, there being nothing but the branches themselves to act as a deterrent to the would-be trespasser. Besides the species which have been enumerated, there are others of a deciduous nature which are more or less adapted for hedges, and among these several which are mostly looked upon as timber-producers rather than in this subsidiary, though not less useful, character. The Beech and the Hornbeam are two of these. The former of these has been objected to on the ground of its liability to insect attacks, but good hedges have often been formed of it, and it makes capital screens. The field Maple, again, has some claims to use for the purposes under review, and not the least

of these is the beautiful effect of its foliage in autumn. The Oak, the English and the Wych Elms sometimes enter into the composition of hedges, but not very largely, and need not be referred to in detail. The position of the Ash is somewhat different, as although so far as the formation of the hedge itself goes it may not be better than the three last named, it is a wood which has a marketable value when of a smaller size than almost any other. The Birch and the Alder may be a little similar in this respect, but their relative value would not be so considerable.

It would be easy to extend this list of deciduous hedge trees, but as the Evergreens demand a word of notice, we must refrain from doing so. In our English hedgerows, amongst Evergreens the Holly occupies something of an analogous position to the Hawthorn in the list of deciduous species. It is not, of course, nearly so widely distributed, as Evergreens, taken as a whole, are not so largely used in the hedgerows. Notwithstanding this there can be no two opinions as to the effectiveness of a good Holly hedge. To this, in the points of density and resistance, the Hawthorn must yield the palm. The Yews and the Cypress are very familiar as hedge trees, but they are seldom found in use for common field fences. For the bulk of our existing Yew hedges we are indebted to previous generations, as this is a tree which requires a great lapse of time before it matures. When it does attain full growth it has the advantage—so far as such a thing is possible in plant life—of almost imperishability. Among the smaller trees or shrubs the Box must not be omitted, as this has long been a favourite in gardens. A commoner tree, though, than this is the Cherry Laurel. This does not usually grow sufficiently thick to form a fence of itself, but when in gardens or in the immediate neighbourhood of the house, it is placed within a hedge of Quick (Whitethorn); it is a very useful and ornamental tree. Amongst the Evergreens, a tree which has lately had many advocates, especially for the purpose of screen planting, is the giant *Arbor-vitæ* (*Thuja Lobbi*). In many places this thrives exceedingly well, and is worthy of the attention which has been accorded it. By some the use of such trees as the Spruce has been recommended for hedges, but in the sense in which we employ the term they are hardly admissible. As was stated at the outset, the list of subjects which could be used with more or less success could be almost indefinitely extended, but this would serve no good purpose. The difficulty where the selection is so wide is to know what not to plant, as well as to know what is suitable. In determining this in any particular case, the soil, the situation, and the purpose for which the hedge is wanted have all to be taken into account. As a rule, the best guide will be to notice the plants which thrive best under similar circumstances, as, unless influenced by any occult cause in selecting hedge plants, this is safe ground to be upon.

Thuja gigantea.—Surely Mr. Nicholson (p. 266) makes a mistake when he says that *Thuja gigantea* was introduced by Messrs. Veitch in 1853. The late Mr. James McNab, than whom few people were better informed on such matters, tells us in the "Proceedings of the Botanical Society of Edinburgh" for 1873 that "a *Thuja* raised from seed and proved to be the true *Thuja gigantea* (yellow Cypress) is another acquisition first sent by Jeffrey. At first the seedlings resembled *Thuja occidentalis*, and little attention for a time was paid to them." This is likewise substantiated by Mr. Nicholson, for he tells us that he recognised in three of the very specimens sent by Jeffrey in 1851, and which are now grow-

ing in the Edinburgh Botanic Gardens, forms of *Thuja gigantea*. The tree may have been introduced by William Lobb, collector to Messrs. Veitch, in 1853, but it is a well-known fact that seeds were sent by Jeffrey to the Scottish Oregon Association in 1851, or two years previous to Veitch's introduction.—A. D. W.

GARDEN FLORA.

PLATE 537.

THE LINUMS, OR FLAXES.

(WITH A COLOURED PLATE OF *L. ARBOREUM*.)

THE Linums, notwithstanding the fugacious character of their flowers, generally occupy conspicuous places in collections of hardy herbaceous plants, a distinction which they richly deserve. In order to see them to the best advantage, however, it is always advisable to grow them in large patches. We refer to the commoner kinds, such as *L. perenne* and its numerous varieties, which include almost all shades of blue, from the deepest to the most delicate. Almost any situation or soil, if dry and at the same time well exposed to sunshine, suits them. Of *L. perenne* there is a handsome variety with reddish purple flowers, which makes an excellent border plant, as does also the white-flowered form, which is as yet not very plentiful. Its flowers are smaller than those of the New Zealand *L. monogynum*, but more



Linum perenne.

numerous. The plant is also freer in habit and more easily managed. *L. alpinum* is also worthy of mention. It has large bright or pale blue, often almost white, flowers and a habit not unlike that of *L. flavum*. It is perennial, and a good plant for rockwork. With the exception of annual kinds, all the others may be propagated by means of division or cuttings. The perenne section may be divided in autumn, care being taken not to damage the roots. Kinds like *arborescens* strike readily from cuttings. *L. flavum* may be raised by the hundred from seed sown in the open ground. Many beautiful species of *Linum* yet remain to be introduced, amongst which the most notable are *L. nodiflorum*, a kind not unlike *campanulatum* in habit, but with larger flowers; *L. heterosepalum*, a comparatively new species found by Dr. Regel; *L. lazicum* and *L. capitatum*. Among others that may be mentioned as worth notice are *L. maritimum*, *lauricum*, *elegans*, *Mülleri*, and *corymbiflorum*.

L. ARBOREUM, if not quite a tree, as its name imports, attains at least the size of a bush even in the open air in this country. It is easily distinguished by its shrubby habit and its not dying down in winter, as most of the others do. It is single-stalked at the base, profusely branched, and forms largish evergreen tufts.

* Drawn in Messrs. Paul's nursery, Broxbourne, in August



LINUM CATHARTICUM

It is generally recommended as a greenhouse shrub, and said to be tender in the open air; the reverse, however, is our experience; indeed it stands well in a quite exposed situation in the neighbourhood of London, where the climate is considered to be more trying to plants of this class than it is farther north. A large bush of it may be seen in a thriving state in the herbaraceous grounds at Kew. In exposed situations is, however, much dwarfer and more scraggy when sheltered, rarely attaining more than 8 inches in height. Against a wall it grows as



Linum campanulatum.

large again, and has a beautiful green appearance all through the winter months. If grown in quantity it would doubtless be an acquisition in a cool greenhouse or unheated conservatory in early spring. It would succeed *L. trigynum*, which, however, requires a little heat. In a house from which frost can be kept out *L. arboreum* may be had in flower in February and March, and even well into April. It might also be planted out with advantage in large houses, and if given plenty of light and space it will take care of itself. In the open air it begins to flower in April and continues in bloom through the two following months. We have never seen good seed produced by this plant, but fortunately it may be readily increased by means of cuttings



Linum grandiflorum.

taken off in July or early in August; these, if wintered in a close frame, make thrifty little plants in spring. It is a native of the island of Candia and the Levant, where it was introduced by Sibthorp about the year 1788. It is sometimes called *L. cæspitosum*.

L. CAMPANULATUM (or Bell Flax).—This seems to be rarer than either *arboreum* or *flavum*, the latter being often misnamed *campanulatum* in gardens. Mr. Moggridge, who gave the Mentone plants considerable attention, says that from dried specimens it is rather difficult to distinguish *campanulatum* from *flavum*; the latter, however, has, he

says, a more compact inflorescence; and, according to Reichenbach, is also amply distinguished by the petals, which are round and not mucronulate at the apex, the sepals being much shorter and the fruit less pointed. Mr. Moggridge, however, adds that he should not be surprised to hear that intermediate forms exist. Three years ago we received a plant of this species from Italy, which was distinguishable at a glance from any of the others. It was smaller in all its parts, apparently more shrubby than herbaceous; its leaves were more distant on the stem, sepals twice as long, and flowers much paler, petals obovate with a distinct mucro at the apex, a good character by which to distinguish it. It grows in the river beds near Drap, north-west of Nice; also in France, Spain, and Dalmatia. It flowers with us in July and August. It is more tender than *L. flavum*, as it gets destroyed in severe winters.

L. FLAVUM.—This is a true herbaceous perennial, introduced by Mr. Curtis about the year 1794 from seed supplied to him by Mons. Davae, of Orbe, Switzerland. If we mistake not, it was comparatively little known in gardens until Mr. Wolley Dod, with his usual generosity, distributed it among his friends. It is almost impossible to confound it with the species represented in the plate, so different are they both in habit and behaviour from one another. *L. flavum* dies down to the ground in winter and produces in spring many herbaceous shoots from the crown; it is, if anything, harder than *arboreum*, never appearing to be disturbed by frost either early or late. It also produces seeds with more freedom, and these scattered round the base of the parent plant germinate the following spring, although they rarely if ever show flower before the second season. It is so easy to establish that we have now a large patch of it, which has a beautiful appearance all through June, July, and August, and even in favourable seasons well into September. We have also increased it from cuttings taken early in spring, but although we get them to flower about July it is always at the expense of the parent. This appears to be the best of the yellow perennial Flaxes for ordinary border culture; it should, therefore, be extensively grown and even naturalised. The fact of the seeds germinating in the open is an almost sufficient guarantee that it would succeed, provided it was given an open, sunny position, facing, if possible, the south. It does not flower freely in shade; its habit is upright and from 1 foot to 2 feet high; its leaves are smooth and hardly distinguishable from those of *L. arboreum*, except perhaps that they are a little broader in the unflowering branches and of a decidedly darker green colour. Don's distinction that the leaves of *L. flavum* have two glands at the base, while the other has none, does not appear to hold good in the specimens before us, both having the so-called glands. The flowers are produced in loose panicles, each being about an inch in diameter, deep or golden yellow. It is a native of Central Europe and Caucasus. In some gardens it is called *L. luteum*.

L. GRANDIFLORUM.—This is an annual species and remarkably handsome; indeed, with the exception of the large-flowered form of the common Flax, this is one of the very best in the genus. It should therefore find a place in all seed orders, as among all the annuals grown few equal it in gracefulness, and certainly none surpass it as regards brilliancy of colour. It should be sown in spring along with other annuals in a deep rich, sunny border. It may by successive sowings be had in bloom from May until October, and even during November and December if sown late in pots and grown in the greenhouse. It rarely exceeds 1 foot in height. It is profusely branched, and the stems are covered with small entire glaucous leaves. The flowers, which are about 2 inches in diameter, are produced in great profusion, often as many as twenty being on a single branch. They vary in colour in the different varieties from crimson to brilliant scarlet. The most striking varieties of it are named *coccineum*, *rubrum*, *roseum*, and *splendens*. It is a native of Algiers.

L. MONOGYNUM.—Among perennials of the *L. perenne* class this is the one most suitable for pot culture. If raised from seed in spring and grown on, plants of it would be ready to flower in summer, when their delicate white flowers would be greatly appreciated. It is, however, perfectly hardy, and whether in the mixed border or overhanging ledges in the rockery it is equally at home. Plants of it grow from 1 foot to 18 inches in height and produce many erect, smooth round stems, loosely and profusely branched at the top, and terminated by large white flowers $1\frac{1}{2}$ inches in diameter. It may be increased either by means of seeds or cuttings which flower in May and June. It is a native of New Zealand. The variety *candidissimum* is much finer than the type; its flowers are larger and its habit neater. Another white-flowered species, but with quite a different habit, is *L. salsaloides*. This is a prostrate growing plant, reminding one of the creeping *Phloxes* of the subulata type. It is said to be perfectly hardy.

L. NARBONNENSE.—Among blue-flowered Flaxes this is by far the best, its flowers being considerably larger and finer coloured than those of any of the numerous forms of *L. perenne*, the species most commonly found in collections of hardy plants. It does well in an ordinary border, where it bears a profusion of flowers all through the summer months. It might also be introduced with advantage into the flower garden, as it would not only supply a colour much in demand for bedding purposes, but also be permanent, a consideration too often overlooked. It rarely grows higher than the common zonal *Pelargoniums*, and



Linum sibiricum.

in habit it is all that can be desired. It also makes an excellent cover for dry, gravelly banks, where, apparently heedless of the poorness of the soil, it flowers with remarkable freedom. Its stems, which are numerous, are little over 1 foot in height, and are produced from a woody stock. Its leaves, which are narrow, are lance-shaped, shiny, and minutely denticulate at the margins, and without glands. The flowers, which are borne in a loose corymb, are large and of a beautiful sky blue, with distinct violet-blue veins. It produces seeds freely. It is a native of Southern France and Italy, where in elevated sunny places it flowers from May to July. It was cultivated by Miller as early as 1759.

L. PERENNE.—Too much can hardly be said in praise of this and its varieties as decorative plants. They are useful alike for border and rockery, and most valuable on account of the comparatively little trouble which they give the cultivator. They would form an interesting bank in the wild garden, where they might be left to take care of themselves. Of this species there are many varieties, all varying in colour; among the best are *Lewisi*, *Milleri*, *altaicum*, *austriacum* (Hort.), and *roseum album*. *L. sibiricum* is a large-flowered form, freer, and with a somewhat neater habit than *perenne*. Its flowers are intense blue, and seem to last much longer than those of the type. It is a native of Siberia, where it flowers all through the summer months.

L. TRIGYNUM.—This, now placed in the genus *Reinwardtia*, takes, as is well known, the form of a shrub, and although treated generally as a stove plant, it does well under greenhouse treatment. The best and freest flowering plants seem to be those produced annually from cuttings. These are taken off about April, placed in a gentle bottom heat, and when ready, shifted singly into small pots. They should be grown on in heat and shifted as required. During summer they should be placed near the glass in an airy house and vigorously syringed, as they are extremely liable to be infested with red spider, which plays sad havoc with the leaves. The flowers are about the same colour as those of *L. arboreum*, but much larger and perhaps more numerous. It is a native of the East Indies. In the conservatory at Chatsworth we have seen large bushes of it loaded with flowers, each about as large as a crown-piece.

L. VISCOSUM.—This is a comparatively scarce plant, notwithstanding its having been repeatedly introduced, and proved to be hardy where not too much exposed. In its native habitats it is said to be one of the few plants which linger on in flower until winter sets in, and even in December we have seen flowers on it. It is plentiful along the coast from Genoa to Nice, although chiefly found in the sub-mountainous regions. On rockwork, where we have it doing well on a sunny exposure, it forms quite a striking feature. Its flowers are almost as large again as those of some of the others, and they are extremely pretty. They appear also to be more durable than the majority of the other species. It never, with us, attains more than 1 foot in height. Its stem is woody, and it produces numerous compact branches. Its leaves, which are broad, are lance-shaped, from three to five-nerved, and clammy to the touch. They are slightly hairy and without glands at the base. The flowers are in corymbose racemes, pink veined with purple, but vary in the different forms. It may be increased by means of cuttings. It is a native of the southern parts of Germany and Italy, and flowers from June to August. D. K.

NOTES.

FIRST DAYS OF SPRING.—March came in like a lion, but now on this its twentieth day all is soft and warm in the old garden. Birds twitter and warble cheerily, and the melodious hum of bees in the *Crocus* flowers reminds one of a homily from Chrysostom. Nature is quivering with delight as a million buds throb in the sunlight, and new life is present everywhere in new-born leaf or opening flower. What a mystery is this return of spring, with its growth power everywhere irresistible. A pulpy Mushroom may lift a flagstone from the pavement or a hog's head to the cellar ceiling, but who shall tell us of the power exerted on our very lives by the white purity of the Lily or the blushing of a Rose? It has been well said that the "beautiful is always useful," and I wish we could say that the converse was true, viz., that all things useful were always beautiful, but this is especially true of flowers, of all the living things of the garden. The Greeks were right in their way after all, for it is only the earth mother who is really good and kind. Increasing in blossom, heavy with fruit, overflowing with beauty, or rejoicing in meadow sweetness, or in charm of flower. This sunny day is just the time in which to read Orpheus' "Hymn to the Earth," seeing that every morning finds the garden more lovely, rebutterflied as it is with the brightness of many blossoms. The *Crocus*, *Aconites*, and *Squills* have had the victory so far, but now *Queen Daffodil* takes up her golden reign once more, which is from *Crocus* till the time of *Iris*—flowery May.

THE DAFFODILS.—We have had three or four really mild showery days followed by warm sunshine, and so the golden *Daffodils* held in check

so long by snow and frost have bounded into flower quite suddenly. *N. minimus* and *N. pallidus præcox* indeed bloomed in the intervals between frost and snow, and even when bowed down to the earth betimes they rose again whenever a thaw came but little the worse for their humiliation. Now many kinds appear, *N. nanus* in variety, closely followed by true *N. minor*, a much less common plant, and to-day (March 20) *N. obvallaris*, *N. spurius coronatus*, and *N. spurius* (Irish var.) open their flowers together. Our first double variety this year is *Barnaart's N. albo-aureus* or silver and gold double, which is similar to *N. Telamonius fl.-pl.*, except that it is more distinctly a double bi-coloured kind, and very effective as seen in a mass. *N. eystettensis*, or *Queen Anne's Double Daffodil*, is later than usual this season, it being generally our first double variety to bloom. *N. maximus* is also late and does not as yet show colour, although in former years it and *N. nanus* have opened their flowers together on the same day. Nothing has given our visitors more pleasure this season so far than a choice collection of *N. triandrus* and *N. Bulbocodium*, made on the Gerez, near Oporto, by our kind friend Mr. Octavius Corder, of Norwich. So lovely and variable are they, that one longs for a berth on a fruit boat, and for a holiday spent in hunting for *Narcissi* on the coast hills of Portugal.

CHIONODOXA SARDENSIS.—This is a charming companion for the larger *C. Lucilia*, and some may think it equally beautiful. In habit it resembles *Scilla bifolia* even more nearly than does the last named, but no words could well give any idea of its starry, gentian-blue flowers, in the centre of which a white eye is formed by the flattened filaments as they converge around the ovary. It is so distinctly different from *C. Lucilia*, that both kinds should be grown. For massing or planting in groups near to an edging of *Pyrethrum*, or, better still, near stones on which the golden *Stonecrop* grows, this little bulb would be most lovely. It has been figured in *THE GARDEN*, but no printed or otherwise illustrated page could ever show all its fresh intensity of vivid colouring.

ANEMONE APENNINA.—The *Apennine Anemone* is one of the most homely and beautiful of all spring flowers. Even before it blossoms its young leafage forms a lovely carpet for *Snowdrops*, or winter *Aconites*, or early *Crocus* flowers. But when its little meadows of purple-tinted leaves become clouds of soft lilac-blue stars, no words could paint its loveliness. Now and then one may see outlying shrubby borders, or the mossy, open parts of woodland walks thickly fringed with this plant in all its beauty, and the sight is one not easy to forget. It has the advantage over many beautiful *Anemones* in growing and increasing rapidly, the smallest broken bits of its thick roots making plants, and it does not seem very particular either as to soil or situation, growing alike in sun and in shade; but the flowers retain their freshness best in shady places. Wherever the common white wood *Anemone* is at home there should *A. apennina* receive also a hearty welcome.

A CROCUS GARDEN.—I have just seen a little town garden, its beds on turf and its long borders near the walks lined and edged with a perfect blaze of *Crocus* flowers. The colours are golden yellow, purple, and white, and in contrast with the fresh turf they are most lovely. The idea grew out of a sight its owner once saw in Venice—formal, brick-edged little courtyard-like enclosures which are often alive, as it were, with *Crocus* and other bulbous flowers in spring. With their exquisite love of colour, one does not wonder at the Italians admiring and cultivating

one of the loveliest of all the wild flowers of their native land, but the question is whether we make such a good or extensive use of the *Crocus* as we might do in our gardens here at home. The common purple and yellow garden *Crocuses* grow well and increase fast nearly everywhere, and when once seen in really bold lines or masses, they give a brilliancy quite foreign to that of any other bulbous flower. In the same garden are other *Crocus* of many kinds, *C. Boryanus*, with its silvery stars; *C. Balansæ*, the painted buds of which are very lovely; *C. Olivieri* and *C. aureus*, with flowers of richest orange, and many others one need not name. On light, warm, sandy soils a little plot devoted especially to the species and garden forms of *Crocus* might be one of the features of a place from October to March or April.

AN OLD GARDEN.—These notes are written from an old garden near the sea, where the climate is, as a rule, very genial, and the soil is a deep alluvium here inclining to sand and there inclining to a stiff loam, so that, as a general rule, nearly all hardy plants live and not a few luxuriate within its walls. The walls are so placed and the trees have been so planted that the place seems much more extensive than it really is, and it follows also that it contains many sheltered nooks and corners, some in fullest sunshine, others in densest shade, so that the right place for a worthy plant can generally be found, and another result gained by the trees and walls is that some sense of inequality of surface is afforded, although, as a matter of fact, the garden is as flat as a billiard table or a bowling green. Glossy-leaved *Magnolias*, *Wistarias*, *Passion flowers*, *Clematises*, and *Roses* fringe, cover, and festoon the sunniest walls; Ivy, ever variable, ever beautiful, drapes those in shaded positions; while in the deep rich borders many choice hardy plants are quite at home, and bulbous flowers are more or less beautiful every month in the year. It is a garden of lovely blossoms and fragrant leaves, a place fraught with the joys and at times sad experiences of a past century. It is a place for bright and happy things, bees, birds, and butterflies, trees and flowers, a place also where the wisest may read and learn from Nature's ever open page.

DOUBLE-FLOWED SPARMANNIA.—*Sparmannia africana* is, or used to be, a well known winter-blooming warm greenhouse plant or shrub. Cuttings of it rooted now in a genial bottom heat and afterwards stopped and potted on make fine little blooming plants in less than a twelve-month. Apart from its usefulness and beauty it has other interests. It was brought from the Cape on Captain Cook's return from his second voyage round the world. So much for history. Botanically, it is remarkable for its sensitive stamens. If the central brush-like cluster of stamens be touched in the sunshine of a warm day they expand gradually from the centre outwards, or in a way the reverse of those of the *Berberis*, which close inwards on being touched. A year or two ago a double-flowered form was introduced from the Continent, and in this variety the stamens are wholly or in part represented by narrow or strap-shaped petals. If placed along with light green leaves of the *Banksian Rose* one might imagine a cluster of this *Sparmannia* to represent the flowers. Mr. Hartland, of Cork, sent me a cluster of flowers the other day, and although I regret the doubling of any beautiful single blossom, I am the more interested in this one, because, although the stamens have become petaloid, yet they have not lost their sensibility, but expand on being touched just as do the normal red stamens with their tips of gold. The only advantage which can be claimed for this, as

for other double blossoms, is that they endure fresh and fair longer than do the single ones. It is quite as easy of culture as the type; and one result of the advent of this new form will, it is to be hoped, be to remind people of the old species.

GENTLE RAIN.—Gone for a time are the snow, the frost, the north and easterly winds; gone, too, those clouds of March dust, which may be worth a king's ransom, but do not improve the beauty of our early flowers. Gone all these, and now down falls the ever welcome and gentle rain, softening the earth and liberating the up-struggling, earth-imprisoned blossoms; here a mass of white Squills with pearly buds and starry flowers, there a rare Snowdrop; here a stout stem of Lily, or Crown Imperial, a painted Crocus, or a dainty Daffodil. At this time of the year we can scarcely have too much rain; the ground under shrubs and trees where bulbs are planted, is really very dry, notwithstanding the melting snow, and then in every garden there are hungry little mouths by the million to be fed, and to them the rain is new life indeed. These gentle, mist-like rains seem to act like a subtle charm on the opening buds and slender stalks, and a burst of sunshine really works wonders; it is the one touch of Nature's alchemy, so much needed by the frailest blossom, so totally beyond human aid to supply. The rain of yester-e'en and this morning's sunshine have opened a thousand—nay, ten thousand—blossoms; the bees are busy and happy, the birds are glad, and so are the silent flowers.

SPRING FLOWERS.—These are now growing up very rapidly, thanks to a few genial days. I see the vivid hues of the Hepaticas as they push up their woolly heads from among the mossy stones. The golden gleam of Crocus is everywhere now in dense warm masses that seem to glow like a fire, or in long distant lines beneath the trees where they shine like distant rows of lamps at night in some great thoroughfare. The Crimean Snowdrop and the two species of Chionodoxa are alike lovely; even a few late-planted Aconites are yet fresh and beautiful, and so also Iris reticulata. Here by the sunny wall is a great tuft of browning grassy leaves, on which two days ago no one would have wasted a second glance or a thought. Now it shows its great lilac-blue blossoms nearly as big as Cattlea flowers, quite as lovely, infinitely more sweet. It is an old tuft of Iris stylosa which you may find by the wells, or in damp, stony places in Algeria, and one of the most lovely of all the flowers of winter or early spring. The Greek form also grows here with narrower foliage, but it has not as yet flowered. Everywhere there are Daffodils big and Daffodils little, single and double, so that for a month or six weeks we shall have flowers in plenty.

VERONICA.

Caper blossom.—A friend who has gone to Rome for the Easter festivities writes most enthusiastically of the Violets and Anemones that grow there in enormous quantities. Formerly I remember the Ranunculuses which grew in the gardens of the Vatican were something marvellous, but roots obtained from thence as a great favour did not seem to do so well elsewhere. One of the most lovely blossoms of its season, however, is that of the Caper bush, which clusters and hangs itself from the old walls and ruins of the Celestial City. Capparis spinosa is now and then met with in our gardens; still more rarely a plant in a pot in the greenhouse, or even outside on a sunny wall, will produce a few blossoms, but in Rome it is most luxuriant, and big bunches of it may be pulled for indoor decorations. The effect of a mass of its flowers and glaucous leaves is peculiar, just like a mass of pinkish white Azalea blossoms if arranged along with Honeysuckle leaves. A close examination, however,

reveals the irregular petals, and the pinkish purple ovary borne well out in front of the flower on a long slender stalk strikes one as peculiar. This plant affords the true Capers of commerce, and must not be confounded in any way with the Caper Spurge (Euphorbia Lathyris) of gardens and waste places. Like the Oleander, the Caper bush enjoys full sunshine, and as seen at its best is a very beautiful plant.—F. W. B.

WORK DONE IN WEEK ENDING MARCH 23.

MARCH 17.

FOURTEEN degrees of frost this morning, followed by a day of bright sunshine, the temperature in the shade rising to 57°, the first time it has been so high for nearly three months. Such extremes of weather are doing much to quite destroy the already seriously crippled Broccoli, Cottagers' and the old Curled Scotch Kale being the only kinds of green vegetables that are not damaged, but simply retarded in growth pending the advent of genial weather, of which this evening a lowering barometer and a temperature of 44° seem to indicate as not very distant. Ivy clipping on mansion, also clipped the points of long shoots of a number of Thujopsis borealis, Thuja gigantea, Irish Juniper, Retinospora squarrosa, and of several other Retinosporas, the motive for doing this being to encourage a dense and uniform growth, that snow or high winds can have no impairing effect on by bending, or causing the side branches to break away from the mainstem; on the other hand, caution has to be exercised not to clip them too hardly as to produce a shorn appearance. Irish Yews and Junipers do not require cutting; the outer branches of these we keep closely tied in to the main stems, and all of these that needed it have had that attention this day. The weight of snow had bent open and broken here and there a small branch, and of course the latter were cut right right off. Indoor work has been potting off and propagating bedding plants, tying down to trellis shoots of early Peaches and thinned fruit; one tree was slightly affected with greenfly, and rather than fumigate the whole house for the sake of this one tree all that could be seen was destroyed by hand, and afterwards the tree was dusted over with tobacco powder. Put in manure frames another batch of Asparagus to force; very fortunately we had a quantity of roots lifted before the severe frosty weather set in, as also of Seakale, so that we have been able to maintain a regular supply of these vegetables, and never were they more appreciated; and for this reason that we have really no other fresh vegetables. Of Carrots, Parsnips, Jerusalem Artichokes, and Salsafy, we have plenty, but they have had to be used so frequently that they are not now valued.

MARCH 18.

The change to milder weather has really come at last, and this evening we are having a spring-like rain. The day has been mild and fine, and after cleaning up the remainder of litter from Ivy cutting, &c., all hands went to work at getting soil out of sheds for the purpose of top-dressing mid-season and late vinery borders. Our mixture is loam, charcoal, wood ashes, and half-inch bones, but having heard good accounts of Thomson's Vine and plant manure, we have this season added a portion of this instead of the bones. Before applying the dressing the old mulching is taken away, and the loose soil swept off with a whalebone broom, and if the roots are not then visible—as a rule they are—forks are brought into use to break the surface till the roots are reached. This soil is also taken right away, after which a suitable layer of new soil is put on and covered with a fresh litterly mulching. I ought to add that as nearly all our borders are inside ones, the opportunity is taken, when they are being top-dressed, to test them as to what is the state of the soil by digging to the very bottom a small hole in two or three parts of the border, and soon as top-dressing is finished, they are watered accordingly, and we are especially careful to have the soil well moistened through before the houses are closed up for forcing, and in this respect we have no difficulty, because we never let the borders get what may be termed very dry. All our vineries will now be started, except Lady Downes, and this would be were it not that necessity compelled us to

have the Grapes hanging on the Vines longer than usual, so that they have hardly had their usual amount of rest. This they will be allowed, and be forced with sun heat a little harder soon as thinning out of the berries is finished. Put the last of the Chrysanthemums in cold frames, and if this mild weather continues abundance of air will be given, and the plants be allowed plenty of space to bring them up sturdily. Vine eyes, struck in a pit filled with Oak leaves for bottom heat, have been shifted on to front stage in plant house, for though we strike them in a slight bottom heat, we prefer to grow them on without it, for though the roots may not be so numerous as they are when grown in heat, they are much more to be relied on, as the great bulk of the succulent bottom-heat-formed roots perish during the winter; but the others, being more wiry, retain their vitality; consequently start and grow well the next year, either as pot Vines or planted out. More than once I have been the victim of failure from bottom-heat-grown Vines, which, after a first spurt or growth of from 3 feet to 6 feet in length come to a standstill and ripen prematurely. Partially disbudded second Peaches and wholly disbudded third set of Vines.

MARCH 19.

Magnificent weather; vegetation already rejoices, by its improved appearance, in the change, and that we ourselves do goes without saying. The rain of last night only amounted to five-hundredths, so that it did not hinder our completing the top-dressing of Vine borders. Sowed Radishes, Lettuce, and Turnips. Peas, that a week ago looked as if they could not recover the ill effects of frost, are green as Leeks, and not a bit the worse for the long spell of cold. We have cleared away the sheltering branches, and they are now being properly staked. Brussels Sprouts, though not killed outright, might as well be, and as the ground will be useful for Potatoes, we have started to double-dig it, and as it was highly manured for the sprouts, none will be needed for the Potatoes. Apples are getting low, which is the cause of our having to day put Seakale pots over the earliest crowns of Rhubarb, and on the remainder of forcing Seakale we have put heaps of coal ashes on plot as growing. Pricked out at foot of south wall a quantity of Lettuce and Cauliflower that were sown in Potato forcing frames. Cauliflower plants in hand-lights are crippled past recovery, and our first supplies will be from plants now in frames, and which will be planted out as soon as our confidence in the continuance of this better weather is established. Meantime, the ground, having been trenched, is now having the final preparation by lightly forking in a dressing of ash, the product of refuse of fire-heaps, and which is at once a good manure and slug-preventer. Raked with coarse wooden rakes the ground for Onions and Parsnips. It is high time these seeds were in, but our ground is too wet to work nicely, so we shall wait a few days longer. Moving bedding plants from warm houses to cold pits, the space in houses being wanted for seedling sub-tropical plants that are now being potted, such as Castor-oils, Hems, Eucalyptus, Ferdinandas, Solanums, Cannas, and Ferulas. Forced flowering shrubs, such as Rhododendrons, Deutzias, Spiræas, and Ghent Azaleas, all of which are required for cut-flower purposes, we have shifted from warm vineries to latest Peach house to retard the flowers, and other batches of the same kinds are now started into growth in frames. Tulips, Hyacinths, and Crocuses now come on sufficiently rapid in frames, and to those in full flower we give the fullest amount of air to preserve their beauty for the longest period. Thinned out fruit and Strawberry plants. In order to have a constant succession of ripe fruit at this early season we have to make use of every available shelf in the warmest houses, the Strawberry house proper being wholly devoted to plants in various stages of growth from first introduction to setting of fruit. The temperature by night never exceeds 60°, but by day, with sun-heat, it is allowed to go up to 75° or 80°, and in the early part of day air is freely given, and just a little is left on all night.

MARCH 20.

There was another shower in the early morning followed by a fine, mild day. Continued kitchen gar-

den work, such as digging ground for Potatoes, sowed a couple of rows of Broad Beans, made firm autumn-sown Onions that were planted previous to the sharpest weather, and which the frost had loosened; Cabbage plants we sowed the same; and hardy edging plants, *Herniarias*, *Sedums*, and *Saxifrages*, that we propagate in our kitchen garden borders, had the roller run over them to consolidate the soil about the roots. Rolled all the gravel walks—they had got a little soft to the tread by the action of frost, but the roller has made that all right. During the prevalence of the severe weather neatness about the houses seemed next to impossible because of overcrowding and having to put in cuttings, &c., in the houses; but to-day we have had a real clean up and rearrangement. Watered Pines and got soil ready for commencing potting first and second succession batches on Monday. Tied out shoots in early *Hamburgh* and *Muscat* vineries as they are in flower; pinching is discontinued till the fruit is formed.

MARCH 22.

Very mild, though dull, but as regards our work the dulness was an advantage, for being busy shifting and potting Pines we were able to stick to the work, there being no hindrance in respect of airing, syringing, watering, &c. Some few of the fruiting plants required a surface dressing of soil, the same mixture as for potting being used, which consists of loam of medium texture with all the fibre in it, bone meal, and charcoal. We prefer to apply manure in liquid form, and this we now use at every watering, and to all plants except those newly potted, the youngest stock, and rootless suckers. A liquid made with cow manure and soot and strained through a fine sieve is that we prefer. The bottom heat of all our Pine beds is obtained by means of leaves and a small proportion of stable litter, which ensures the more speedy heating of the leaves. The bottom heat of all the pits is now being thus renewed. Fruiterers are plunged as thickly together as they will stand, but successions in full growth are given plenty of space. The great bulk of the heating medium being leaves, it rarely happens that the heat gets too violent, but by way of caution the pots at first are only plunged to about half their depth, being plunged to their rims soon as the heat has become steady. With increased bottom heat, the heat of fruiting house will now be kept at from 65° to 70° by night and 10° higher by day, and beds, walls, and floors be syringed twice a day, namely, in the early morning and at closing time. Successions will have same treatment, except that the temperature will be from 5° to 10° lower. The moving of plants and renewing of material in all Pine pits has to-day fully occupied our entire staff.

MARCH 23.

Another grand day, with sunshine included. Finished potting and rearranging of Pines, a few suckers excepted, which can be done at leisure. *Muscat* Grapes being in flower, and some of the shows being overshadowed with foliage, it has been tied aside to let sunlight on to the branches, and at mid-day the canes are given a slight shake in order to disperse the pollen. If the weather should turn out dull, we shall go to the trouble of going over each bunch with a camel's-hair pencil; sunshine and warm air do the work far better than any kind of artificial aid, but these are not at our command. Latest indoor Peaches have opened their blossoms as if by magic. When the warmer weather began (on the 18th) the merest tinge of pink was visible; now they are nearly full blown, and the bees are enjoying them immensely; hence there is no fear but that the fruit will set successfully. The ground worked well this afternoon, and we have got drills drawn for Onions and Parsnips; the first named are 13 inches apart and the latter 15 inches. If it continues fine the seeds will be sown to-morrow and covered in by hand—rakes for that purpose we abominate, for no matter how carefully the rake may be used, some of the seed is sure to get pulled out of the drill, and at best the covering is unevenly done. We have made a start at doing up herbaceous borders; a dressing of well-decayed manure has been spread over the borders, and a careful worker is digging it in, whose instruc-

tions are to look before he steps, that the plants may not get more damaged by treading than by a chop through by digging. Plants that are to be increased by division have all been marked by placing sticks against them, that portions may be cut off with a edging iron as the digging proceeds, and when this is complete, we have a quantity of *Lilium auratum*, *Gladioli*, *Hyacinthus candicans*, and *Tigridias* to plant in parts that are least furnished. HANTS.

FRUITS UNDER GLASS.

VINES.

SOME years have elapsed since late Vines were so backward as they are this season, and as yet, March 16, there is no immediate prospect of an improvement in the weather. *Muscats* are pushing slowly, *Lady Downes* make very little sign, and so long as sharp frosts prevail by night and dull days intervene, I shall not attempt more than the maintenance of a minimum temperature of 50° until the progress of the buds obliges me to do so. When this stage is reached, it will of course be necessary to raise it to 55° with fire heat and to 65° in the daytime, when a little air may be given to change and sweeten the atmosphere, but not to lower the temperature, as 70° to 75° should be touched whenever we have mild weather, a clear atmosphere, and bright sunshine. Although the temperature may continue low, incessant firing will dry the atmosphere to a greater extent than is usual at this season; and as vigorous canes rarely break well under arid treatment, the syringe must be freely used until every bud is on the move, when the rods may be tied up to the wires and heavy syringing must be discontinued. Atmospheric moisture must, however, be had, and every ray of sunlight secured to help the Vines through the race against time apparently lost; and although it is now too late to introduce a body of fermenting material, much good may be done by littering down the internal borders with well-worked, but otherwise fresh, stable manure, which may be frequently moistened with hot water, by filling the evaporating pans with warm diluted liquid, and closing a shade earlier than usual on fine days. No advance should be made on the night temperature, as that would enervate the Vines and unfit them for the proper performance of their functions when the bunches come into flower and all their strength will be needed. Succession houses will now require disbudding, tying, and regulating, in accordance with former instructions; then will follow the operation of fertilising, and finally that of thinning. As many of these intermediate structures contain mixed collections or selections of Vines, including *Hamburghs*, *Madresfield Court*, *Muscat*, *Foster's Seedling*, *Buckland Sweetwater*, and perhaps a Vine each of *Gros Colman* and *G. Maroc*, cross-fertilisation on fine days will be necessary. If the weather admits of the use of the syringe and this method is in favour, some little time will be saved; but foreign pollen being generally considered most applicable to shy-setting varieties, the camel's-hair brush should be introduced when the pollen is ripe and buoyant and the temperature has reached the maximum.

Thinning.—This is a tedious operation and will take up all spare time for the next three months, but it must not be shirked, neither must it be allowed to fall into arrear. It should therefore be taken in hand as soon as free setters are out of flower and the best bunches can be decided upon. Proverbial shy varieties can then be left till last to give them time to declare themselves, as some bunches will make a spurt at first but fall behind afterwards. A very important operation will, however, precede the thinning of the berries, and this, it is hardly necessary to say, is the thinning of the bunches. It has been said that every gardener should get his neighbour to cut off his superfluous bunches, but this is hardly logical, as it is impossible for a stranger to decide upon the number of bunches certain Vines are capable of carrying to maturity. Assuming, then, that every man is his own physician, by the time he becomes a master Grape grower, all he has to bear in mind is the fact that many have regretted leaving too heavy a crop, but few have gone wrong by giving the Vines the benefit of a doubt where fine bunches have been unusually plentiful.

Quantity, however, as well as quality in these days must be secured, and Grape growing then is a comparatively unremunerative business; but much may be done by keeping the borders thoroughly up to the mark of high excellence, by copious feeding at the right time with moderate stimulants, and last, but not least, by planting fewer Vines and encouraging the growth of long rods and plenty of foliage. Early houses in which the Grapes have finished stoning must now be looked over for the last time, and if any of the bunches are likely to bind, no time must be lost in giving relief by taking out a few of the smallest and internal berries while the performance of this delicate operation is possible. If space admits lay in a few of the leading laterals where any part of the trellis remains uncovered, and allow weaker growths in other parts a little freedom, provided they do not touch the glass, to favour the full development of the berries. Water to internal borders must now be freely administered, and short, fresh stable manure, which has not been robbed for the Mushroom house, may also be used as a mulching. Repeat the waterings as the Vines advance, also fill the evaporating pans and damp the floors with warm diluted liquid until the berries begin to change colour, when pure water will suffice during the time they are ripening. Let the temperature range about 68° at night, give air at 75° on fine days, gradually run up to 80° and close in time for the mercury to touch 85° with plenty of moisture on fine afternoons. The chink of air through the night is, of course, well understood; but hitherto it is to be feared it has been the exception to a valuable rule. Not so the appearance of spider, for it has had a jubilant time, and will make itself seen and felt if the usual remedies are for a single day neglected.

Pot Vines.—Follow the directions just given in the management of pot Vines, whose crops are now swelling or colouring. Add fresh top-dressing to the pots as often as the old is washed away, and give them good, but not over strong, liquid manure at every watering. Ply the syringe freely about the bare stems, walls, and surfaces to keep up the proper degree of moisture, and let the temperatures given above prevail for the present. Shake out and repot late cut-back Vines, and shift on others similarly treated last month as soon as they require it. Also look to young Vines struck this year, but do not be in too great haste with them, as they always make a dead stand after they have exhausted the sap stored up in the eyes. When roots are formed and fresh growth sets in, give a small shift into light, rich, and warm compost and return them to bottom heat for the present. If internal borders are to be planted with young Vines struck in sods of turf, the compost should soon be placed in the house, as it is important that a temperature of 70° at least is secured from fermentation before the young Vines are removed from the bed on which they have been struck. If autumn-cut turf is used, let it be chopped up with the spade, add crushed bones, old lime rubble, or other correctives, and pile it up into a long narrow ridge on the top of the drainage. Keep the house close and dry, and add a good lining of fresh stable manure to one or both sides of the ridge, not only to start fermentation, but also to charge the new compost with ammonia. When the Vines are ready for planting remove the sods containing the roots with a tan fork, place them in position, cover lightly, water home with water at a temperature of 90°, and mulch the surface. Keep the house close and moist for a few days and shade from bright sun if absolutely necessary. Vines so started do not, however, often flag, but start away freely and make fine fruiting canes the first season.

PEACHES.

Tying in and thinning in the early house will now require constant attention. If extension-trained trees have not set well quite up to the points of the leaders, now is the time to shorten back should the proper balance of the trees render this proceeding necessary. My own and others which I have seen have, however, set unusually well, and the fruit requires much thinning. Such being the case, the question arises, what is the cause of this unexpected event? It cannot be the result of brilliant weather, as this has been the coldest and most unsuccess-ful season on record. It cannot be the abundant supply

of fresh air, as the external temperature never touched 40° during the time the trees were in flower. Where, then, must we look for the cause? Why, simply to the long spell of magnificent weather which prevailed during the time the wood was ripening up last year; to the hot, dry period which paralysed all the Brassica tribe in our gardens and roasted the Pea blossoms as they opened. There we must look for the secret of fruit setting, to the bright, light days which enabled us to throw all our sashes open and compelled us to keep the hose pretty well constantly going over the borders, and, much as we may value fine sunny weather when the blossoms are open, we must become convinced that the first, if not the greatest, essential to a successful set of fruit is thorough maturation of the wood of the preceding year.

Watering and syringing.—Although we have not had much sun, fire-heat has been constantly on the pipes, and the supply of moisture from the syringe has been below the average. The result of these two extremes may not yet be felt, but it will be if timely attention is not devoted to counteracting agencies. These, it is hardly necessary to say, are copious supplies of warm water, stimulating or otherwise, to the roots, and liberal syringing with pure soft water once or twice a day, according to the state of the weather. If the roots have not been mulched, a covering of some kind should now be placed on the borders; for old trees it may be good rotten manure, for young ones short stable litter may suffice. Whatever is used, it must be kept constantly moist, for the twofold purpose of drawing young roots to the surface and keeping the atmosphere regularly charged with moisture, not only through the day, but through the night also. A change having at last set in, we may now expect weather that will help us to regain that which we have lost, and soon the earliest started trees will approach the stoning period, but until that trying stage has been got over no attempt at hard forcing must be thought of. Once stoned, Peaches may be pushed rapidly along, but the gain of a week or two is often dearly paid for in the premature ripening of pale, flavourless Peaches, whose only recommendation is their extreme earliness.

Succession houses.—Follow up disbudding, heeling in, and thinning the fruit in succession houses, and keep the trees clean by liberal syringing for spider and fumigating on a calm evening should green fly put in an appearance. Disbud with a free hand, as it is a great mistake to lay in more wood than is actually wanted to furnish the trees with foliage and the production of a crop of fruit another year. Let the temperature range from 55° to 58° on mild nights, run up 10° to 15° by day with air, and close early with moisture to save fire heat and late direct syringing.

Late houses now in flower must be freely ventilated with gentle warmth in the pipes on dull days. When bright and fine, solar heat may not be needed, but it rarely happens that a little artificial warmth with an extra supply of fresh air does not favour the setting of the fruit. Look well to external borders in which Peach trees are growing, and see that they do not feel the want of water. We do not often find it necessary to water on our heavy calcareous soil, but this has been an unusually dry winter and we have occasionally been obliged to lay on the hose in the month of April when the rainfall has been light. Under any circumstances, a good watering can do a well drained border no harm, and a covering of fresh stable litter for the maintenance of an equable temperature and the retention of surface moisture is absolutely necessary. Syringe all late trees every bright morning until the flowers are ready to expand, then fumigate and have gentle fires made on dull or frosty evenings. The trees in Peach cases are more backward than I have seen them for several years, but they are looking well and promising, having no doubt been greatly benefited by the bright tropical days followed by cool nights which prevailed with us for eleven weeks last season. Having had so much frost, we may reasonably hope for a good time when the trees in these structures are in flower, but our climate is fickle, and caution should be the watchword until the fruit is out of danger.

STRAWBERRIES.

If early forced plants have not left a legacy of spider behind in Peach houses and early vineries the difficulties attending the successful management of this excitable plant will now be over. There will, of course, be a great number of pots of the leading midseason and late varieties in various stages of growth, but these will now set freely in pits with a minimum of fire heat and a maximum of air, or perhaps without fire heat at all. They will also swell and ripen in these structures if lateness and shaking hands with the early crop from the open air is the object. If, on the other hand, a portion of the plants must be taken into heat for keeping up the supply of fruit, the removal of every alternate pot or row, as previously advised, will be found the best mode of procedure. The plants left to ripen their fruit in the pits should then be thinned either before or after the crop is set, the trusses tied up to light sticks to give the ripening fruit the benefit of sun and air, but on no account should the pots be disturbed, as the crotch roots will now be working through the plunging material. As days increase in length and the sun gains power the lights may be thrown off occasionally to give the fruit and foliage the benefit of soft refreshing showers; but this source must not be depended upon for feeding the roots, as the foliage will prevent very heavy rains from penetrating to any great depth below the surface. Good diluted liquid must therefore be carefully supplied to the roots, and the foliage well syringed when the pits are closed on bright days. Early forced plants intended for turning out in warm borders for autumn fruiting have had a bad time; in many places it is to be feared they have been hardened off in a rude and rapid way. If they were dipped and turned out of their pots into soil or leaf mould in cold pits they should now have daily exposure to prepare them for planting out without delay.

FIGS.

If the fruit on early started trees has not yet commenced swelling for ripening, the extra heat and moisture which this favourable change has rendered necessary will speedily produce the desired effect, when more light and air will greatly increase the colour and flavour. Trees in pots, as I have often observed, should always be encouraged to extend their roots over the rims of the pots into the half-decayed vegetable matter in which they are plunged, for the double purpose of securing them from sudden checks and increasing the size and flavour of the Figs when they begin to ripen. Good feeding and copious syringing play a very important part in the swelling of the fruit, but when the most forward fruits change colour a somewhat drier atmosphere and more air become necessary. The first can be secured by gradually abating the heavy afternoon syringings; the second, by stopping all gross shoots to induce breaks for the second crop and the removal of side shoots and useless spray, as the latter only produce shade and impede circulation. If not already done, gradually increase the night heat to 65° with a chink of air, shut it off for the morning syringing, reopen the ventilators at 75°, and run up with sun heat to 80° or 85°, at which figures the air temperature should stand until a decline indicates the time for closing.

Eastnor Castle, Ledbury.

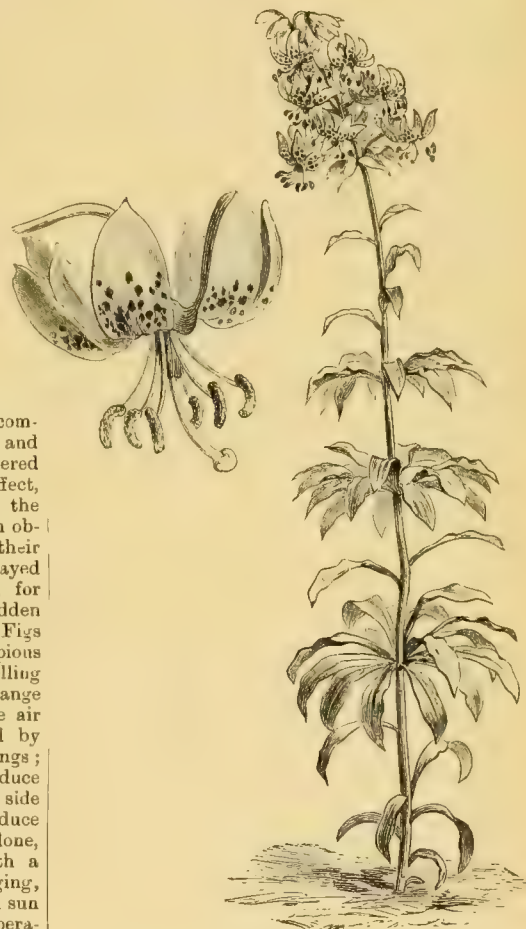
W. COLEMAN.

The colours of pollen.—I was not struck by the smallness of range in the colours of the pollen of our ordinary plants until very recently. I always looked on it as white, yellow, or reddish brown. But on Sunday, the 21st inst., when looking with delight at a number of hive bees working on a bed of *Scilla sibirica*, I noticed their thighs laden with masses of blue pollen. The effect was very pretty, but strange, and at first rather startling; so much so, that I had to look closely to convince myself that they were bees. I wonder if they shall be similarly decorated by any other flowers which they may visit until approaching winter releases them from their labours.—FREDERICK TYMONS.

FLOWER GARDEN.

LILIUM HANSONI.

This Lily is a native of Japan, where it was discovered by Maximowicz in 1860, but some years elapsed after that before it was introduced, and even at the present time it is not at all common. Mr. Baker places it in the sub-genus *Martagon*, its nearest ally being the type of that section (the common Turk's-cap Lily). A good deal of confusion existed at first as to the distinctive characters of *L. Hansonii*, it having been regarded by some as synonymous with *L. maculatum* and *L. avenaceum*, or, at all events, but a variety of the last. An increased acquaintance with it, however, proved its distinctness, and it was then named *Hansonii* by Mr. Baker, in compliment to Mr. Hanson, of New York. The general appearance of *L. Hansonii* is well shown in the accompanying illustration, other prominent features



Lilium Hansonii.

not there discernible being the firm, solid bulb (which is more in the way of that of *tigrinum* than of *avenaceum*), the massive wax-like petals, and their bright orange colour, dotted more or less profusely towards the centre of the flower with deep purplish brown. It is an extremely handsome Lily, and whether in pots or in the open ground it does not decay after flowering in the way in which some of the other Japanese Lilies do. It seems to be perfectly hardy; at least, I have had it out of doors for some years in the south of England without injury; strong cold winds sometimes damage the young foliage, but never prevent the blossoms from opening. This Lily is one of the first to appear above ground, and very bright and cheerful looking the

young growth is. For pot culture this Lily is well suited; I have a few potfuls of it which have flowered each season for these last five years, and very beautiful they are and without that heavy smell which is common to many of the Martagons. The bulbs are potted in peat, loam, and sand, and kept in a cool house. As soon as the flower-stems show signs of decay the bulbs receive a shift and root-action at once recommences vigorously; therefore the pots are full of good healthy roots by the time imported bulbs reach this country. This Lily is sometimes included in mixed collections of bulbs sold by the Japanese to Europeans, as are also *Krameri*, *odorum* and *Leichtlini*, but the bulk generally consists of such kinds as *auratum*, *longiflorum*, *tigrinum*, *speciosum* and *Thunbergianum*, or *elegans*. In the sub-genus *Martagon*, to which *L. Hansonii* belongs, are included several other species, natives of various parts. The principal are *L. avenaceum*, so called from the upper portion of the scales, which divide readily from the lower, bearing a strong resemblance to Oats. The bulb is loose and easily broken; indeed it is constitutionally very delicate, and I have never succeeded in keeping it for any great length of time. True, it has flowered, but only the first season after importation. When the flower-spikes decayed many of the bulbs were found to be rotten at the base; though this did not happen in the case of all of them, yet even the best did not flower again, but gradually dwindled away. The flowers of *Hansonii* are a kind of reddish orange, but both in colour and spotting they are very variable. *L. Martagon*, the commonest representative of this class of Lilies, is well known, being widely distributed and generally met with, especially in old-fashioned gardens. The flowers of the type are of a dull purplish hue; indeed, it is more remarkable for its beautiful whorled foliage and elegantly reflexed blossoms than for their colour. The principal varieties are *album*, pure white; *dalmaticum*, very deep blackish purple; *Cattaniæ*, a paler form of the last; and the double sort, which some ten years ago was sold in large quantities at the various auction sales, but which now seems to have got again comparatively scarce. The *Martagon* group includes, moreover, many of the North American Lilies, viz., *L. canadense*, *pardalinum* (the Panther Lily, a fine vigorous easily-cultivated kind), *superbum*, *columbianum*, and *Humboldti*. The Caucasian Lily (*L. monadelphum*, *colchicum*, or *Szovitzianum*) is another of this class, and withal a beautiful Lily, especially when planted in good stiff soil and allowed to remain undisturbed. The flowers are borne in a pyramidal-shaped cluster on stout erect stems, and in colour vary from very pale sulphur to deep primrose. Some are quite plain, while others have the petals thickly dotted. Though so imposing outside, the heavy fragrance of this Lily is almost unbearable in a confined space. The brightly coloured pomponium, *pomponium verum*, *chalcidionum*, and *tenuifolium* are all included in this class, as well as *L. testaceum*, *Leichtlini*, *carniolicum*, *Wallacei*, *Batmanniæ*, and the Himalayan *L. polyphyllum*, though in general appearances some of these kinds differ widely from each other. H. P.

The Tiger flower (*Tigridia Pavonia*).—This, although one of the most striking of flowers, appears to be but little grown, and yet bulbs of it are not only cheap, but of easy cultivation, the only conditions necessary for success being a light, warm, freely drained soil, and if the bed or border is of this character and in a partially shaded situation, they are sure to do well. The proper time to plant is towards the end of March or early in April; the bulbs should be placed about

6 inches apart and 3 inches deep, and it is a good plan to throw over and around each a pinch of sharp sand; they may then be covered with the soil and left to themselves; they will require no further attention till they begin to show bloom, at which period they will need watering if the weather is dry. Some leave their *Tigridias* in the ground all winter, but though they may be safe in exceptionally favoured spots, they are not so in others. The better way, therefore, is to take them up, and store them, the right season for doing this being as soon as the tops ripen and die away naturally. The bulbs may then be dug up, put into paper bags or flower-pots, with fine dry earth or sand, and placed out of reach of frost, there to remain till the time comes round for planting again. The propagation or increase of the plants is readily effected by means of offsets, which the bulbs produce freely; all we have to do is to take these away and plant them somewhere in a rich, sharp, light piece of ground, and grow them on for a year till they are strong enough for using in beds. *Tigridias* may also be raised in quantity from seeds, which the plants produce abundantly, and these should be sown in pans or boxes early in spring and placed in gentle heat; they then soon germinate, and in May will be large enough for planting out in the open. Of varieties there are several, amongst which the most showy are *T. Wheeleri*, *T. splendens*, *T. grandiflora*, and *T. grandiflora alba*, the latter being creamy white, heavily spotted with carmine.—J. S.

PRIZES FOR PRIMROSES.

Judging by the prizes offered for Primroses in pots at the coming *Auricula* exhibition as compared with the tender and delicately-nurtured *Auriculas* themselves, and even the Gold-laced *Polyanthuses*, it would seem as if the Primroses were held in poor esteem. Whilst, for instance, 37s. 6d. are offered for three Gold-laced *Polyanthuses*—and long experience has shown that these offer little to look at—the lower sum of 30s. only is offered for twelve Primroses; and here experience has shown, too, that these latter give about six times as much to look at, and are, moreover, far more interesting. Relatively, therefore, in the estimation of the promoters of this *Auricula* exhibition, beautiful hardy Primroses are small fry indeed.

In spite of the long and bitter nature of the winter season, which has done so much harm to hardy plants out in the open, none have come out of the ordeal with more freedom from injury than have the hardy Primroses, and, not least, but a day or two of milder weather have been needed to bring these true spring flowers into bloom. What sort of a figure these choice and delicate *Auriculas* and Gold-laced *Polyanthuses* would have made after passing through such an ordeal may well be imagined; and the only reason which can be given for the divergence found in the value of the prizes as commented upon, I presume, is that Primroses, although so early and so beautiful, can take care of themselves, whilst the other things cannot. That does not, however, show that real hardiness, endurance, and hence general usefulness, are held in high esteem by florists. If anyone having an ample stock of these hardy Primroses desires to have a pretty show under glass, they have but to lift a dozen or two, pot them, and place them in a cool greenhouse, in a frame, or even in a window, and in a week or so they will be amply rewarded for the trouble taken. Really it is difficult to find more beautiful spring flowers than these are, for they give us infinite variety of colour and marking at a season when little else but the earlier *Crocuses* and *Snowdrops* are in bloom. That the hardy garden Primrose is so very early to bloom cannot be too strongly emphasised, because early bloom is scarce and when found especially accept-

able. It is well to be in time in striving to obtain a stock of plants, and seeds should be got and sown immediately so as to secure the largest possible season of growth. I am just now dibbling out Primrose plants from seed sown last autumn. Ordinarily, the season will admit of the seedlings being dibbled into beds outdoors in the autumn, but the drought of last year rendered that plan unsafe, and the seedlings were dibbled into frames for the winter, and being now put out will make very strong plants to bloom early next winter. It is a distinct advantage in dry positions to have the seed sown the moment it is fully matured, for it not only germinates the more readily in consequence, but by enabling the plants to go out in the autumn also affords them stronger root-hold to stand the drought of the following summer than would be the case were they dibbled out in the months of May or June. It is just possible that at the coming *Primula* conference something may be said as to the development of the *Polyanthus* form of blooming from the Primrose, &c. We have known these forms under the designation of hybrid Primroses. Practically fifty per cent. of all garden Primroses and fancy *Polyanthuses* raised from seed now have this habit of producing both Primrose flowers on single stems, and clusters of bloom of *Polyanthus* forms later. The development is the natural result of constant seeding and raising young plants, and shows that the divergencies which exist between Primroses and *Polyanthuses* are more assumed than real. Cross-breeding has had little, probably nothing, to do with the results. It is a pure case of development caused by cultivation, and admits of no mysterious explanation. The development is a distinct gain, as in all cases the Primrose blooms come earlier than *Polyanthus* blooms ordinarily would do. A. D.

ALPINE PLANTS.

This has been a winter of bitter experiences, and many will be our losses. The use of a frame for rare alpine plants has been shown this year in a most marked manner. It is but three days since frost departed and spring arrived, and I find our alpine frame already quite bright with flowers, whilst on the open rockeries, where almost every plant is duplicated, there are very few flowers to be seen beyond *Hepaticas* and *Snowdrops*. In the long frame, which is about 40 feet by 6 feet, and from which the glass is entirely removed in fine weather, the following plants are in flower to-day. Of *Primulas* we have *P. denticulata*, *pulcherrima*, *calycina*, *minima*, and *marginata*; *Hepatica angulosa* (in two varieties, one from the Austrian Tyrol being especially good, the flowers measuring 2 inches across, and the colour quite as dark as *Anemone blanda*, which is also in bloom near it), *Hepatica rubra* (three varieties, and white two varieties) and *Barlowi*, *Soldanella montana*, *Draba cuspidata*, *Saxifraga sancta*, *Burseriana*, and *B. major* (both crowded with flowers), *S. oppositifolia* and major *oppositifolia splendens* (Backhouse's variety, a grand plant), and *Rudolphiana* (another beautiful variety of this most beautiful group of *Saxifragas*), *Cyclamen ibericum*, *Chionodoxa Luciliiæ*, *Anemone blanda*, *Gentiana verna*, *Leucojum carpathicum*, *Lithospermum prostratum*, *Scilla taurica*, *S. sibirica*, *S. bifolia*, *Galanthus Elwesii*. These make a goodly show, and I think they are all better furnished with bloom, especially the *Saxifragas*, than I ever had them before.

It is interesting to note that all the Indian *Primulas* have stood the frost well. They are well furnished with buds, and are quite unscathed by the frost and snow. Coming as they do from the lofty Himalayas, a hard winter hurts them less than a mild one. The *Hellebores* have suffered greatly; all have lost their foliage; and the *Lenten Roses*, which should now be in their glory,

cut but a sorry figure. Where they have been covered up with cloches the flowers have escaped, but they are in poor form. It promised to be a good season for Hellebores before the frost came, and I never saw them look more promising, but they cannot stand a long frost, although hardy. All our Wallflowers are dead, and many reputed hardy plants besides. I never remember seeing the garden wear so dreary an appearance. The three days of warm weather have, however, brought an awakening, and you may almost see the flowers grow. I am sure the Crocuses, Leucojums, and some other flowers grew 2 inches daily.

Brockhurst.

WM. BROCKBANK.

Chionodoxa Luciliæ alba.—Mr. E. Whittall, of Smyrna, sent me bulbs of *Chionodoxa*, which he had collected upon the mountains there, and amongst which he expected the white variety would be included. These bulbs are now commencing to bloom, and there are two already which are new varieties. One is after the manner of Mr. Ware's variety, noted in your last (p. 252), being of a beautiful violet shade, grading to white in the centre. The other is a clear porcelain white, and is a very beautiful flower. Mr. Maw informs me that he found three specimens of this pure white variety on or near the summit of the Tactalic Dag, near Smyrna, and that these flower with him at Broseley each year, so that it is not a new discovery. It has stood out on my rockery the whole of this hard winter, and is now beautifully in flower. Indeed, the *Chionodoxas* seem to be more vigorous this year after weeks of frost and snow than I ever remember to have seen them. Hard weather evidently suits them. Mr. Whittall sent me at the same time a large lot of *Scilla bifolia*, which is also abundantly in bloom. We could see the blue buds peeping through as the snow thawed, and the moment it was gone they burst out into bloom. The home-grown *Scillas* are only just above ground, but these Smyrna-ripened bulbs are in flower long before them.—WM. BROCKBANK, *Brockhurst*.

The weather in the midlands.—Here, in Yorkshire and Derbyshire, we have now had just about three months of deep snow accompanied by severe frosts. The snow only disappeared once for about a day and then fell deeper than ever. I never knew so much snow to fall and remain with the barometer in such an unsettled state. A high barometer with a north or north-east wind usually foretells snow; but during the present storm the falls have taken place when the thermometer was low, and sometimes very low, and any signs of thaw we have had came with a high barometer. Yesterday and to-day (18 and 19) a thaw has set in, which will probably last if the wind remains south-easterly, but the prevailing winds during the storm have been from the north and north-east—hence no doubt the long storm. No work whatever has been done in the garden or farm since the storm began, and as the severe weather has been universal throughout the midlands and north at least, work is in a very backward state. First, second, and third sowings of many crops will have all to go in together when the weather improves. I observe that one of your contemporaries has, as usual, saddled the "Gulf Stream" with the responsibility of the severe weather, but I don't think that much-abused current has anything to do with it, because the storm has come from the opposite side of the world—so far as winds are concerned, while from the west coasts of England and Europe there are no reports of any abnormal alterations where the Gulf Stream influence is felt. The theory seems to be that the late frosts in Florida which killed the Oranges cooled the Gulf Stream cauldron also, and hence our snow and cold; but, unfortunately for this view, the cold was here as soon as it appeared in Florida, or sooner, and as the Gulf Stream only travels at the rate of about five miles an hour, the cold snap should have reached us much later than it has done. Some think the great current is being unduly chilled from the other end. At all events,

our cold and snow have come principally from the direction of Siberia, from which the winds have blown steadily, the only warm blinks having come with fitful, short-lived west winds now and then. To-day is the 19th of March, and yesterday we had again the snow plough out with four horses clearing the roads to the stations and elsewhere. Where the snow has blown the wreaths are several feet deep, and of the most fantastic shapes.—J. S. W.

INDOOR GARDEN.

WATERING WITH COLD WATER.

THE necessity for watering indoor plants with water raised to the temperature of the house in which the plants to which it is to be applied are grown is a matter generally accepted as settled, and one inculcated by the oldest authorities. Under the old school of gardeners, if a young hand had been so inconsiderate as to give cold water to early Cucumbers, Melons, or other things subjected to a high temperature, he would have been severely reprimanded. Nor would anyone suppose that cold water given to the roots or applied overhead to soft tender plants, like Cucumbers and Melons, in winter or spring could have other than a backening influence, if nothing worse, unless it could be shown that it had a reactionary effect. But the question is not so much what would be the effect of cold water on plants such as those named at a time of year when the difference between the temperature of the structure in which they are grown and that of water from outdoors is the greatest, but of plants that are less delicate, yet, nevertheless, grown in artificial heat, either on account of their requiring it or by reason of their being forced, and which in common with the plants already named are generally looked on as needing warm water. Orchids, which from their nature are much dependent during the season of growth on water, and on account of their value usually have their wants studied more than most things, with few exceptions are supplied with water somewhat alike in temperature to that of the houses in which they are grown. But it has been proved in a way that admits of no question that Orchids can be not only grown, but grown well, though cold water and none other is given them either at the roots or overhead. The first instance of this kind that I know of, and with which many others are no doubt acquainted, was at Messrs. Loddiges' Hackney Nurseries, where a large collection, including the hot East Indian species and the cooler kinds from the western hemisphere, were, I understood, all watered with a hose attached to the water company's pipes. When I first saw them, some thirty-five years ago, the collection was remarkable for the strong, robust growth which the plants had made, a condition which the prices they sold for soon afterwards went to prove, one of their Vandas realising 200 guineas. Within the last few years, Messrs. Low, of the Clapton Nurseries, have adopted the hose system of watering their immense stock of Orchids, comprising all kinds from the hottest to the coolest species. Anyone who was in the habit of seeing these Clapton plants when the ordinary means of watering was followed, and have seen them since the hose came into use, will have no difficulty in seeing the improved condition of the collection. Possibly the improvement may be owing to the plants now getting as much water as they require; whereas when pots and syringes had to be depended on it was a difficult matter to get through the work where such quantities have to be attended to. But, however this may be, enough is shown to prove that the use of cold water has no ill effects on Orchids where they receive reasonable treatment in other respects. How it might act on them subjected to the semi-boiling in airless, overshadowed houses, such as often used to be practised, it is hard to say; but it would not be likely to remedy the evils consequent on the mistaken treatment named. Orchids from the texture of their bulbs and leaves and the natural endurance of these are less likely to suffer from what

one would suppose would be the chilling influence of cold water than some plants, amongst which may be instanced such as are forced with a view to their flowering in winter or early in spring.

Mr. Ladds, in the acres of houses wherein are grown Gardenias, Stephanotis, Roses, Tuberoses, Bouvardias, Spiraes, winter flowering Pelargoniums, and numbers of other things that, like the two first mentioned, are stove plants, or the others which require forcing to have them in bloom in winter, uses cold water from the company's mains to all alike. Mr. Ladds, like others who grow for market, tries to have his Gardenias, Stephanotis, and other flowers in as early as he can get them, as then they fetch better prices than when more plentiful, and consequently would be likely to use tepid water if he found the cold retarded the blooming of the plants very much. So far as their health and general condition goes, the plants in question speak for themselves.

HARDY PLANTS forced in winter are proverbial for the tenderness of their foliage, and amongst the different things so treated there are few so delicate in their leaves as Tea Roses when subjected to heat such as will induce them to bloom in January and February, at which time Mr. Ladds cuts thousands of blooms, the plants meanwhile being watered at the roots and regularly overhead with the hose pipe, and the water applied with as much force as the leaves will bear without their being bruised. To those of us who have always been in the habit of using tepid water at all seasons to plants grown in heat, the sound of the hose pipe playing amongst the tender leaves is enough to produce a chill, whether the plants feel it in this way or not. But even if they do, there is no appearance of their disliking it. One would suppose the most likely effect of cold water applied to plants subjected to hard forcing would be to somewhat retard their flowering; for instance, such things as *Dipladenias* that have been headed down, shaken out, and repotted in autumn, with the consequent loss of some of their root fibres, if to be well in bloom by the middle of May, in the way I used to have them when exhibiting, they require whip-and-spur treatment in the matter of heat. It would be alike instructive and interesting to know if these and other things submitted to a very high temperature would have their flowering appreciably retarded by the use of cold water to both roots and tops. Had I now the opportunity of trying its effect on these and other heat-requiring plants, I should set one or two of a kind apart for the experiment. Most likely the result to be looked for is that different plants would be differently affected. Yet of this there is no certainty.

In the cases I have named, and others where the use of cold water has been adopted, there is no doubt that it has been through the quantity of plants to be dealt with being such as to make it impossible to supply them with it tepid. Where large quantities of plants are grown in heat it often entails a good deal of extra work to give them water that is of a like temperature to that of the houses in which they are located, and unless especial provision is made for having a sufficient supply at all times ready, it is sometimes difficult to meet the requirements. If those who have an opportunity of testing the matter would do so by using cold water to a few of the different kinds which they cultivate, and state the results, they would do good service. It is needless to say that in trying anything of this kind those who proceed cautiously act wisely. In the cultivation of plants, for all purposes, useful as well as ornamental, no greater mistake can be committed than acting on the principle that because such or such a plant will bear, or not bear, some particular treatment, that the same holds good with all. It generally, indeed, turns out to be the reverse, and notwithstanding that the various plants grown at the places mentioned thrive well under cold water treatment, it would be wrong to jump to the conclusion that like results would follow its use to plants of all descriptions when grown in heat.

T. B.

MARCGRAAVIA PARADOXA.

THE remarkable Aroid known in gardens under the above name was introduced into England by the late Dr. Seemann, who sent it from Nicaragua about fifteen years ago. In the early stages of its growth it bears some resemblance to the West Indian *Marcgraavia umbellata* (syn., *M. dubia*), and to this resemblance is due the widely erratic name under which Seemann's discovery has been distributed. In the *Revue Horticole*, M. Carrière changes the name to *Scindapsus anomalus*, probably because of its similarity to *S. pictus*. But the genus *Scindapsus* is not found anywhere in the New World; nor will the nervation in this so-called *Marcgraavia* agree with what we find in the true species of *Scindapsus*. Until the plant flowers, therefore, it had better remain under the name Seemann gave it. A comparison of it with the genus *Monstera* makes one suspect it belongs to that genus, which is found in Tropical America, and whose leaf characters are similar to what we have represented in the annexed figure. *Marcgraavia paradoxa*, in its juvenile form, has leaves like oyster shells arranged distichously along the flattened stem which clings firmly to a wall or tree trunk by means of its numerous stem-roots, exactly as we see in the Ivy. As the stem lengthens the leaves become larger, till on attaining a height of about 15 feet it develops large pinnatifid leaves, like those represented in the figure as growing supported by a stick. In the Aroid house at Kew, a plant of this *Marcgraavia* bore the pinnatifid leaves on the stem still clinging closely to a wall, so that we should not be correct in attributing this transformation in leaf characters to the same cause as we do a similar change in Ivy and *Ficus repens*. Many species of *Philodendron* have the same character as is here shown to belong to *M. paradoxa*; thus *P. laciniatum*, in the mature or flowering stage, has large pinnatifid leaves; whereas when young its leaves are small and heart-shaped. *P. tripartitum* is distinguished by its leaves being divided into three lobes, so deeply as to appear distinctly trifoliate, but when in a juvenile state its foliage is simple and lance-shaped. In the genus *Monstera*, too, the same dual character is observable, one species, viz., *M. dimidiata*, being very similar in nervation as well as in general habit to our *Marcgraavia*. The climbing *Anthurium*s do not appear to have these two forms of foliage, for on cutting back the above-named *Philodendrons* and *Monstera*s, the first few leaves on the new lateral shoots thus made to grow were similar to what we find on young plants (i.e., oyster-shell-like); whereas the same operation when performed on the digitate-leaved *Anthurium*s resulted in the new leaves being precisely similar to the mature form. The Aroid known in gardens as *Pothos aurea* is another striking instance of the wide difference between the leaves of the young and of the old plants, the former being ovate and about as large as the palm of the hand, whilst the latter are very large, 18 inches or so long, and deeply pinnatifid. This plant is a native of the Solomon Isles, and is probably a *Raphidophora*; certainly not a *Pothos*.

Mr. Darwin has suggested that in many climbing plants there is often striking evidence of Nature's economy in the peculiar habit of growth or leaf-characters they reveal, and in the case of these climbing Aroids it seems not unlikely that the leaves are small and press closely to the trunk of the tree against which they climb so as to escape browsing animals or other enemies to their attaining full size and developing flowers. Their stems are so herbaceous and easily broken that if they hung at all loosely they would be almost certain to get snapped.

In *Marcgraavia umbellata* we have a very attractive form of what we may term dimorphic growth, the branches being somewhat flattened, and by means of roots growing quite close to a damp surface, so that even the oval-shaped leaves cling as though glued down; whilst in others the branches are rounded, rootless, and bear long lanceolate-pointed leaves. At Kew there are some very good examples of this strange plant, and



Marcgraavia paradoxa, showing its two stages of growth.

on one of these we saw a branch of the lance-leaved form returning again to the small-leaved clinging habit, although it was not near anything to which it could cling. In Tree Ivy a similar reversion to the climbing form is not uncommon. Perhaps the only exception to this rule of reverting back to the first habit under favourable circumstances is in *Ficus repens*. As everyone knows, this plant, under certain conditions, develops from a round-leaved, rooted-branched, clinging habit to that of a rambling shrub with leaves 4 inches or more long. This is supposed to be the fruiting stage, and is but rarely met with. But the interesting point about this plant is that the large-leaved or fruiting form retains that character wherever it is grown and is apparently permanent. We have frequently tried to get it to revert back by striking cuttings of it, but have never succeeded.—W. W.

Tuberoses.—If these are planted in succession from the end of December till June, a supply of

blossoms may be had from May till November; or if planted out in May, in a sunny situation in well prepared soil, they will produce flowers from August to November. The bulbs should be potted firmly in rich loamy soil in 4-inch pots. They should be placed on a bottom heat of 65° and kept dry, but not dust-dry, until roots have made some growth; then give water freely, and increase the temperature from 70° to 80°. When full of roots repot into 6-inch pots, and place them near the glass. After the bloom spikes appear place them in a cooler house, in which they will grow from 2 feet to 3 feet or more. They must be well syringed and amply supplied with liquid manure. I have had good blooms from 4-inch pots. The African sort ripens much sooner than the American, consequently is better adapted for early forcing; the flowers are the same.—E. C.

ANDROMEDA JAPONICA FORCED.

For flowering under glass this *Andromeda* may either be grown wholly in pots, or lifted from the open ground in autumn and potted at that time. Owing to its roots being in dense masses it may be lifted at almost any season of the year without injury, but if done in autumn the whole of the growth will have been completed, and consequently the plant will be in just the best condition for removal. The soil best suited for the *Andromeda*, whether in pots or in the open ground, is such as that in which *Rhododendrons*, *Azaleas*, and that class of plants delight, and, like them, it needs a fairly moist, rather than a dry spot in which to grow. When out of doors the flowers are, as a rule, injured by late spring frosts, and consequently the plant is not so attractive as its more hardy North American relative, *A. floribunda*, but under glass the gracefully drooping flower-spikes stamp it as by far the more beautiful of the two. A prominent feature belonging to this shrub, whether out of doors or under glass, is the rich red hue of the young shoots, a colour which is retained for a considerable time. For cutting this shrub is very valuable, the flower-spikes being devoid of all stiffness or formality, and if gathered just as the blossoms are beginning to open they remain in beauty a long time; indeed nearly all flowers are the better for being cut before they are fully expanded if required to last long in a cut state.

A. japonica, which, by the way, is also known as *Pieris japonica*, is not amenable to forcing in the same sense as *Lilacs*, *Deutzias*, and such plants, a very gentle heat being all that is needed just to advance the flowering season a little. It is seen to the greatest advantage about the present time, the beauty of its blossoms being still further heightened by contrast with the wintery appearance of all outdoor shrubs. With regard to the propagation of this *Andromeda*, I may say that it strikes root readily, so that fact taken in conjunction with its other merits should ensure its being extensively grown. The best cuttings are furnished by plants that have been under glass, as they root quicker than those obtained from the open ground. Young shoots should be taken for the purpose just when they commence to get firm; after removing the lower leaves they must be dibbled firmly into well-drained pots filled with very sandy peat. They must then be kept close till rooted, which will be in about six weeks or a couple of months, according to the temperature

in which they are kept. Cuttings that have grown in a greenhouse strike best in an intermediate temperature, though I have rooted them just as well in an ordinary cold frame, but, of course, they take longer time. The compact-rooting character of most Ericaceous plants fits them well for lifting from the open ground and flowering in pots for indoor decoration. Among them may be noted Rhododendrons, Kalmias, Azaleas, and a few others, especially *Zenobia speciosa* and its variety pulverulenta, whose pretty white drooping flowers are very different from those of any of the other occupants of the greenhouse. The *Pernettyas* are also charming plants in winter and early spring, but in their case it is the berries that are showy. They are also well suited for potting for greenhouse decoration, as the berries are then protected from birds, frost, and heavy rains, all of which tend to mar their beauty. There are now a great many varieties of the *Pernettya*, the fruits of which range in colour from deep purple to almost white.

With regard to *Andromeda japonica*, I omitted to mention that there is a variegated variety of it, the leaves of which are edged with white. Judging by small plants of it, it seems to be less vigorous than the type. ALPHA.

Tree and other Carnations.—"J. D." tells us that the cuttings of Tree Carnations should not be exposed to the atmosphere of the house, but should be under a glass light. Permit me to say that I had twelve pots of cuttings put in about three weeks back, and fully exposed to the atmosphere of the house; they are looking remarkably well, and are just beginning to grow. A few days later I had twelve more pots put in in the same house under a glass light, and I am sorry to say they look so bad, that a few days ago I ordered them to be thrown away. In our first Melon house I have about 200 struck and doing well. Now, I may say that I don't for one moment disbelieve "J. D.'s" statement, but is not this a curious coincidence? One gardener loses all his cuttings by putting them under closed glasses, while another finds them to succeed best exposed to the atmosphere of the house.—R. GILBERT, *Burghley*.

5470.—Conservatory climber.—For a north house nothing can be better than red and white *Lapagerias*, which do so well in a cool shady position. An important point is to set out strong plants, as when very small ones are put into a comparatively large body of soil, they often refuse to make good growth for some years. If small specimens in 4½-inch or 6-inch pots are obtained, it is better to shift them on till they become well established in 8-inch pots before planting them out permanently. *Lapagerias* may be grown in pots if fed well from the time they come into a root-bound condition and get good attention in the matter of watering, but they naturally flower more freely when the roots can work in a larger body of soil. If a border is made for them it should be 3 feet wide and quite 18 inches deep, placing several inches of drainage at the bottom, and some fibrous material on that to keep it open. A good compost consists of fibrous peat with all dusty matter taken out of it, and about a fourth of turfy loam, quite one-sixth of the whole of coarse silver sand and a little crushed charcoal. Such a mixture retains its porosity until the roots obtain full possession of it. Now is a good time to plant.—J. C. B.

SHORT NOTES.—INDOOR.

Violets.—"D. T. F." I see looks upon Marie Louise with a smiling face, which it well deserves, for it is a queen amongst Violets. I have Comte de Brazza and Swanley White in pots just now coming into flower, and in their present state I see no difference whatever between them. I have them both close up to the glass in one of our little pet Peach cases, and I shall watch them narrowly and report the result.—R. GILBERT, *Burghley*.

Forcing Lily of the Valley.—I had some Valley Lilies taken up from the garden and placed in bottom heat of 110°, merely covering them with a little cocoa fibre. They were 23 days in coming into bloom; but all the flower buds came perfect at one and the same time. I think covering them with an inch or two of fibre is a great advantage.—W. A. COOKE.

ORCHIDS.

CYPRIPIEDUM CONCOLOR VAR. REGNIERI.

THAT interesting section of dwarf-habited Lady's Slippers, in which there are already such gems as *C. niveum*, concolor, and the recently introduced *C. Godefroyæ* has just received a valuable addition in the shape of a very free-flowering and showy form of concolor, named by Prof. Reichenbach Regnier, in commemoration of M. Auguste Regnier, its discoverer, who last year lost his life in collecting plants in Cambodia. Like other species belonging to this section, *C. concolor* Regnier is remarkable for its prettily marked foliage, which is readily distinguished from that of *C. niveum* and concolor on account of its size. It is 1½ inches in width and about 7 inches in length, the habit of the plant being dwarf and spreading. The flowers, which, as regards form and colour, are certainly near those of *C. concolor* of Parish, are produced in abundance. The specimens of it which up to now have flowered, though small, have all produced at least two, and in some cases three, flowers on the same spike. Now, in the other known species the flowers are solitary, or perhaps now and then in pairs on the same stalk. In the present case the flower-stalk, instead of being, as usual, erect and undivided, is provided with several horizontal ramifications, which no doubt will produce flowers and become more numerous as the plants gain strength. These are not produced as in the *Selenipediums*, or in succession as in the *Sedeni* section, nor even as in the curious *C. Parishii*; on the contrary, they are disposed in a new and singular way, and being borne upon slender stalks a few inches above the foliage, they possess a degree of attraction unequalled in the section. On the first plant of this Lady's Slipper flowering with M. Godefroy-Lebeuf, portions of it were immediately sent to Prof. Reichenbach, who, though unable to recognise it as a new species, described it as a new and distinct variety, and gave it as his opinion that it is one of great promise; and so it is, if only as the forerunner of a race of plants having a peculiar and novel way of producing their flowers, for the plants which were lately in flower at Argenteuil, although small and having only one growth, were all provided respectively with two and three, and even four, flowers borne on one branched spike. I am, moreover, assured that the remains of four, and even five, flowers on a spike were visible on dry specimens, but unfortunately the collector being dead we have no means of verifying the truth of this latter assertion, which, however, does not appear incredible, considering the size of the plants now in flower. Had the weather been less severe we should ere this have seen this interesting plant in flower in this country. The flowers are larger than those of *C. concolor* generally, and the dark purple spots which ornament them, although not so large as those of *C. Godefroyæ*, are quite as numerous. The variety with three flowers now to be seen at Argenteuil is of a pale buff-yellow, while the plant sent to Prof. Reichenbach was altogether of a brighter colour. We have no doubt that this variety of *Cypripedium concolor*, which is a native of the mountains of Pursat, in Cambodia, and which requires stove treatment, will be greatly appreciated by all lovers of Lady's Slippers, to which it is an excellent winter-flowering addition. Since writing the above I have received a note from M. Godefroy-Lebeuf stating that among the plants in flower with him one has an inflorescence bearing four well-developed flowers and buds.

S.

SHORT NOTE.—ORCHIDS.

Bletia gebina.—This plant is quite hardy in Japan; it is a great favourite there as a window or room plant. It is commonly lifted and potted even when showing its bloom-spikes, and returned to the garden when blooming is over. The native drawing accompanying some roots which we had of it shows it to be a handsome and striking plant with strong tall spikes of very fine rich purplish crimson flowers. HOOPER, *Covent Garden*.

Phalænopsis amabilis.—At the Bristol Spring show no exhibit attracted more attention than a plant of this lovely Orchid, shown by Mr. Nicholl, gardener to Mrs. Miller, Bentry House. It had seven large healthy leaves and a very strong, branching flower-spike, on which there were upwards of thirty expanded blossoms and several more to follow. To show the value of this Orchid I have only to add that the same plant and flowering spike was exhibited at the Bristol Chrysanthemum show late in November last, and that, since that time, it has developed one hundred blooms, sixty being open at one time. I was also informed that it was an imported piece bought at an auction sale at Bristol about three years ago. When well grown there is no more serviceable Orchid in cultivation than this *Phalænopsis*, and I should say there are not many to surpass it for beauty.—W. I.

Orchids at Lawrie Park.—Besides a host of every day Orchids in bloom, Mr. Dorman's collection at Lawrie Park abounds with choice and rare kinds, a few among them being the following: *Cymbidium eburneum* Dayanum, a distinct variety recognised by the lip being margined and blotched with rose-pink. There is a grand specimen of it bearing nineteen flowers. *Lycaste Skinneri* alba is in bloom, and also a fine variety of *L. plana*, which, by the way, is not such an unhandsome species as is generally supposed. Among the *Dendrobies* there is a superb variety of the hybrid *D. splendissimum*, the lip being unusually dark. The fine new *Maxillaria Sanderiana*, shown for the first time at the Orchid conference, is coming into bloom, and its second flowering is regarded with some interest. The very rare *Oncidium undulatum* is in flower. The spike resembles that of *O. macranthum*, and a distinctive feature of the flower is the two lateral petals, which have a broad band of white, lined with purple stripes. Among the cool Orchids, *Odontoglossum crispum* Dormanii has produced large spikes. It may be best described as a heavily blotched form of the guttatum section. There is a noteworthy specimen of the scarce *O. maculatum* Donnianum, which is so much superior to the type. *O. adpersum* and some grand forms of *O. triumphans* enliven the *Odontoglossum* house. The *Cattleya Trianae* have been uncommonly fine this season, and among the multitude of forms there are still some exceptional kinds in bloom, notably those named Mrs. Dorman, with pure white petals like a *Mendeli*, and *Arthurianum*.

Hybrid Dendrobiums.—Mr. R. H. Measures has just given us an opportunity of comparing the flowers of three hybrid *Dendrobies* respecting which some confusion exists among orchidists. There are *D. Ainsworthii*, *splendissimum*, and *D. Leechianum*. We cannot say absolutely that there is no difference between them, but we consider that they are not sufficiently different to justify distinctive names. Writing with the flowers before us, we notice that *splendissimum* has a subtle tinge of sulphur-yellow in the flower, particularly in the lip; *Leechianum* has the largest flower; and in *Ainsworthii* the sepals are not stained with rose, except in the variety roseum, which is also sent. This form is very distinct from the rest, and beautiful in having the lip more heavily blotched, and in the sepals being suffused with a deep lilac-mauve tint. These are the differences we see in the flowers themselves; the plants may vary somewhat in growth and time of flowering, as we all know *D. nobile* does, which is one of the parents of all three hybrids. The differences in the parents have, no doubt, been transmitted to the progeny, and this accounts for the slight variation. It is singular that three hybridists should have intercrossed the same species and obtained results so nearly alike. Accompanying these, Mr. Measures' gardener sends us, from The Woodlands, Streatham, flowers of various other *Dendrobies*, the most noteworthy of which are *D. Dalhousianum*, one of the oldest, yet still among the handsomest, of all the *Dendrobies*. The flowers measure 5 inches across, the sepals are tinged with buff, while the great shell-like lip is adorned with two blotches of port-wine colour. There is also that rare little variety, *D. crassinode album*, *D. primulinum*, and two distinct forms of *D. aureum*, or *heterocarpum*, as it is also called. In one the flower

is large, of a greenish yellow; in the other the colour is a warm yellow with a brown lip.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 23.

TUESDAY'S gathering was a large and bright one, the conservatory being well filled with all kinds of spring flowers. Daffodils in themselves made quite an exhibition, the whole of one side of the building being occupied by them. Hyacinths, Cyclamens, and Primulas were also in strong force, but the display of new things was not so large as usual. There was a fair sprinkling of Orchids, and among these chiefly was there any novelty. First-class certificates were awarded to the following:—

CATLEYA LAWRENCIANA.—For the first time this new and beautiful Orchid was shown in fine condition, a really grand specimen bearing a dozen flowers being shown by Mr. Ballantine from Baron Schroeder's garden at Egham, and those who saw could scarcely conceive that the plant represented the same species as the miserable specimens that had hitherto been shown of it. Orchidists now agree that it is a first-rate novelty and different from any other *Catleya* blooming at this season; as many as four flowers were borne on the spikes of the plant shown, but even this number is small compared with what we may yet expect to see. It varies a good deal in colour, as the baron showed a spike of a very dark variety much richer than any previously exhibited. The ordinary form has deep lilac sepals and petals with a lip of deep amethyst intensified by the white throat.

DENDROBIUM WARDIANUM-CRASSINODE.—This provisional name is applied to what appears to be a natural hybrid between *D. Wardianum* and *crassinode*. A grand specimen with a thickly wreathed flower-stem a yard in length was shown by Baron Schroeder. The growth is intermediate between the two species, as are also the flowers, the sepals of which are coloured with a peculiarly soft tint. The flowers are not so large as those of an ordinary *Wardianum*, neither are they so yellow.

DENDROBIUM LEECHIANUM.—An exceptionally fine variety of this hybrid Orchid was shown by Messrs. Thomson, of Tweedside Vineyard, Galashiels, and the committee were unanimous in awarding it a certificate. The flowers are fully a third larger than usual, and some of the plants showed that they were more deeply tinted, the sepals being heavily flushed with purple. Several plants of it were shown, all having stems densely clothed with flowers arranged in twos and threes.

AZALEA MOLLIS LORD SHAFTESBURY.—A lovely *Azalea*, different from the ordinary run of varieties of *A. mollis* in the colour, which is a warm yellow, stained with orange-red. The trusses are large and dense; in fact the whole plant looked to be all bloom. It was shown by Messrs. Cutbush, Highgate.

ODONTOGLOSSUM PESCATOREI VERRAETIANUM.—A cumbersome name for a very pretty variety, with large round flowers, having the sepals and lip heavily blotched with claret-purple on a white ground. It most resembles the variety *Thomsonianum*, shown at the Orchid conference last year. As these spotted forms occur so rarely, they are the more valuable, apart from their beauty. It was shown by MM. Vervae et Cie, Mont St. Amand, Ghent.

HYACINTHS GRAND FLEUR and QUEEN OF PINKS.—The first is of a new colour, being a deep mauve-lilac; spike fine and flowers good. The other is, as its name implies, pink in colour—undoubtedly the best of its colour. Both were exhibited by Messrs. Veitch, Chelsea.

ORCHIDS.—Messrs. Veitch showed a pretty new hybrid *Dendrobium* named *D. micans*. It is a cross between *Wardianum* and *lituiflorum*. It most resembles the latter, though the former was the seed parent. It is paler than typical *lituiflorum* and larger. A grand specimen of *Odontoglossum triumphans* was shown by Mr. Thomas from Chatsworth. It had a branched spike carrying fifteen flowers, large and highly coloured. Messrs. Sander, of St. Albans,

showed a plant of their maxima variety of *Cœlogyne cristata*, and also the Chatsworth variety for comparison. There is no question about the superiority of the maxima form, the flowers being larger, the sepals broader, and the spikes longer. M. J. Heye, of Ghent, showed a plant of the hybrid *Cypripedium Sallieri*, a cross between *villosum* and *insigne*. It is handsome, and exactly intermediate between the parents, and comes into bloom with *C. villosum*. M. le Comte Oswald de Kerchove, of Ghent, sent a flower of the white *Lycaste Skinneri*, which represented the genuine variety, not the poor starry, white form that passes under the same name. The large-flowered form is very beautiful, as if chiselled out of ivory. Mr. De B. Crawshaw showed two fine forms of *Cattleya Triana*, one called *Crawsbayana*, and another an extremely beautiful flower named *Rosæ*. He also sent a specimen of *Odontoglossum crispum* which he bought as an imported plant two years ago. Last year it had a seven-flowered spike; now it has a dozen flowers on a spike. O. Ruckerianum, from the same exhibitor, represented one of the best forms of that hybrid. The rarely seen *L. flammea* came from Lord Rothschild's garden at Tring Park. It is a hybrid between *L. Pilcheri* and *L. cinnabarina*. It has large orange-scarlet flowers with reddish lips. The plant bore a spike of seven blooms, and Mr. Hill, the gardener, was accorded a cultural commendation for it. A plant of the rare *Aerides cylindricum* was also shown from Tring. Messrs. Pearson, of Chilwell, showed a pretty variety of *Dendrobium nobile*, remarkable for the fine form of its flowers and the soft, creamy colour of the lip. Other forms of *nobile* and *Wardianum* came from the same exhibitor, but were not remarkable.

Among other plants exhibited worthy of note were the following: *Carnation Mad. A. Bernaix*, an extremely fine tree variety having flowers $3\frac{1}{2}$ inches across, of fine shape and full. The colour is pink flaked with scarlet. Mr. Bealby, of Roehampton, showed it. Messrs. Laing sent a fine plant of *Imantophyllum Mrs. Laing*, a large-flowered sort, highly coloured. It was well grown and a cultural commendation was accorded to the exhibitor. *Chrysanthemum Mrs. Charles Carey*, a late white variety, was shown by Mr. Coleman, Brookfield, but seeing that *Chrysanthemums* at this season are not wanted, it deserves but scant notice. A variegated-leaved *Eupatorium* was shown by Mr. Wood, of Eastbourne, which, though novel, is not very beautiful. Three pretty sorts of *Primroses* were shown by Mr. R. Dean, of Ealing. They were, *Novelty*, deep crimson; *Beatrice*, pale mauve; and *Brilliant*, bright crimson.

GROUPS OF PLANTS.—These constituted the bulk of the show, and were more varied than usual. Hyacinths were amongst the most noteworthy. A grand collection of some 150 plants were shown by Messrs. Veitch, of Chelsea. These represented only the finest sorts of the respective colours, and in addition to the old sorts there were a few new, those named *Grand Fleur*, *Queen of Pinks*, *Princess of Wales*, *The Bride*, *King of the Blacks* being the finest. Every plant in this group bore a large and finely developed spike representing the variety in perfection. The exhibitors were awarded a silver-gilt medal. The St. George's Nursery Company, Ealing, also took a silver-gilt medal for a magnificent group of *Cyclamens*, all large plants grown to perfection, and representing the finest sorts that have yet been raised. A silver Banksian medal was taken by Messrs. Cutbush, of Highgate, for a collection of some 130 Hyacinths, consisting of the best of the standard sorts. Mr. James, of Farnham Royal, had a large group of his matchless strain of *Cinerarias*, for which he won a silver Banksian medal; and a bronze Banksian was taken by Mr. Clay's gardener (Mr. Wiggins), among which were some distinct sorts as regards colour, those named *Firefly*, *Coronet*, and *Hecla* being most remarkable.

NARCISSI and HARDY FLOWERS were shown more extensively than at any previous meeting, for now that the nurserymen have apparently defied the weather in bringing *Narcissi* into early bloom they are able to exhibit all the sections, and both early and late blooming sorts. Thus then we see the earliest, such as the *Tenby*, and the latest, *poeticus*, in flower side by side. The *Daffodils* certainly made an attrac-

tive display, but they did not comprise much novelty, and even if there were new sorts it is hardly fair to judge of their merits from flowers produced under glass. A most remarkable display was made by Mr. Dorrien-Smith from his garden in the Scilly Isles, where flowers are produced so much earlier and finer than about London. His collection, numbering some 120 specimens, consisted chiefly of the *Tazetta* (*Polyanthus*) group, and of these there was an endless variety all with finely developed flower clusters, very different from the puny specimens generally seen in pots under glass. For this group Mr. Dorrien-Smith was deservedly awarded a silver Banksian medal. Silver Banksian medals were also awarded to Messrs. Barr & Sons, Covent Garden; Mr. Ware, Tottenham; Messrs. Collins & Gabriel, Waterloo Road, for collections of *Narcissi*, all of which represented the leading variety, the large and the small, the early and late; and these were intermixed with a variety of other spring flowers, such as the glowing *Anemone fulgens*, which by the way quite spoilt the effect of the *Narcissi* by being dotted about in a meaningless way among *Narcissi*, the contrast between the scarlet and yellow being painful. Among the spring flowers were *Leucojum vernum*, *Hepaticas*, *Snowdrops*, which in Messrs. Collins' group were exceptionally fine; *Scillas*, *Muscari*, *Cyclamens*, and a host of other plants which had come into bloom during the warm days previous to the show.

Scientific committee.—Professor A. H. Church drew attention to a new insecticide, the outcome of a long series of experiments. The preparation in question is essentially a complete and permanent emulsion, in which has been incorporated a large quantity of such oily liquids (including certain kinds of paraffin oil) as destroy the insect-pests of plants. Hitherto the rough methods in use for preparing such emulsions have failed to effect the perfect distribution of the oily matter in the wash, and, in consequence, oily drops of sensible size have spotted and injured the leaves and tender shoots of the plants. The sample exhibited contained two-thirds of its bulk of the above-named oils along with other useful ingredients. On dilution with water no separation of the oil takes place. For very tender and succulent plants half an ounce of the emulsion in a gallon of rain water forms a syringing wash, which proves fatal to green fly, red spider, brown scale, and even mealy bug, without inflicting any injury on the flowers or foliage of the plants to which it is applied. The proportion may be increased in the case of more robust plants—even 4 ozs. to 1 gallon may in some cases be used, though much weaker solutions are in the great majority of cases perfectly effective. The plants if at all delicate should be syringed with fresh water two hours after the insecticide has been applied. By appropriate chemical methods various substances may be introduced into the emulsion in order to meet special requirements of gardeners and Hop growers. For instance, sulphur, in a free state and yet in a perfectly soluble form, has been added to some of the preparations, and proves to be an efficient preventive and cure of mildew in *Roses*. The farmer to whom we are indebted for perfecting this invention and for devising an ingenious syringing stand or pot-holder for applying it has entrusted its manufacture to Mr. G. Freeland, of Tonbridge, Kent, of whom further particulars may be obtained. Mr. Church added that he had not hesitated to bring this insecticide before the committee, since he had no in erest, save a scientific one, in the invention.

Camellias and frost.—Hon. and Rev. Boscawen exhibited single *Camellias* which had lately blossomed in the open, and leafy branches, showing how the leaves of 1885 were perfectly green and untouched by the frost, while those of 1884 and 1883 were browned to various degrees; but those of 1882 on the same branch were perfectly green. The branch was from a bush that had never received direct sunlight.

A MEETING of the *Narcissus* committee was held in the conservatory at South Kensington on Tuesday, March 23, when the following resolutions were passed:—

"That a copy be made of a list of all the names at present assigned to the different forms of *Narcissus*, for the purpose of reference.

"That the chairman be requested to bring before

the committee of the Royal Horticultural Society the desirability of publishing an official report from the Narcissus committee.

"That a sub-committee be appointed to examine the various Narcissi exhibited at the meetings of the Royal Horticultural Society and to report upon any forms of interest and any errors of nomenclature.

"That it is desirable that all the blooms and plants of Narcissus to be submitted to the committee should have been grown in the open air, except in the case of the Corbularia, triandrus section, or any other sorts which should not prove hardy. It was the unanimous wish of the committee that when possible a leaf belonging to each specimen submitted should be sent with it.

"That means should be taken to procure type specimens from which drawings could be made of the Italian forms of Tazetta named and described by Parlatores."

The specimens sent for the notice of the committee were then considered.

1. *N. moschatius*, from Mr. Godolphin Osborne, at Biarritz, collected by him last year. Much smaller than what is usually known under that name, but the true *N. moschatius* of the Pyrenees.

2 and 3. From Messrs. Collins & Gabriel and Mr. T. S. Ware, believed to be the same as No. 1, but grown under glass.

4. Golden Prince (? = Henry Irving) and (5) Golden King (? = Yellow King), from Mr. T. S. Ware. Deferred in order that specimens might be sent which had been grown in the open air.

6. A reputed species, sent by Mr. Ware, collected in the neighbourhood of Saragossa, having a deep yellow trumpet, with open and much-fringed corona and greenish perianth. Deferred for specimens from the open air.

7. Mr. Wolley Dod showed a small reflexed flower with no tube, sent from the neighbourhood of Oporto by Mr. Tate, supposed to be cyclamineus. Deferred.

8. Another variety discovered near Oporto. Deferred.

9. "Achilles," by Mr. Barr, a form of *Pseudo-narcissus* from a Guernsey garden. Name registered.

10. "Panthus," from the Scilly Isles, like a single *Telamonius*. Deferred.

11. "Scilly White," by Mr. Dorrien-Smith, decided to be identical with "White Pearl" of the Dutch gardens, *Hermione texticaulis* of Haworth, and *N. ochroleucus* of Loiselau, figured in *Bot. Mag.*, 1298. Wild in S. France.

Several other specimens were sent for the purpose of identifying the names, and a collection from M. Damman, of Naples, was to be reported on at the next meeting, as it did not arrive in time. Mr. Wolley Dod also showed a very interesting variety of dried forms of *N. triandrus*.

C. R. SCRASE-DICKINS, *Hon. Sec.*

ROYAL BOTANIC.

MARCH 24.

THE first spring show of the season held by this society on Wednesday last was as attractive as usual, but it was not so large as the corresponding show last year, nor was the quality of the exhibits so high—a circumstance accounted for by the unfavourable weather which we have experienced for the proper development of forced flowers. There was an entire absence of novelty about the show; indeed, one could only see the same run of things that could be seen any day in Covent Garden, or in any large flower shop. It is to be regretted that the society does not encourage exhibitors to show plants of a more uncommon character. One can scarcely believe that at a spring show held by such an important society as this is there was scarcely an Orchid shown, although now is the height of the Orchid season. Again, there are hosts of bulbous plants, tropical and otherwise, which ought to be seen at a show like this, and not always such commonplace plants as Hyacinths, Tulips, Crocuses, and Daffodils, to which the display is confined. We noticed on Wednesday that the visitors gave most attention to the less common plants, such as *Amaryllises*, hardy bulbs, and hardy perennials and alpinas. Again, the only forced shrubs were the common *Deutzia*, Indian Azaleas, and *A. mollis*; whereas most interesting new shrubs would be forth-

coming were they encouraged, and perhaps would lead to the discovery of many beautiful plants suitable for forcing into early bloom.

By the prize list published in our advertising columns it may be seen that the usual familiar names are mentioned as prize-winners in the various classes, which seem to be stereotyped. The chief feature of the show was the magnificent *Amaryllises* from Mr. Whitbourne's garden at Great Gearies, Ilford, which, as a group, was the finest we have ever seen shown from a private garden; it seems as if gardeners will beat nurserymen at *Amaryllis* growing when once they have secured the varieties and gained experience in their culture. There were two groups of a dozen each. One was in competition for the Veitch Memorial prizes. This group was made up chiefly of seedlings which Mr. Douglas has raised from that fine variety the *Empress of India*, which has large bold flowers of fine shape and of a brilliant scarlet. The seedlings do not vary much; some are superior, others inferior to the parent. Those named *Calypso*, *Vesuvius*, *Red Gauntlet*, and *Lady Hulse* are the finest. Besides these there was a grand sort with large and perfect-shaped flowers of the Leopoldi class named *Clarinda*, and that matchless variety, *Dr. Masters*, the perfection of a first-rate *Amaryllis*. The other group, which took the first prize, included such fine sorts as *John Heal*, set up as a standard of finely formed flowers, *Red Cross*, *Oriflamme* and *Empress of India*. All these plants—the pick of a large collection—bore tall, stout spikes carrying as many as four, five, and even six flowers. Messrs. Veitch had a few of their new seedling *Amaryllis*, two of which won certificates. The best of the others were named *Charnier*, *Elaine*, *Nonpareil*, *Aureole*, and *Glamis*, all, as may be supposed, possessing grand flowers, perfect in form and colour.

Cyclamens, as usual, were shown in perfection, particularly by the St. George's Nursery Company, which is equivalent to Mr. H. B. Smith, the well-known Cyclamen grower at Hanwell. Azaleas were poor; not worth notice; but Roses were excellent, considering the weather we have had. Messrs. Paul, of Cheshunt, were in their usual place at the head of the prize list. They had good trained plants of well-known sorts, but the interest attached to a group of smaller plants of less common sorts, such as *Sunset*, the new American Tea variety, with buff flowers and bronzy foliage. There were also *Heinrich Schultheis*, *Lady Mary Fitzwilliam*. A silver medal was awarded to the group. Mr. Rumsey, of Waltham Cross, excelled chiefly in Tea varieties, of which he had a fine gathering of cut blooms, among them being such lovely sorts as *Mad. Charles*, *Reine Henriette*, *Souvenir de Paul Neyron*, *Mad. Falcot*, *Isabella Sprunt*, *Anna Olivier*, *Marie Van Houtte*, all excellent for early bloom. Mr. Rumsey took a silver medal for his group.

Hyacinths were plentiful. Mr. Douglas headed the amateurs' list, while Mr. H. Wright, of Lee, showed the finest dozen in the nurserymen's class. There were also the large groups from Messrs. Veitch and Cutbush as were shown the day previous at Kensington, in addition to a magnificent group of Dutch bulbs from Mr. B. S. Williams, consisting of Hyacinths, Tulips, Crocuses, Lilies of the Valley, and which was deservedly awarded a silver medal. Messrs. Veitch's collection, which also won a silver medal, contained several new sorts, two of which were certificated. Messrs. Cutbush took a silver medal for three Hyacinths and a particularly bright group of *Azalea mollis*, which was much admired. Mr. James, of Farnham Royal, won a silver medal for his large group of *Cinerarias*, which as representing his fine strain were unsurpassable. Some were named and certificated, but the tints are so subtle, that it is a hopeless task to attempt to describe them. The Chinese *Primulas* were excellent, particularly those from Mr. James, who took the first prize. The Dutch Tulips and Crocuses had a beautiful effect in the bright sunshine, as the flowers opened widely, and we never remember seeing Crocuses so fine as the dozen plants from Mr. Douglas. The pots were large and literally crammed with bulbs, the masses of flowers from which measured a foot across.

Hardy flowers contributed largely to the display. There were the large groups of Daffodils and other

spring flowers from Messrs. Barr, Mr. Ware and Messrs. Collins and Gabriel, which figured so prominently on Tuesday at Kensington, and to these medals were awarded. In addition to these groups there were several small exhibits, among them being a group of a dozen bulbous plants from Mr. Ware, the beautiful *Iris reticulata*, *Muscari commutatum*, *Lachenalia Nelsoni*, *Dog's-tooth Violets*, *Fritillaria Meleagris* being the best among them. The only group of Orchids was that from Mr. Jacob, of Stamford Hill, which consisted mostly of well grown *Odontoglossums*.

NEW PLANTS were by no means so abundant as usual, and there were none that had not previously been seen at Kensington. Botanical certificates were awarded to Mr. B. S. Williams and Messrs. Laing for *Cattleya Lawrenciana*, to M. Vervae for *Odontoglossum Pescatorei Vervaeianum*, and to Messrs. Thomson, of Clovenfords, for *Dendrobium Leechianum*. Floricultural certificates were taken by Messrs. Veitch for Hyacinths *Sir Henry Berkeley* and *Grand Fleur*, and for *Amaryllises* *Lascelles* and *Plato*; to Messrs. Laing for *Imantophyllum Mrs. Laing*; to Mr. Douglas for *Amaryllises* *Clarinda* and *Lady Hulse*; to Mr. James for *Cinerarias* *Grand Duchess*, *Mrs. Davis*, and *Hecla*.

Colonial and Indian Exhibition.—In connection with this are to be exhibited representative collections of the flora of the Cape of Good Hope and Natal. These are to be made as interesting and attractive as possible by maintaining a continuous show of plants in flower. Considering the wealth of the South African flora, particularly the bulbous plants, an instructive as well as an attractive show should be the result. Messrs. Henderson, of the Pine-apple Nursery, have been entrusted with the arrangements for this exhibition. Another attractive feature at South Kensington this year will be a permanent exhibition of Orchids, which is to be carried out by Messrs. Sander, of St. Albans. For this purpose a large exhibition building is being erected, and already Mr. Pulham, of Broxbourne, has commenced to embellish it with rocks. The idea is to make a picturesque interior, by making rocky pools, caverns, and dripping wells, and around these the Orchids will be disposed, and numbers of them will be planted in the niches of the rockwork. If carried out well, the Orchid show ought to be one of the chief points of the great exhibition.

QUESTIONS.

5474.—**Diseased Cucumbers.**—I will be obliged to any reader of THE GARDEN who would kindly tell me the cause of Cucumbers turning yellow at the points and on the edge of the leaves; also the reason why young plants that have not yet fruited, run out at the point of the leading shoot.—G. M.

5475.—**Edgings for walks.**—I am anxious to obtain the opinions of some practical men on the merits or demerits of tile or terra-cotta edgings for garden walks—the simpler kinds, not those requiring a brick foundation. Do those which are simply stuck in between the walk and the border remain well in place, or do they move out of line in stormy or frosty weather? I thought they would be excellent things till this danger was pointed out to me.—M. C. E.

LATE NOTES.

Narcissus Rip Van Winkle (*W. B. Hartland*).—The flowers you send are certainly yellow, but others we have seen this season are quite green.

Lily of the Valley (*T. Jannoch*). Very fine spikes indeed. We do not remember having seen two spikes from one crown before.

Vegetation has suffered but little here, though snow laid on our hills for twelve weeks. Shrubs are unscathed, except *Thuja pyramidalis* and a *Cypripedium* or two, which the snow has broken and disfigured. Roses seem all right. Fruit trees look promising. Standard Currants and Gooseberries have suffered from tomites, but no pruning has yet been done. Last year bullfinches made sad havoc with fruit buds, but this year not one is to be seen.—GEO. BOLAS, Hopton Hall, Worksop, Derbyshire.

Canvas hose (*W. P.*).—See our advertising columns.

Names of plants.—*D. C.*—1, *Pittosporum undulatum*; 2, *Skimmia oblata*; 3, *Lithospermum prostratum*; 4, cannot name.—*E. E.*—*Peonia tenuifolia*.—*W. R.*—1, *Crocus biflorus striatus*; 2, *C. imperati*; 3, too much withered; 4, *C. biflorus argenteus*.—*L. P.*—1, *Lastrea aristata*; 2, *Panicum plicatum*; 3, *Grevillea robusta*; 4, *Isolepis gracilis*.—*C. H.*—*Acacia longifolia*.

WOODS & FORESTS.

OAK FOR PARK FENCES.

In many parts of the country where Oak is abundant the construction of these fences is perfectly well understood, but as there are other parts where the style of fence, such as one seen in Sussex and the adjoining counties, does not seem to be well known, some details as to the selection of timber and the way in which it is worked up and fixed will be acceptable to such as desire information about fences. Where there are Oak woods or plantations upon the estate there is generally but little difficulty in selecting the trees best suited to the work, provided the requirements are understood. The price of bark in the neighbourhood, as compared with the cost of stripping and carting and the exigencies of the work to be executed, must be the factors to determine whether the timber be felled during the winter season or in the spring when the sap rises. If cut in the winter it is generally believed that the sapwood of the tree is more durable. The presence of the bark, however, adds a little to the labour of working up. The trees must, of course, be selected at one time, and the various requirements borne in mind. The marker, therefore, should be thoroughly posted as to what is wanted. To make this clear it may be well to look separately at the various timbers which compose the fence.

THE PALINGS.—These, in the order of erection, come last or almost last, but in marking trees for the use they must first be borne in mind. The reason for this is that the size and straightness of grain for this purpose is of more importance than in any of the wood which has to be sawn. A somewhat similar thing to these pales has been described in these pages, but in that description of fence the pales were sawn. Here we have a cleft pole which economises timber. The size of tree most fit for the purpose of cleaving into pales may be taken as from 9 inches to 1 foot in diameter. For railings, wood straight in growth, sound, and fairly clear in the grain, must be sought for. Next to the pales this is the most important part of the fence. It is obviously impossible to tell until a tree is thrown the amount of sapwood that goes to make up its bulk, but at the same time the proportion of this is a most important consideration in cutting up the rails. Large knots, as well as any considerable quantity of sap, would be inadmissible, but for rails of this class small, or what is technically known as pin, knots would not be objectionable, always providing they do not occur in awkward places, or in such close proximity as to materially detract from the strength of the rail. As the gravel plank is usually from 6 inches to 8 inches in width, trees or portions of trees which will cut it up with the least amount of waste should be fixed upon. As one edge of this, as is gleaned from its name, has to rest upon the soil, care must be taken that one edge at least be free of sap. In this, knots, providing they are sound, would be no great drawback, as the width of the plank would neutralise any tendency to weakness, which would be fatal in a smaller dimension.

THE POSTS must, as a rule, come from the tops or upper portion of the trees. In one way it may seem a bad arrangement to select from what is mostly regarded as the least durable part of the tree the portion of the fence which has to be imbedded underneath the soil. The answer to this is practically the same as the reason given for the allowance of knots on the gravel plank, viz., its greater bulk. Posts of all the material used in the construction of a fence will stand the

most exposure and rough usage, simply because the amount of wood contained in it is larger and in a better form for resistance than any other part. For cutting up, either a steam-saw or hand-sawyers and a saw-pit must be used. On the whole, as the result of considerable experience, unless time is of absolutely no consequence, the use of the steam-saw is to be recommended. By careful men the work may be done well, in addition to the great advantage of being carried out expeditiously.

In preparing the material the palings must be seen to first. As these have to be cleft by hand, a saving in the cost of carriage may be effected by marking and cutting off the trees, and leaving them to be dealt with by the cleaver on the spot. Before marking is commenced, it will be necessary to have determined the height of the fence. If this is 4 feet 6 inches, which is a very good height for many purposes, and the gravel plank has to be 6 inches wide, the length of pales will necessarily be 4 feet. The bulk or lower parts of the boles of the trees, ranging from 9 inches to 1 foot in diameter, must therefore be marked into 4-foot lengths, so far as the tree keeps a uniform size and clean in the grain, as well as being tolerably free of sap. The width and thickness of pales will naturally vary a little, but would average perhaps some 3 inches or 3½ inches in width, and something more than one-fourth of an inch in thickness. The timber for the rails, if the sawing is done by the steam-saw, can be cut up from various sized dimensions. When these arris, or as they are commonly termed "cant" rails, are sawn up by pit-sawyers, the usual way is to select pieces of the right length, which, by the way, is generally 9 feet, and which may be sawn or hewn into a log of about 8 inches square. From this the corners are hewn off, giving it an octagon shape, though not a true octagon, as probably the bevel would not much exceed a couple of inches. When in this form a cut is made down the centre, dividing it into halves. Down these halves another cut is made, thus quartering the log. Down these quarters a diagonal cut is made from the inside corner to the centre of the bevel on the outside edge. In this way eight cant or wedge-shaped rails are cut from a log.

CUTTING THE POSTS.—In sawing up these the first thing to be determined upon is their length and the distance to which they have to be sawn. This will depend in some measure upon the nature of the soil on which the fence has to be placed. If it is a tenacious clay it will not be necessary to have so great a depth in the ground, but if a free and loose soil, the unsawn end of the post must be longer. As a rule, for a 4-foot 6-inch fence a 7-foot post will suffice, viz., sawn down 4 feet 6 inches, with 2 feet 6 inches left unsawn to be fixed in the soil. The size of the posts may vary a little, but for this kind of park fence 5 inches or 6 inches by 4 inches will be ample. When possible, two posts should be cut from one piece, as when very small posts are cut from small pieces of wood they are apt to be split by the action of the sun and wind. In speaking of the selection of the wood, enough has been said concerning the gravel plank to save referring to it here, except that of course it will be the same length as the bay or panel of fence, viz., 9 feet in the case before us and 1½ inches in thickness.

PREPARING FOR FIXING.—In a general way it will be well to get the fence ready for fixing before it is carted to the spot where it has to be erected. By this we mean that the posts may be morticed to receive the rails, and the ends of the rails prepared to fit the holes in the posts. There are several ways in which this fitting together

may be done, but the one most common is to cut a mortice a full inch in width through the 6-inch direction of the post, i.e., to leave 1½ inches solid on each side of the hole, the 6-inch face of the post to be parallel with the front of the fence. The end of the rail for a distance of 2½ inches or 3 inches is reduced to a size corresponding to that of the mortice.

THE METHOD OF FIXING.—After everything has been put in readiness in the way detailed, the materials are laid out alongside the line of fence and post holes sunk at the 9-foot intervals to agree with the rails. Into these the posts are placed, the rails inserted in the mortices, and the top one—as for a fence of this height two only will be necessary to a bay—fastened by means of an oaken pin passing through the post and the end of the rail in the mortice. There is no occasion for the fastening of the bottom rail in this way, as it is clear that with the posts firm in the ground and the top rail rigid, no movement can take place with the bottom one. The next business will be to fix the poles and the gravel plank. The pales will slightly overlap each other and be fixed by means of 2-inch nails to the top and bottom rail. The gravel plank will be fixed to the bottom portion of the bottom rail and to the posts by means of strips of wood nailed to them for the purpose. A small stump in the centre of the bay driven into the soil and cut to an angle to nail to the bottom rail will also increase the rigidity of the gravel plank. These are the salient features in the preparation and fixing of an Oak park fence. D. J. Y.

Trees in March.—But little difference was observable in the condition and growth of field and hedgerow trees and shrubs from the beginning to the 18th of the month. The abnormally low temperature and the relentless east wind effectually prevented development. During the last few days of genial weather, however, the changes have been great. These can be more quickly seen in plants of a herbaceous character than in hard-wooded species, but even in these the progress is remarkable. The month, which came in as a lion, now bids fair to go out as a lamb. The tree amongst our commonest species which exhibits the least symptoms of change is the English Elm. In the Wych Elm growth is apparent enough. The Oak and the Ash show signs of growth, but not in any particularly marked degree since last month. Among the lesser trees and shrubs, the Hawthorn shows animation at ten thousand points, and the Hazel is in all the glory of its innumerable catkins. The Bramble, though retaining many of its leaves from last season, is rapidly putting forth new growth. By many it has been observed that a spell of cold often occurs when the Blackthorn is in blossom. This tree is now showing well for abundance of bloom. Whether we shall this year escape the Blackthorn winter remains to be seen. If the proportion of cold we get at this season was at all a fixed quantity, one would think that the weather we have experienced during the last few weeks must have been paying in advance. The most noticeable tree during the whole of the time from the beginning of the year has certainly been the Goat Willow. This, in spite of frost, snow, or wind, has been persistently arraying itself in silvery livery, and is now completely dressed in its gorgeous coat. Other Willows are showing more or less signs of growth, but not to be compared with this. —RUSTIC.

Making fences rabbit-proof.—By some it may be considered important to make fences as nearly as may be rabbit-proof. The best means to prevent their burrowing under a fence is to sink below the ground level some 6 inches in width of galvanised wire netting, and nail the upper edge securely to the bottom of the gravel plank. Whether, too, this should be placed quite perpendicularly or at a slight angle, circumstances must decide, but it would not be desirable to make the inclination too great.—D.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE RABBIT PLAGUE.

JUDGING by what one reads, this subject is evidently interesting to gardeners and woodmen as well as to landlords and farmers. It is generally acknowledged that the Ground Game Act recently passed was practically aimed at the rabbits. The damage done by hares and other game would probably never have caused any legislation on the subject. Mr. Rabbit has been at the bottom of it all, and under the name of "Game Laws" has in times past been a trump card with a certain class of political agitators who did not care a straw for the merits of the question itself. The wonder is that gentlemen should have so long tolerated or protected an animal that affords so little real sport, and been the cause of so much ill-feeling between landlords and tenants, the cause of great loss to both, and which is a real scourge in any cultivated country. As to the Game Act, it has, in one sense, relieved landlords of a responsibility which they acknowledged to some extent before, and done little or no good to the farmers where coverts exist and rabbits abound. I could furnish you with any amount of evidence to prove this. Rabbits, it must be borne in mind, do not need to be preserved like pheasants or hares. In spite of wholesale slaughter among them annually, at shooting seasons, they continue to multiply, and what the Ground Game Act did was to relieve landlords of the duty of keeping them down on their estates and put the work on the farmers, who now find out that that work costs them more than they formerly lost by the depredations of the rabbits. Here is an example: A has a farm which abuts on plantations here and there, perhaps to the extent of a mile or more, and out of these plantations rabbits come every night and early morning in hundreds, and eat every blade within their reach far into the fields. I have seen whole fields quite destroyed in this way so as not to be worth reaping. The farmer cannot contend with them under such circumstances, let him take the fullest advantage of the Act, because a shot or a shout frightens the vermin into the wood in a few seconds, from whence they return again immediately when the danger is over, and no farmer can afford to watch his fields day and night. Before the Act was passed some landlords kept the rabbits down on farms; now they leave them to the farmer, but kill as he may he cannot contend against them successfully so long as the Game Act does not allow him to follow them to their burrows in the plantations and use any means he likes for their destruction. So greatly has this evil been felt by farmers in many cases since the Act was passed, that after doing their best themselves to kill the rabbits they have actually appealed to the landlord for compensation, and to my knowledge it has been generously granted in not a few cases. The landlords are not to blame now so much, because they are no more responsible for the rabbit plague than they are for the sparrows, except where rabbits are encouraged and preserved, which is not necessary where plantations and coverts abound. Hereabouts, on several large estates, the rabbits are slaughtered wholesale during the shooting seasons, and thousands of young ones are taken during the breeding season by nets and by digging, and yet in a few months they swarm again

as plentifully as ever—a fact not to be wondered at considering their prodigious breeding powers. I mention these facts to show the fruitlessness of contending with such pests except on lines of methodical extermination by means of professional rabbit-catchers, paid by results. Rabbits CAN BE exterminated, but it would not pay any landlord to continue the work of keeping them down, unless aided by his neighbours on adjoining estates where they are equally bad, perhaps, and as they are fond of "pastures new," they would soon occupy the cleared ground.

Landlords are perhaps the worst sufferers themselves, for putting aside the fortunes they have paid in the shape of annual valuations to tenants, their own parks are "sickened" and their woods destroyed by them. Only woodmen who have planted much have any notion of the extent of the damage done to plantations by rabbits. In a winter like the present anyone can see their ravages, but not a winter passes in which great damage is not done to young trees, no matter whether the weather is severe or not. Putting aside altogether the destruction and loss caused by them to farm crops, for which landlords have in times past had to pay thousands upon thousands of pounds, the loss in our British woods has been frightful. Judging by what we have seen of the depredations of rabbits in that way on single estates in the course of so many years the loss to the country must amount to an almost incredible sum. The worst of it is, agents and woodmen are, as a rule, not thanked for being too zealous on the subject of damage by game, and grow tired in the long run contending with gamekeepers, who pay no attention to their complaints and things take their course. It is in young plantations that most mischief is done. No kind of tree is safe unless protected by wire netting, and that effectually, but that is out of the question except in particular cases, and it does not pay now-a-days to go to that expense. Plantations are doubtless got up in the end, but only those familiar with the subject know of the beatings up and replantings they have required and the extravagant cost per acre that has been incurred. Your readers who are, like myself, acquainted with the subject could if they liked furnish you with some remarkable statistics on that head, and it would be well if they would. In Grass parks adjoining woods rabbits do much injury by destroying the herbage, not so much by their eating it as by poisoning the ground in other ways till no other animal can thrive on it. In parks surrounded by woods hundreds of acres are spoiled in this way, and it is a common practice for farm bailiffs to have the damage valued and deducted from the annual account. And what do owners of estates overrun by rabbits gain by them? At the very most a few days' shooting, and perhaps the value of the rabbits in the market—what are sold, at least—but which does not cover the cost of powder and shot and the keeper's wages. Some landlords do keep the rabbits down on their estates and confine them to a warren or enclosure provided for them, which is an excellent plan when carried out methodically. In such warrens the rabbits should, of course, be fed a little in hard winters, and if the stock be freshened by the addition of the rabbits caught elsewhere on the estate, plenty of rabbits and sport might be provided at little trouble or expense; for although the ground does get sick of rabbits in time, still it is wonderful how long they thrive in the same place. On one estate here they have swarmed in the warren for as far back as there is any record. Occasional liming, burning, or salting seems to be all that is needed to restore the health of the soil. In this way rabbits could be preserved for sport-

ing purposes or the market better than in any other way, and the wonder is the plan has not been put in force far more frequently than has been done. It is useless going to the expense of building stone walls to keep rabbits either in or out, because they will go over any ordinary dry stone wall, if it be 6 feet high, like cats. Nothing turns either a hare or a rabbit like the partly invisible wire netting. A 2-foot wire fence will turn a hare that would take a wall at the first point it came to. A wire fence should, however, be at least 3 feet high, stretched tightly to good supports, and have 6 inches laid flat on the side next to the rabbits, and to keep cattle off a paling some feet from the wire should be erected also.

The present winter has afforded us a good chance of seeing what the rabbits will eat when pressed by hunger. The Rhododendron maintains its "rabbit-proof" reputation, for although in numerous cases it, too, has been barked, the damage is comparatively small. The Portugal Laurel has suffered severely, the bushes being barked at the base of the stems, and the branches as far up as the animals could reach, while in some cases they must have climbed the branches. Hollies have, as usual, suffered worst, but Aucubas, flowering Currants, Privets, Thorns, Roses, and almost all kinds of shrubs have suffered more or less. Among trees, the Ash, Elm, Beech, young Sycamores, Black Poplar, Oak, Chestnut, and Spruce have been most damaged. On one estate here I have not yet seen a common Spruce up to twenty years of age anywhere in the plantations where rabbits abound but what has been cleaned quite round. Young Larch, Corsican, Scotch Fir, and Austrian Firs have been eaten where recently planted, the Austrian and Corsican being, as a rule, attacked at the points of the shoots and eaten down, but older trees of these two Firs have not been touched in places where other trees have mostly all more or less suffered. It is noticeable in Evergreens and Firs that it is the bark which is preferred, and the younger the branches are the better they are liked. In young plantations where the loppings have been purposely left on the ground they have been so thoroughly barked to their extremities that the ground looks now as if it was strewn with bleached bones. It appears certain that the reason why rabbits will sometimes attack the trunks of some trees in preference to others of the same species is that of the age of the bark. Thus, an old Elm or Oak is safe from their attacks, while a young tree with smooth bark will be eaten right into the hard wood. I had almost forgotten the Yew tree, which is rarely or never touched; hence, an endurable subject for covert planting, also the common Box. Indeed, the Yew, Rhododendron, Box, and Privet are practically rabbit-proof, and will thrive where rabbits swarm. The Privet is attacked by them the first season, but if put in thickly enough it will establish itself.

AGENT.

. Our experience is that the rabbit is a greater pest than even those who see most of its ravages seem to recognise. There are good reasons for considering well what "Agent" writes above, and we hope his letter will induce others to speak their minds on the subject. In some districts it is impossible to guard either trees or gardens without a costly system of fencing and it is not easy for those who can afford that. All this, too, for a creature that is not worthy of the name of game, but the presence of which is as much against game as it is against good farming! As to gardening, we have seen young wall fruit trees barked half way up last August, when other food was plentiful. Apropos of some of the points raised by "Agent," we may say that we

know a wood in Sussex in which 6 acres of the undergrowth was killed last summer by rabbits eating the young shoots down. The whole place looked as if blighted.—ED.

NOTES OF THE WEEK.

Choisya ternata.—I have this beautiful Mexican shrub quite a mass of bloom at present in a cool house. It perfumes the whole place like Hawthorn bloom. It is a shrub that everyone should grow in a greenhouse.—W. B. H.

Dendrobium Wardianum album.—This is an albino at present somewhat rare. There is an entire absence of lilac-purple colour of the typical form, but there is still the yellow on the lip. It is such a chastely beautiful Orchid, that it is not surprising that it is so much sought after. We saw it in bloom at Messrs. Shuttleworth and Carder's, where also we saw flowering plants of *C. virens*, a rather uncommon species.

National Rose Society's medals.—Mr. Girdlestone has sent us two of the medals of this society for our inspection. Both are of bronze; one is as large as a crown-piece. On one side a wreath of single and double Roses is stamped in relief, leaving the centre for the prize-winner's name. The other side bears the words "National Rose Society" and a tasteful design representing three sections of Roses (Hybrid Perpetuals, double Moss and singles), and across the design the motto "Floreat Regina florum." The small medal, about the size of a farthing, is less remarkable for beauty of design.

Daffodils from Cork.—I send you herewith some white Daffodils, viz.: Minnie Warren, Cowslip scented; Little Dot, similar in appearance, but not scented; Bishop Manns, Big Irish cernuus, tortuosus, tenuifolius, and double cernuus. I also send what I think is rare in England, viz., single Telamonius. How you have got the double so plentiful seems strange. I also send the curious double nanus, Gertrude Hartland and an intermediate white Spanish, viz., Gladis Hartland; this latter is of a very upright habit and has glaucous foliage.—W. B. HARTLAND.

* * A pretty series of Daffodils, but it is difficult for us to say how far they differ from older named sorts without the means of actual comparison. The creamy white sorts sent by Mr. Hartland are extremely beautiful, and some are sweet-scented.—ED.

Coffea bengalensis.—This highly ornamental shrub, associated with the *C. arabica*, the common Coffee plant, has been well shown during the last year or two at Kew, where several fine specimens in the Palm house have borne heavy crops of large bright red, Cherry-like berries. This and *C. liberica* are the two species of *Coffea* which are grown for their berries. In *C. bengalensis*, however, we have an attractive stove flowering plant of compact shrubby habit, deciduous, and bearing in spring large Vinca-like flowers, which are pure white, 2 inches across, and are developed on the ends of the twiggy branches. A plant is now in flower in the stove at Kew. *C. travancorensis* is also a pretty flowering plant, the flowers smaller than in the former, but deliciously fragrant—like Jessamine.

Dimorphotheca graminifolia var. nudicaulis is a very long name for a compact modest little Composite, once known as a *Calendula*. It is a native of the Cape, the home of about twenty species of this genus, some of them annuals and rather weedy, a few compact and pretty perennials such as the one here named. *D. graminifolia* seems a rare plant, for we have heard of it only with Mr. Gumbleton, and saw it the other day at Kew, represented by a plant in a 4-inch pot, branches four, about 5 inches high, and bearing eight large flowers, much like *Arctotis arborescens* in size and shape, but different in colour. The flowers of the Kew plant measured over 2½ inches across, and were supported on long erect scapes; the ray florets were white above, orange-brown on the under side; the middle or disc florets are velvety purple dotted with the yellow of the anthers. The plant thrives if potted in a strong loamy soil and kept in a cool green-

house, and it is very free flowering, so that for the conservatory in spring it would be highly useful. South Africa is rich in large-flowered and prettily coloured Composite plants, and only very few of them are as yet known in gardens. Seeing how freely these plants seed, and that the seeds retain vitality for a long time if kept dry, there is no good reason why more of these handsome and out-of-the-common plants, such as this *Dimorphotheca*, should not find their way into English collections.

Eranthemum cinnabarinum.—Of the true *Eranthemum* this is by far the best, as it grows into an erect stout-stemmed plant, attaining a height of 3 feet or 4 feet in one season, and bearing from the ends of its shoots long arching branched panicles of large crimson flowers. Perhaps the most remarkable habit in this plant is that of bearing very small unattractive flowers during cold, sunless weather, but as soon as spring, sunny weather comes the flowers expanded under its influence are at least three times as large, and this, too, upon the same panicle as that which produced only small flowers when sunshine was scarce. People who saw the plant with us when bearing its large richly-coloured blooms asked for cuttings or plants to grow themselves; but on the first flowers appearing early in winter they wrote to complain that we had given them a miserable weedy thing instead of the gorgeous plant they had admired. We could only advise them to wait, and time would show that the plants, and not we, were deceiving them. No plant shows so markedly the good effects of sunlight as this *Eranthemum* does. At Kew it is grown largely for spring decoration, and several nice plants are now in flower in the T range. Instead of throwing the old plants away and growing only newly-struck ones, it is a good plan to keep a few of them and let them run up to a good height, strong shoots producing very large and well flowered panicles.

Poinsettias.—Has anyone ever tried to get late flowering *Poinsettias* by cutting off the first flower-heads soon after they have formed, and so causing the plants to make a new growth which will develop a good whorl of bracts and flowers about three months after the usual time? We saw at Kew a few days ago about a dozen plants which had been treated in this way, and these are now bearing fine heads, one we measured being a foot across, the coloured leaves broad and of the brightest scarlet. There may have been something exceptional in the treatment to which these plants had been subjected both before and after the removal of the first heads of flowers, but we believe nothing of this kind was intended. Seeing such handsome heads of *Poinsettia* in the latter part of March, it occurred to us that by following some such method as this which has brought about the above result at Kew, it would be possible to have the brilliant scarlet leaf-bracts of our hitherto midwinter favourite brightening our conservatories in April or May. The rule is that when a *Poinsettia* has its flowers cut away it ought to be made to go to rest by withholding water and keeping it comparatively cool; but these little plants now in flower at Kew prove that some exceptions to this rule may be made with great advantage. Those who grow *Poinsettias* for market should note this experiment for future imitation.

New Himantophyllums.—These handsome evergreen greenhouse plants, which are now becoming as popular in this country as they long have been on the Continent, receive great attention in Mr. B. S. Williams' nursery at Holloway. He has devoted a special house to them, which is now filled with flowering specimens. A finer collection than this could not be seen elsewhere, for it includes all the best varieties raised in Belgium and in this country, besides numerous seedlings of high merit raised in this nursery. The profusion of large flower-heads rising above the elegant foliage has an extremely fine effect. Lack of variety of colour is their only defect, but Mr. Williams' seedlings show a variation in this respect; indeed, he has seedlings now in flower which re-

present the two extremes, that is, a very pale coloured sort, almost yellow in fact, and a very deep one, quite a scarlet, which is the richest form yet raised. The delicate tinted variety is appropriately named *aurantiacum*, and a somewhat similar sort flowered this year for the first time is called *Baroness Schroeder*. The brightest coloured seedling is named *Meteor*. It has large finely-shaped flowers, great clusters borne well above the foliage. These new seedlings will not be sent out until they have been under cultivation for another season or two. The finest of the Continental varieties is unquestionably that called *Ambroise Verschaffelt*, which eclipses by a long way such sorts as *Martha Reimers*, *Marie Reimers*, which headed the list a year or two ago. The *Ambroise Verschaffelt* has immense heads of flowers, of a vivid orange-scarlet, which stand out prominently from all the rest. It is a very strong grower and free flowerer. Mr. Williams secured the stock of it last year in Belgium. One of the finest coloured sorts is *General Gordon*, with flowers as bright a scarlet as a soldier's tunic. *Lindeni* and *miniatur splendens* are both good sorts also. It is not surprising that this class of plants is becoming popular seeing how easily grown they are. Being as elegant as a Palm and evergreen is much in their favour, and their flowering season extends over several weeks in spring and early summer. Mr. Williams intends to adopt the name *Himantophyllum* in his catalogues, now that *Imantophyllum* has been pointed out to be incorrect.

A HANDSOME MULLEIN.

SOME of our finest things come into the garden without a flourish of trumpets, and even the great *Maréchal Niel* came among us in this quiet way. On the other hand, some of the greatly lauded novelties, as all know, come to nothing. Among hardy plants, *Verbascum phlomoides* is a very precious one, which got into cultivation without an introduction. The large yellow flowers, so lovely in form, come in succession for a long time in summer and autumn. This, with the fine leaves and stately form, make the plant of far higher value than perennials of the best kind, which flower for a few weeks, however, well. It is a biennial, sowing itself readily on some soils. It may be used as a border or shrubby plant in groups. The engraving shows a little colony of it that looked very pretty put out in a heathy spot in Surrey near some self-sown Firs. The engraving is from a photograph, which does simple justice to the scene, though it fails to suggest the good effect of the clear yellow bloom on the tall stems.

Italian Daffodils.—Our first Daffodils to bloom in pots this year—early in January—were two of the new Italian kinds, *N. Regina Margherita* and *N. Umberto I.*, varieties which have been figured in Regel's "Gartenflora," and remarkable for their early blooming propensities. One would like to know more of their history, and perhaps Messrs. Dammann and Co., of Naples, who introduced them will kindly tell us if they are garden seedlings or wild Italian kinds. Both are distinct, but *Regina Margherita* is, as I fancy, the more elegant flower, its perianth segments being distinctly yellow in the centre, shading to nearly pure white at their margins. I am inclined to think their early flowering habit is simply the result of their bulbs being ripened earlier in the warm climate of Italy than happens in Holland or in this country. At any rate these Italian bulbs yield to the influence of artificial heat more readily than others we have tried, and yet bulbs from the same bag planted outside in the usual way are only now blooming along with home-grown bulbs of many kinds. We have as yet much to learn as to these Italian kinds, some of which were sent to the Narcissus committee at their last meeting.—F. W. B.

HYACINTHS IN HOLLAND.*

BULBS or flower roots have for over 250 years been grown and cultivated in the vicinity of Haarlem, and their cultivation has gradually increased in importance until it has reached its present position. Among the admirers and lovers of plants and flowers, bulbous plants have always found many ardent protectors. No doubt the advance which civilisation has made in nearly all quarters of the world has aided greatly to extend the cultivation of flower roots and increase the demand, even in countries where fifty years ago there was not a single bulb, and where Hyacinths and Tulips were nearly unknown. An advantage which bulbs have over plants in general is, that bulbs have nearly all a yearly period of rest, when they can without much fear of injury be packed and be exported to the most distant places. An advantage worth mentioning is that after they have done blooming and have grown to their full maturity they require only to be placed in a dry locality, and for a considerable time require no labour or attention. A further important advantage of such bulbs as Hyacinths, Tulips, &c., is that by artificial treatment they can be brought to grow and bring out their bloom several months earlier than they would do when kept out of doors and left to their natural development, which for winter bloom makes them unequalled by any other family among living plants. The so-much-beloved Hyacinth is not only one of the most esteemed among bulbs, but also one of the most beautiful, although at the same time the most difficult in cultivation and the most expensive to bring to perfection.

The Hyacinth is a native of the Levant, and was first introduced into England in the year 1596; but it was known to Dioscorides, who wrote about the time of Vespasian. Gerard, in his "Herbal," published at the close of the sixteenth century, enumerates four varieties—the single and double blue, the purple, and the violet; and Parkinson in 1629 speaks of eight different varieties. He tells us that "Some are pure white; others are nearly white with a bluish shade, especially at the rims and bottoms of the flowers. Others, again, are of a very faint blush; some are deep purple, nearly violet, others purple tending to redness, and some paler purple. Some, again, are of a fair blue, others more watchet, and some very pale blue. After the flowers are over the plants bear round black shining seeds, from which, after sowing and protecting, new varieties can be obtained." During the 250 years that have elapsed since the above was published there has been a steady improvement in the size, form, and colour of the flowers of this plant. From the eight varieties of 1629 more than 4000 varieties have been produced, of which, however, the greater number has become extinct. Many have been thrown out to make room for the latest improved sorts, among which about 200

varieties only are at present in extensive commerce.

THE VARIETIES OF COLOUR vary from the purest white to the deepest shades of scarlet, purple, black, yellow, and violet.

HYACINTHS, like other plants, have undergone great changes, and, as a matter of course, these have considerably influenced the varieties which have been propagated and grown. From sixty to seventy years ago there was a taste in general for the double-flowering varieties, and more particularly for flowers with dark or in other colours striking eyes or centres, and I remember the time when a few beds sold by public auction realised very high prices indeed, but the varieties thus sold have fallen quite out of cultivation. These double varieties mostly produced very small bulbs, a fact which contributed very much to their being neglected and to their loss of

also single varieties, which were found capable of giving greater satisfaction than doubles; but when we compare the large spikes of the present day with the sorts which we had sixty years ago we ought to be well satisfied with the progress we have been able to make. Although the double varieties have at present become much neglected, mostly because of their small-sized bulbs, there are some few double sorts which have pretty well maintained their position in public estimation, but their number is small compared with the single ones in cultivation. Among the best double sorts I may mention Lord Wellington and Grootvorst, rose; Prince of Waterloo, La Tour d'Auvergne, and Florence Nightingale, white; Louis Philippe and Garrick, dark blue; Blocksberg and Rembrandt, light blue. Of the double yellow flowers Goethe is about the best, but most in this colour are rather small in the spike. Of

dark reds among the double flowers there are but very few varieties; of these Louis Napoleon and Waterloo are about the best, but the latter sort is not so fully double as could be wished. Among single varieties we at present possess the greatest variety of colours, and among them we now have large and handsome flowers. The best are Garibaldi, Pellissier, Scarlet Light, brilliant scarlet; Fiancée Royale, Gertrude, Koh-i-noor, Prima Donna, Von Schiller, red; Carlyle, Chas. Dickens, Dr. Livingstone, Gigantea, Macaulay, rose; La Grandesse, Alba Superbissima, Crown Princess, Madame Vander Hoop, pure white; Grandeur à Merveille, Baroness Van Tuyll, Mammoth, Seraphine, blush white; General Havelock, Baron Von Humboldt, Masterpiece, Mimosa, William I., black-blue; Baron Van Tuyll, Charles Dickens, King of the Blues, Bleu Mourant, dark blue; Blondin, Czar Peter, Grand Maître, Leonidas, Grand Lilas, Lord Raglan, light blue; L'Honneur d'Overveen, Sir Henry Havelock, Chas. Dickens, Haydn, violet; Ida, King of the Yellows, La Citronnière, Obelisk, Anna Carolina, pure yellow; Beauty of Waltham, Clio, Lamplighter, Lord Palmer-



Group of tall Mulleins in Heath near Scotch Firs, but not shaded by them. Flowers, yellow; spikes, 6 to 9 feet high. Engraved for THE GARDEN from a photograph taken at Munstead, August 11, 1885.

position in public estimation; raisers looked out for the largest-sized bulbs, basing their recommendation upon the general, but erroneous, belief that naturally the largest bulbs must also produce the largest flower-spikes. The small bulb-producing varieties, however beautiful they might be, could not therefore at that time find buyers; growers were then compelled to meet the alteration in public taste as quickly as possible, and as this alteration came rather suddenly and much quicker than the slow growth and propagation of the desired sorts could meet, prices at that time rose wonderfully high. In this run after large bulbs many sorts with very inferior flowers were brought out in quantity; but although these large bulbs did increase the general trade, and so far satisfied the bulb sellers abroad, still they did not give universal satisfaction, and better flowers were looked for. After large-sized bulbs large spikes of flowers became in demand, and

ston, Argus, flowers with striking eyes or centres. All varieties have been obtained from seed selected out of thousands of seedlings the result of artificial crossings, an occupation of very long duration, as a little bulb grown from seed requires six or seven years before it is of sufficient size to produce good flowers; and when we consider that this bulb if found worthy to be grown on requires twelve to fifteen or twenty years' careful artificial propagation before a moderate stock can be had, it need not create astonishment when at times new varieties have realised large sums of money. New varieties in almost every shade of colour have been saved from year to year, showing improvements in size of spike, of bulb, and of bells; but it may be worth remarking that in all the different colours we have obtained improvement in size of bells with the exception of the bright scarlet-coloured sorts, which until now have always turned out to have small narrow bells.

* A paper, by Mr. Polman Mooy, read before the Horticultural Club, March 23.

If we could obtain a Hyacinth flower of a bright scarlet colour like Queen of the Hyacinths or Garibaldi, with bells as large as La Grandesse or Cloche Magnifique, what a grand improvement it would be, and we do not despair of yet obtaining this treasure. Between the time when double Hyacinths were most esteemed and that when single varieties came into favour, a period of perhaps ten years, the always increasing demand was greater than could be satisfied, and consequently the prices of Hyacinths grew higher every year, and at that time Hyacinth growing was rather profitable. This induced numbers in the neighbourhood of Haarlem to set about growing Hyacinths, which many have done with more or less success. At that time land was worth only half the price that it is at present, and the most easy-growing Hyacinths were then artificially propagated to such a large extent that the stock overgrew the demand, and forced the market price of such sorts down to such a low ebb, that during the last two years thousands of Hyacinths have been exported at prices below the actual cost of production, causing great losses to the growers.

FOR FORCING the bulbs should be potted about the middle or end of September in 5-inch pots in rich light soil, and placed in a cold frame or under a wall, where they can be covered with wooden shutters or some similar contrivance to throw off heavy rains. In either case they should be covered a foot thick with newly fallen leaves, and being once well watered after potting they may be left for months to form their roots, when the most forward should be brought out (some repotted into somewhat larger pots according to the apparent strength of the different bulbs), and placed in a gentle heat as near the glass and light as possible to prevent the flower-stems rising to an unnatural height. Some care is necessary in the application of heat, or the flowers will be abortive. It should not exceed 50° for the first three weeks, but afterwards may be increased gradually to 60°; and if the pots are plunged in bottom heat the same care should be observed, or the points of the roots will certainly be killed. One-third the depth of the pot is fully sufficient at first, and if the heat is brisk they should not be plunged more than a few inches at any time. When the flower-stems have risen to nearly their full height, and the lower bells of the spike are beginning to expand, the plants should be removed to a lower temperature usually afforded by the greenhouse, and when the bells are fairly expanded the plants can be taken to the sitting room or wherever their presence is desired, observing to protect them from sudden changes or cold draughts of air, and the water given to them should be moderately warm. Instead of the usual practice of drying Hyacinths at once in the sun, I would rather recommend the method adopted in this country—namely, to place them side by side on a sunny spot of ground, and cover them with about 1 inch of loose earth to thoroughly ripen the bulbs by the subdued heat imparted to the earth which surrounds them. Left in this position for a fortnight they will become dry and firm, and an hour or two's sunshine will finish them properly for storing.

THE PROPAGATION of Hyacinths can be done artificially in two different ways. (1) By the bulbs being cut crosswise and sprinkled with sand to absorb any superfluous moisture that may exude from the incisions. After a time bulbs thus cut are planted in the usual way, when the parent bulb divides itself into small bulbs. (2) By scooping out the base of the large bulbs after they have been taken out in July. After this operation great attention is needed to watch carefully the process of properly drying the wounded bulbs, because if

not properly attended to the whole bulb may become mouldy and be lost completely. Bulbs thus treated are planted in October, at which time the small offsets at the base are partly visible, and are then planted in the usual way, but with only a slight covering of earth in a warm situation as much exposed to the heat of the sun as possible, where the small bulbs gradually develop in the warm sandy soil, with the proper degree of moisture, aided by the climate, which about Haarlem appears to be so very suitable to the growth and development of this flower. (3) In the most natural way by offsets from the parent bulb, which is, however, rather too slow for the present large demand.

TULIPS used for forcing require about similar treatment to Hyacinths. When placed in heat they should be set as near the glass as possible, in order to prevent the flowers drawing up too high, and the flower-stems should occasionally be assisted when by their quick growth they get entangled in the foliage. During recent years Tulips have become great favourites for planting in beds, for which thousands are annually employed, making by their very brilliant colours a striking effect.

FRUIT GARDEN.

PEAR TREE GROUPS IN PARKS.

NEVER till the history of landscape art is more truly written shall we be able to form a correct estimate of the power of group or clump planting in the forming and enriching of much of our best park scenery. Groups form the lights and shades that lift up our wide fields of verdure into the highest beauty, like waves that mirror themselves in the ocean. Nearly all forms of vegetation have been employed for clumps with the conspicuous and unfortunate exception of our more popular fruit trees; and their entire exclusion or sparing use in the formation and enrichment of park or woodland landscapes is one of those comparatively modern innovations that would be more honoured in the breach than the observance. In the not very distant past the orchard used to be posted in the home park within full view of the chief living rooms of the house. Two causes probably contributed to its removal from this coign of vantage and of beauty; the first was the uprise and growth of a sentimental idea that utility and beauty were somehow antagonistic; hence, though everybody admitted that nothing could rival the soft pink of Apple blossoms, the driven snow-like whiteness of Pears, Cherries, and Plums, while no mere seed or berry-bearing plant could approach the rich colouring and exquisitely perfect form of their fruits, yet the fact that they were also useful sufficed to banish them from the landscape they did so much to beautify and adorn. The ugliness of the orchards, it must be admitted, in very many places hastened their removal from the home parks. They were mostly planted as square blocks or parallelograms, and as a rule hedged, paled, or walled round. The trees were planted in rows at equal distances, pruned and trained all alike at equal heights and distances, each tree and each row of trees being as like to another as equality of distance and impartiality of hacking could make them. This was all as incompatible as could be with other clumps moulded into shape and posted into place for picturesque effect. But the winter prunings and dressings made all this worse and worse. Huge cuts glared out at one in large white patches along all the bare boughs from November to May, and not seldom the trees were dressed with soot or lime, which con-

verted them into dark or whitewashed skeletons throughout the entire winter. Becoming thus mere marplots, it is little to be marvelled at that the command went forth, "Cut them down; why mar they the prospect longer!" And yet they perished through mere blundering, and with all their faults our landscapes have been the poorer ever since for lack of the enriching and enlivening effects of Apple, Pear, and Plum blossoms and their fruit and foliage in skilfully disposed masses.

I venture, therefore, to advocate a renaissance in this matter. We have Pear trees of different forms that, properly grouped, would have a striking and enlivening effect in any home park. No doubt the pyramid and bush forms do savour too much of the garden to be welcomed into the landscape by many, and nothing is easier than for all such to leave them out. Much is gained by using only one sort of fruit tree in a group or clump. This is of great importance in regard to deciduous trees. Many parks are reduced to mere monotony and mediocrity as landscapes by the pernicious practice of mixing their sheltering belts and embellishing clumps or groups. Each, whether formed of forest or fruit trees or ornamental shrubs, should be formed of one genus or species of plant or tree; this gives to each an individuality and a power in the landscape that no amount of mixing and massing together of distinct sorts can create or sustain. In the grouping of Pear trees in parks individuality might often be carried further still by forming single groups of one variety of Pear, such as the old Swan's Egg, Marie Louise, Louise Bonne of Jersey, Winter Nelis, &c.

But in selecting Pears for grouping in clumps in landscapes it will be of the highest importance to note those that thrive best in the locality, and only plant those that grow freely and fruit fairly well on an average of seasons. Stunted trees have a wonderful power of transforming thriving, flowing landscapes into mere painful abortions, alike displeasing to the eyes of those who plant Pears in their parks for their beauty and unsatisfactory for the pockets of those who plant for profit. And this leads to one more remark, thus, that although there is nothing incongruous between beauty and utility, yet in the grouping of Pears in parks beauty should never be sacrificed, nor seem to be so, which in landscape scenery is really very much the same thing, for utility; hence the health, strength, free growth, size, and symmetry of trees in parks should never be sacrificed or imperilled for the sake of their fertility, and this should be borne in mind in the preparations made for them, the mode and distance of planting, and in all their future training and prunings, if any. Finally, in the mode of grouping Pears for picturesque effect in the landscape the beauty and symmetry of individual trees must be less considered than the effect of the whole clump or mass. The two may not be incompatible in many cases for years, but should they become so, the claims of the whole group and its bearing on others and on the wide expanse of verdure which it enlivens and enriches must be maintained, no matter how many single trees may have to be sacrificed in the process of perfecting the groups. D. T. F.

Hybrid Raspberry.—I have not heard of a hybrid Raspberry the product of a cross between that fruit and the Mulberry, but I have observed that a hybrid Raspberry, the product of a cross between that fruit and the Blackberry, is advertised. Very likely the hybrid to which "F. W. B." refers is the same thing, but the result of a misprint. A hybrid Raspberry obtained by crossing with the Blackberry may be good, but to be popular the colour must not be black. The chief objection

to Blackberries and Mulberries alike is the fact that the juice stains the mouth, an objection from which Raspberry fruits are happily exempt. For all ordinary market purposes no doubt Raspberries rank amongst the most popular and profitable of fruits. Flowering as they do so late, spring frosts fail to harm the bloom, and it is rare that the weather in July—the month for ripening—is unfavourable. A really good plantation will endure for twenty years at least if well looked after.—A. D.

PEARS IN HEDGEROWS.

THERE are several modes of cultivating Pears in hedges. One, and the most simple, is to work Pears either by budding or grafting on vigorous plants of the Whitethorn, already well established in the hedge. A better method is to plant wildling Pears at distances of from 15 feet to 30 feet apart when the hedge is planted. Some of the wilder Pears are not wholly spineless, so that the hedge would suffer but little from their introduction. Another method consists in planting own-root cultivated Pears worked on wildlings in the fence at regular distances when it is first planted. By either of these simple and easy modes a Whitethorn hedge may be furnished with Pears as readily as it is furnished with timber trees.

CULTURE.—After-planting or working consists in concentrating the main force and supplies of the roots into the Pear tops. For example, when Pears are worked on Whitethorns already forming part of the fence, a little previous pruning and training prove most useful to the future Pear tree. For the sake of future effect it is desirable that Pear trees, like others in hedgerows, should rise at about equal distances, and to obtain suitable stocks thus posted considerable previous preparation will be needed. This, however, is less needed for the mere growth of the Pear trees than to secure something like uniformity of distance between them. If no means are taken to concentrate the root-force into one leader before working, as many bottom shoots should be removed from the worked stem as is consistent with the maintenance of a good fence. This will give the scions a good start at first, which is very important for the successful culture of Pear trees in common Whitethorn hedges.

To promote early vigour and to give the trees a vertical form, a stout stake should also be applied to each stem, and the young Pear shoot should be trained up a yard or so above the line of the fence before it is allowed to branch up into a round or semi-pyramidal headed Pear tree. Such preliminary staking and training is needed whichever of the methods here adverted to is adopted for furnishing Whitethorn hedges with Pear trees. For the preservation of the hedge as an efficient fence for stock it is essential that the Pear trees should rise boldly above it, and also that their tops should not be permitted to spread too widely nor grow too thickly. Nor must they be planted too closely together. The trees should be 25 feet asunder; that would be a safe distance for the security of the hedge, and is also a profitable one for produce. The free and easy style of growth is also the most effective in the landscape, and involves a minimum amount of labour and trouble. Few trees can exceed in purity and beauty those of Pears in bloom, while the various sized and coloured fruits and the rich and varied hues of their autumnal tinted leaves, covering almost the entire range from golden through browns *ad infinitum* to crimson, enable the Pear to take first rank as an ornamental tree. This is further enhanced by the widely differing stature and habits of distinct varieties. Selections could be made to form match lines or avenues of Pears on the sides of narrow roads or lanes, or varieties could be alternated or mixed so as to form a rich variety of character, stature, and likewise colour.

PECULATION OF THE FRUIT.—This is an argument against the hedgerow planting of Pears and other fruits that loses its force as such fruits in hedgerows become more common. Though in such cases familiarity does not breed contempt, it fosters comparative indifference; and the more common Apples, Pears, and Cherries become, the fewer peculations among them and the less the few fruits taken are missed. Besides, it is a less easy matter for boys to get at Pears in hedgerows than might be supposed, and the better sorts might be grown in the inner hedgerows, between fields far removed from public or even private roads. D. T. F.

EXTENSION TRAINING.

IN last week's GARDEN (p. 277) "J. S. W." tells us that "the greatest quantity of fruit in a given time is the best test of fertility and best proof of the value of extension." This is simply a reiteration of the one-sided teaching on which "J. S. W." has constantly rested his arguments in favour of extension; but, so far from its being a proof of the value of that system, it is just the reverse, since according to "J. S. W.'s" admission it will not give the most fruit in the space occupied. This last is exactly what fruit growers, past and present, have ever aimed to obtain, and which, combined with good quality, is the test of sound practice. In my last communication on the subject I pointed out the weak place in extension training consequent on its not admitting of the greatest quantity of fruit being produced in houses and on walls where trees so managed are grown; but "J. S. W." is silent on this, the rock that shatters the practice which he claims as his own. He frequently speaks of a maiden Peach tree that one year after planting bore eight dozen fruit. From a somewhat lengthy experience I know what trees of this age are capable of doing, even when as big as it is possible to get them and the wood as well ripened as it can be, and I say that those who allow trees of this age to carry the number of fruit which "J. S. W." speaks so exultingly about care little about their reputation for sound practice. Fruit growers know well what is the result both in regard to the worthlessness of the fruit and the after consequences to the trees where such over-cropping is practised. To anyone who has had an opportunity of seeing the way in which Mr. Coleman manages his Vines and trained trees, it is a little amusing to find "J. S. W." claiming him as a follower of the non-pruning system. If by any stretch of imagination one could suppose that Mr. Coleman would discard the medium system of pruning under which the grand fruit which he has hitherto produced has been grown, it would be interesting to know if he would allow his one-year planted maiden Peaches to carry eight dozen fruit each; and, if so, to see how they would compare with what he has all along grown under the course of pruning followed by the collective body of fruit growers whose productions have earned for them a reputation which they are not likely to risk by adopting extension. By the way, I hear that a prize is to be offered for a dozen Peaches grown on one-year planted maidens that have carried eight dozen fruit each. It is to be hoped that "J. S. W." will take advantage of the opportunity named to prove that his assertions are correct. He asks me to state what my practice when engaged in Grape-growing was in the matter of heading back young Vines. What my practice was has nothing to do with the question under discussion. It is not my practice, but his extension training that is on its trial. I may, however, say that with Vines, as with trained trees, the course I have followed has been to fill the space to be occupied in as little time as it could be done with a view to doing the work well, looking to the future as well as the present, but not in the way that results from the extension system, or rather want of system.—T. B.

—I have for several years past practised the extension system of training young fruit

trees, both under glass and in the open, as advocated by "J. S. W." and with the most satisfactory results. The extension system is so obviously right and productive of quick returns, that one wonders how any practical gardener can possibly fail to see its advantages when judiciously carried out. "J. S. W.'s" facts and illustrations afford good proof of the soundness of his practice. Let those who advocate the cutting-back system plant a given number of maiden trees of the same strength, either under glass or against walls in the open, in the same description of soil and situation, and let them subject one half of the trees to the old-fashioned cutting-hard-back system and the other half to the extension system, and note the results. If they will do this they will soon, I feel sure, become converts to the extension system. The very object which severe pruners have in view—that of forming a healthy, vigorous and fruitful tree in as short a time as possible—they postpone for years by the means which they employ to attain that end.—W. W. H.

NOTES.

WHITE DAFFODILS.—It is only a very few years ago since my friend Mr. Barr complained to me that he could only find flowers to match three out of the four white Daffodils alluded to by Haworth in his monograph of the family. No such difficulty exists to-day, thanks to the enterprise of collectors abroad and collectors in old gardens at home. At the present time we have at least ten or twelve kinds of white Daffodils, all amply distinct in flower, growth, leafage, or time of blooming. These range from the smallest kinds, such as N. Minnie Warren or N. Commode Nutt up to the great Irish white N. Colleen Bawn, or the great Dutch Sulphur, N. moschatus of gardens. Several of these white kinds have been rediscovered in old Irish gardens, and there is something ludicrous in the frantic attempts now being made by traders to get stock of these kinds from Ireland. I believe Mr. Hartland has the finest collection of white Daffodils in this country, and I hope he will send a series of them to the next meeting of the Narcissus committee. When we get all the wild white Daffodils collected from the Pyrenees and elsewhere, it seems probable that they will be found as variable as the yellow kinds.

PRIMROSES.—Of all the flowers of spring none are more welcome than are the pale Primroses of the woods and Primroses that are not pale of our gardens. The garnet-like buds and rosy-almond blossom-like flowers of *P. rosea* are peeping out here and there from among the warm brown Beech leaves, or from the tangle of the white-flowered Periwinkle. By the edgings, seedlings of all kinds are pushing up their many coloured flowers. These are of all shades, from white through all the variations of yellow and red until some strike the highest note of velvety crimson. The great yellow, sulphur, and white Polyanthus of the Oxlip race are fine subjects for naturalisation, and so also the great-leaved *P. japonica* for shady positions in deep rich soil. *P. cashmeriana* is pushing up its great lilac flower-heads from a crown of leaves which beneath are as richly powdered with gold dust as are the so-called Gold Ferns. Even the little grey-leaved *P. marginata* is showing its delicate lilac flowers, but the most showy of all are great healthy seedlings of the mixed Polyanthus and Oxlip races, than which none are more floriferous or satisfying thus early in the year.

NEW GROWTH.—It is pleasant to feel that springtime is really here at last with its warm breezes and gentle showers. The past few days have worked wonders in the garden; there is new growth everywhere. The giant *Eremurus*

and the great rich growths of the Crown Imperials, and the great bold leaves of *Colchicum speciosum* are beautiful in form, satisfying in their new-born strength, and they serve admirably as foils for the bulbous plants in flower. A clump of *Ferula communis* on the grass is as beautiful as a *Todea*, and the crimson growths of some ornamental Rhubarbs and of the Pæonies contrast well with the Daffodils along the borders. Several of the large-growing Umbellifers are now ornamental, such as *Ferula alliacea*, with its much-divided hoary leaves, and both *Narthex* and *Euryangium* are also throwing up strong crowns. The young Grass is of a tender green, showing off to advantage the *Crocus* and *Narcissus* blossoms, while on the deep rich borders the Lilies are pushing up, apparently all the stronger for their long rest. "I like a good late winter," said a weather prophet to me the other day; "it keeps things back, and the fruit tree buds don't throw off their top-coats too soon, and then when the warm weather does come you may rely on its being fine, and not a mixture of December and May."

HARDY FLOWERS FOR FORCING.—Every good garden should have shrubs and hardy flowers in quantity for forcing in early spring—Lilacs, Laburnums, Deutzias, Almonds, Roses, double-blossomed Plums and Peaches, *Choisya ternata*, Honeysuckle, Sweet Brier for its fragrant leaves, Tree Pæonies and *Staphylea* being amongst the best things for such a purpose. Then during mild weather one may pot up *Doronicums*, Solomon's Seal, *Dielytra*, alpine Auriculas, and clumps of seedling Primroses and *Polyanthus*, all of which make rapid progress in a sunny greenhouse, or even in a cold frame. The *Dielytra* and Solomon's Seal are two of the finest of all hardy plants for forcing, and are always admired when so seen at their best. The hardy bulbs that may be potted up for forcing are past number, the Daffodils being a whole host in themselves. *Gladiolus* The Bride is one of the most beautiful of all plants for pot culture, and *Lilium longifolium* in all its forms should not be forgotten. To my mind no *Amaryllis* can vie in form and purity with this Lily, which, along with the white *Richardia*, is so much grown for the Easter season. Even in places where the finest and choicest of exotics are grown, some of the finest of hardy flowering shrubs and bulbs are welcome for their freshness at this season of the year.

WHITE JAPAN ANEMONE.—The beautiful engraving of this plant at p. 275 reminds me that the present is a good time for increasing this plant by division and replanting its roots in deep, rich soil. The deeper and richer the soil the better, as on light, dry soils it is apt to flag at blooming time. It is one of the plants that only the worst possible treatment can spoil, and as every bit of its root will make a plant, it is quite possible for it to become as widely distributed as it is beautiful. I wish some traveller or botanist who has seen the plant growing wild in Japan would tell us if it is the type or not. Grant Allen has a theory that the lowest or earliest development of floral colouring is yellow, then white passing upwards through all shades of rose, red, and purple, until the true blue colour, the highest and best in Flora's gamut, is reached. This quite agrees with the idea that this plant is the type or a reversion to it, and the rosy flowered ones merely variations from it. One accepted history of the plant is that it is a seedling obtained by crossing *A. japonica* and the Himalayan *A. vitifolia*, but of this further proof is needed. M. O. Froebel says it was simply a reversion or sport from the old *A. japonica*, in the garden of M. Jobert at Verdun-sur-Meuse, hence its synonym

of *A. Honorine Jobert* (*vide* GARDEN, Vol. VI., p. 498). The rosy form, *A. hybrida*, was raised by the late Mr. Gordon in the Horticultural Gardens at Chiswick years ago. *A. japonica alba* (*A. Honorine Jobert*) is the very perfection of a good hardy flower, good in leafage, good in habit of growth, free and beautiful in its blossoming, shapely and pleasing as a single Rose. One can never know too much of the native habitat or history of such a favourite autumn flower as this is.

OLD GARDENING BOOKS.—Just now when the literary world is excited over the best books it would be interesting if readers of THE GARDEN would tell us of the curious old works on botany or gardening they may have seen or actually possess in their libraries. Especially interesting are the older works, such as the original edition (1597) of Gerard's "Herbal," and the works of Clusius, Lobel, and Dodœn's, as printed by Plantin, or his son-in-law, Moretus, at the Antwerp Press, during the days of our own Shakespeare. Parkinson's two editions of the "Paradisus Terrestris" are well known, and are much valued since the present day renaissance of hardy plants took place. Besler's great "Hortus Eystettensis" (1612) is one of the largest of all the old works on botany I have seen, and the plates are sumptuously drawn and engraved, as also are those of a smaller work "Hortus Floridus" (1614), the figures being mainly executed by Crispian de Passe, who belonged to a family of engravers well known at the time. The "Jardin du Roy" (Paris, 1623), "Theatrum Floræ" (1637), and the "Florilegium" of Du Bry (A.D. 1614), re-issued as "Florilegium Renovatum et Auctum" by Merian in 1641, are all of great interest as bearing on the history of hardy flowers in our own and in Continental gardens. Coming down to more recent times, Redouté's "Liliacées" in 8 vols., large folio, is a most interesting work, the plates as a rule being exquisitely drawn and faithfully coloured. All the above are most interesting to the student of hardy flowers, but doubtless many other fine old works exist, and of these a short account might be welcome to others besides myself.

HOTHOUSE FLOWERS.—There are some amongst the *dilettante* of gardeners who seem to think there is a sort of magic connected with the inside of a greenhouse, and the pathetic simplicity with which they bring a shrivelled *Erica hyemalis*, "as dead as nail in door," or a drought-and-gas-slain *Azalea*, with the request that it be placed in the greenhouse to recover, is quite touching. In a word, there are those who look upon a greenhouse as a sort of hospital, even for plants incurable. To this class also belong those who attach an altogether fictitious value to choice hothouse flowers, and it is this same cult who are never happy unless they have Maiden-hair Fern with which to arrange their blossoms, no matter how appropriate or the reverse it may be; and yet we hear these spoken of as people who love flowers. Hothouse flowers is simply a cant expression of costliness and is a shabby term, quite apart altogether from real beauty or what is natural and appropriate. Nature is the greatest of all florists, and she arranges her flowers with their own green leaves. If we in our indoor arrangements cannot utilise the natural greenery which belongs to the flowers employed, the nearest approach we can obtain to Nature's as a substitute the better. Arrange a big bowl or potful of Tulips with their own lovely grey green foliage, the lines of which a Giotto might envy, and strip the leaves off a duplicate set, and arrange them with feathery Fern; then say which is nearest that truth of which all beauty is made? I do not say we should never mix the foliage of one plant with the flowers of another, for now and

then very beautiful combinations may be so made; but if ever one is in doubt the safe plan is to stick to Nature, which is rarely wrong. All flowers are lovely, and the worn-out formula as to hothouse flowers being more lovely than hardy ones is exploded as a fiction. Orchid, or Iris, *Amaryllis*, or Lily may vary in rarity, and also in cost; but who can prove that the one is less beautiful than the other?

SHADY WALKS IN GARDENS.—Shady walks are very often neglected in our gardens, and even when this is not the case it is but rarely that we find their fullest capabilities for beautiful treatment thoroughly worked out. One might almost say this of art in general, for, as a rule, light is studied and shade neglected. If I want to see lovely fluctuations in light I may go to Turner and half a hundred others, but for rich colour in shade there is none like Velasquez. It is often so in gardens, a blaze of colour and variety in the sunshine, and poverty in the shade; and yet it is possible to make a shady walk one of the most attractive and satisfying parts of a good garden. It may be a Primrose path in spring, or we can make it heavenly blue with wood Hyacinths, or with Apennine Anemones. Still earlier it may be white with Snowdrops, or later it may be snowy with wood Anemones; even in February the pale yellow winter Aconites may sprinkle the mossy floor like stars. I have seen many gardens in many places, but never yet saw a garden filled too full of these common flowers of spring. The Primroses alone would make a shady walk delightful during mild weather from November until May or June, and for this purpose should be reared from seed (sown as soon as ripe in June) by the thousand. The Creeping Forget-me-not (*Omphalodes verna*) often grows most luxuriantly under trees and is always worth a trial, so also the large-leaved Saxifrages and the strongest and most vigorous of Daffodils. For greenery Ferns, none finer than Bracken upcurling in spring, green in summer, and warm, brown, and cheerful even in winter, beautiful even in its decay. Even when things are at the worst under trees, one may at least succeed in making an Ivy floor.

GOOD ORANGES.—After the Apple one may next place the Orange in our list of winter fruits, those imported from Jaffa being just now especially fine and good, and a great contrast to the early fruit of a few years ago, tough skinned and acid as they were. We now obtain our Oranges from a much wider area than before, and the quality as well as the quantity of those imported improves year by year. From Florida and California we get a good many, notwithstanding the American markets; but not even the splendid fruit from Yuba can excel those grown on the African side of the Indian highway. But large, rich, and juicy as are the best of the imported fruit, to enjoy an Orange at its best it must be eaten fresh from the tree. The delicious brittle-skinned Mandarin Orange of the East is something like the Tangerine variety, but infinitely more aromatic, and to eat its fruit in all the dewy freshness of a morning in the Tropics is experience almost worth a journey to realise. In all warm countries the Orange has a great future, since it is variable in flavour and one of the most healthy of all known fruits. So general is its cultivation now becoming, that at no distant date we may expect fruit even better and cheaper than heretofore. Large quantities of wine are now prepared from Oranges, and in some districts the Orange is likely to supersede the Vine as a wine-yielding fruit. Our own wine-yielding fruit is the Apple, and it is a pity such a pure product as home-made cider should have become so scarce and cheap foreign wines so common.

THE MOUNTAIN SAXIFRAGE.—*Saxifraga oppositifolia* is just now very lovely, forming fresh green mats of its closely-woven growths, the whole besprinkled with its starry flowers. The white variety is especially effective, and there are two or three shades of red, and the giant form called *S. pyrenaica*, with flowers nearly as big as a shilling and of a rosy lake colour. The common *S. oppositifolia* occurs wild on mountains in Europe, and is one of the most beautiful of arctic turf-builders, since we are told that the Esquimaux cuts sods of it, which are steeped in the blubber of seals or whales, and afterwards used as fuel. All the varieties are readily increased by division, and they form spreading masses amongst the stones of the rock garden. A good plan is to tear off rooted pieces and to place them on the freshly-dug soil. Then place a stone as

big as the fist on the rooted ends of the mass, and tread it gently, but firmly into the earth. So treated, we find not only this species, but all the mossy Saxifrages are increased with certainty and facility. Wherever rough stone edgings are used instead of Box, this Saxifrage in all its variations should be planted, along with some of the dwarf-growing Sedums. An edging of *Sedum acre aureum* (Golden Stonecrop) and this mountain Saxifrage, mixed in masses, is an effective combination, and its effect is enhanced by irregular groups of Siberian Squills. I never saw *Saxifraga oppositifolia* so fresh and floriferous as it is this spring, a fact due, as I suppose, to the shelter and abundant moisture so recently afforded by the snow.

FLOWERS IN MASSES.—Nearly all the spring flowers look best in groups. A few, say half-a-dozen, bulbs of *Iris reticulata* or of *Scilla bifolia* make a pleasing group, but if the effect of any one flower is to be emphasised, it should be seen by the hundred in contrast with something that increases its effect. A friend writes: "The best thing we have just now is a mass of *Iris reticulata* 8 feet long and 15 inches wide with two hundred flowers open in the sunshine. Around this *Iris* is a 9-inch band of *Narcissus nanus* bearing over five hundred flowers." The effect of such a bed may be imagined. Another correspondent writes: "If you want a novelty in the spring flower garden plant next August five hundred good roots of *Scilla sibirica* in a mass and then dibble amongst them a hundred bulbs of the white Roman Hyacinth, and you will have just such a garden picture as is now to be seen here at the present time." Crocuses in lines and masses were never more effective than this year, thanks to the late severe weather. One effective way of forming a fresh and permanent carpet for bulbs is to dig sods of the common Heath or Ling (*Calluna*

vulgaris) and to place these so as to form a turf over freshly dug ground. The bulbs can then be dibbled in or spaces may be left for larger colonies of them. A friend tells me of a clump of *Leucocorydium vernum* bearing from two hundred to three hundred flowers so planted amongst Heather some years ago. Some choice bulbs like peaty soils, and this may be one of them.

VERONICA.

INDOOR GARDEN.

ANTHURIUM ANDREANUM.

THERE are nearly 200 species of *Anthurium* known to botanists, but not more than half-a-dozen of this number are ornamental flowering plants, though there are many that possess attrac-

tions. This fact is noteworthy as explaining the considerable variety in the forms of this *Anthurium* as now represented in this country. Usually a plant of this nature is imported in small numbers, perhaps only one specimen coming in the first instance. This is multiplied and distributed, and in this way all the garden specimens of such a plant are exactly alike, variation only coming after long cultivation and through changed conditions. Of *A. Andreanum* there are at least three very distinct varieties in English collections, whilst minor differences are plentiful. Many who purchased plants from those offered at the auction rooms were disappointed when they found the flowers on their plants very much inferior both as regards size and colour to what were produced by others. The small-flowered variety has a spathe about

3 inches long, but the largest spathe form measures 8 inches in length by 6 inches in width. In some plants the habit is tufted, as in *A. Scherzerianum*, and this habit is invariably found in the large-flowered form; in others the stems are single and climbing, with long internodes and numerous aerial roots springing from the leaf-nodes. So far as we have seen, the flowers on plants of this habit are small. The annexed figure represents a tufted plant, and those who know *A. Andreanum* only as a one or two-flowered kind may see that when well managed this *Anthurium* will bear at least half-a-dozen flowers together. We have seen one with eight expanded all at the same time, and we have heard of one bearing seventeen flowers simultaneously.

When the spathe first unfolds, its colour is bright scarlet, but as it gets older it deepens to a dark brown-red; finally it fades and withers like a dead leaf, but it does not fall away till the flower-stalk decays. To our non-botanical readers it may be as well if we explain that, although popularly spoken of as the flower of the *Anthurium*, the large brilliantly



Anthurium Andreanum; spathes scarlet.

coloured spathe is not the flower, nor any part of it, but bears the same relation to the true flowers as the sheath which enfolds the young ear of a head of corn does to the flowers inside it. The spathe of an *Anthurium* is primarily the sheath of the flower-head, but in some it is brightly coloured for the purpose of attracting fertilising agents, such as bees, &c. The flowers are arranged in a compact mass all over the finger-shaped spadix, not in the least like flowers in appearance, but if compared with the spike of a *Plantago* their real character will be at once recognised. At a certain period, soon after the spathe has unfolded, the spadix of the *Anthurium* becomes covered with whitish, meal-like pollen, and if a soft

coloured spathe is not the flower, nor any part of it, but bears the same relation to the true flowers as the sheath which enfolds the young ear of a head of corn does to the flowers inside it. The spathe of an *Anthurium* is primarily the sheath of the flower-head, but in some it is brightly coloured for the purpose of attracting fertilising agents, such as bees, &c. The flowers are arranged in a compact mass all over the finger-shaped spadix, not in the least like flowers in appearance, but if compared with the spike of a *Plantago* their real character will be at once recognised. At a certain period, soon after the spathe has unfolded, the spadix of the *Anthurium* becomes covered with whitish, meal-like pollen, and if a soft

brush is drawn over this, the flowers will be fertilised, and seeds ought ultimately to be matured. Anthuriums as a rule seed easily, and *A. Andreanum* is one of the freest in this respect. It also crosses freely with other species allied to it, a circumstance which has been taken advantage of by hybridisers, whose efforts in this direction have been rewarded by several very handsome hybrids. These are:—

A. FERRIERENSE, which was raised by M. Bergman, gardener to Baron A. de Rothschild at Ferrières, who exhibited a plant of it in 1882, and afterwards disposed of the stock to Messrs. Veitch & Sons. The parents of this hybrid were *A. Andreanum* and *A. ornatum*, the latter an erect growing, single-stemmed species, with large cordate leaves and erect flower-stalks, bearing pure white spathes and lavender coloured spadices. When fresh, the odour emitted by the flowers of this plant is very fragrant. It is stated that each individual raised from the seeds obtained from this cross possessed some character different from the others, a fact in keeping with what is invariably the case when two distinct species are crossed. The beauty of *A. ferrierense* is now generally recognised, and its perpetual flowering habit has won for it many admirers. Like *A. ornatum*, it bears generally only two flowers together.

A. CARNEUM is also the result of a combination of the above two species; it differs in the paler colour of its spathe and their smaller size than in the form known as *ferrierense*. *A. Houlettianum* is the result of a cross between *A. Andreanum* and *A. magnificum*, the latter being large leaved with silvery veins on a dark olive-green ground; the hybrid partakes of the characters of both its parents. It will be noticed that all the above crosses have been among plants related to each other much more closely than *A. Andreanum* is to *A. Scherzerianum*. The last-mentioned species, so far as we know, has never been crossed with any other, although many attempts have been made. We have, however, numerous forms of this now widely-variable plant, large and small flowered, curled and straight, bright scarlet and almost crimson, to pure white, pale yellow and curiously variegated kinds. There is also a monstrous variety remarkable for its numerous little shell-like spathes borne all along the spadix. All these must be considered the result of cultivation merely, and not in any way due to hybridisation. *A. Scherzerianum* is the only species of the section to which it belongs that has ornamental spathes, and it is not likely to cross with any of the other species grown in gardens for their flowers.

The plants sometimes met with in gardens as *A. Patini*, *A. floribundum*, *A. blandum*, *A. candidum*, and *A. Dechardi* belong to the genus *Spathiphyllum*, and have no characters in common with true *Anthuriums*, except that they belong to the same Natural Order. W.

Habrothamnus planted out.—In a late number of THE GARDEN "J. C. C." observes that "no one will grow the *Habrothamnus* in pots after giving planting out a trial"—a statement with which I entirely agree, for I know of but very few flowering plants which give such widely varying results under the two methods of culture just alluded to. Grown all the summer through in pots, even with the best attention in the matter of watering and feeding, the shoots do not attain the luxuriance necessary for the production of sufficiently large heads of bloom to render the plants attractive. The annual growths should be several feet in length, and then they carry large clusters of bloom, which during the early winter months present an extremely attractive appearance. If they are to be flowered in pots they

should be cut back early in March, and after being properly hardened they should be planted out in soil which has been thoroughly stirred and which is in good heart. In a sunny, but sheltered, situation, with sufficient space for development and a good soaking of water when needful, they will grow like Willows, attaining a maximum development with a minimum of labour. A mulch of some light material will further sensibly reduce this latter item. Plants grown on in this way for two or three years will develop into large bushes, in which condition they show the true character of the plant, and are grand for the adornment of large conservatories. By the middle of September they should be carefully lifted and the roots crammed into pots or tubs, giving them a good watering and standing them in a shady, sheltered place, syringing them twice a day for a time in bright weather. Thus carefully tended they will make new roots in a few days. Plentifully watered through the autumn, they will retain their luxuriant leaf development in undiminished lustre. During the winter a constant temperature of not less than 50° and not more than 55°, with more freedom in watering than the usual run of plants demand at that time of year, with occasional but weak doses of liquid manure, will give size and colour to the blooms. Where there is sufficient space the highest development is attained by planting out permanently either against a wall or pillar, or to grow into bush form.—J. C. B.

Violets.—My object in bringing the Neapolitan Violet into notice (see p. 199) was to prevent this sweetest of Violets from dropping out of cultivation, and to show how well it repays good cultivation by flowering at a season when flowers are not by any means plentiful. It was not my purpose to disparage Marie Louise; on the contrary, I considered I indirectly praised its invaluable early autumn flowering propensity by stating that the Neapolitan comes into flower just at the time when Marie Louise has been four months in bloom and showing signs of being somewhat exhausted. I do not think that anyone will maintain that Marie Louise is ever seen so fine as in the autumn, then in its first flush of beauty. Neapolitan and Comte de Brazza are pre-eminently mid-winter Violets, the latter coming into flower in October, but it is at its best from November onwards. "J. R." (p. 242) and D. T. Fish (p. 254) both state that the last-named Violet has not come up to their expectations, the reason of which I cannot understand. They are either difficult to please, or there is something wrong in their soil or climate. Here both in ordinary two-light frames (covered with double mats only throughout the long, cold winter) and in pits slightly warmed with a 3-inch flow and return pipe, they are now, and have been for a long time, perfectly white with flowers. At one gathering in February from a three-light frame I took off fifty dozen blooms. I send you along with this some sample plants lifted from these frames, and at the same time I will forward some to Mr. Fish, trusting that he will tell your readers whether or not the plants which I send him have realised his expectations of what a good Violet should be.—WM. ALLAN, *Ganton*.

* * * Flowers large and fine, pure white, and produced well above the foliage; an excellent crop so late in the season and after so many gatherings.—ED.

New hybrid Begonia.—M. Bruant, nurseryman, Poitiers (Vienne) has obtained an interesting hybrid Begonia by crossing B. Bruanti with B. Roezli. It is described as having a compact habit of growth, fine looking foliage of good substance and bright green in colour, and brilliant scarlet flowers produced in wonderful profusion. M. Bruant says, "It is so floriferous, that in addition to producing in the ordinary way flower-stalks from the axils of the leaves, others spring directly from their edges, as if the ramification of the stems did not suffice to yield enough bloom. We have counted on one seedling plant eleven leaves which presented this curious anomaly, and this feature

has reproduced itself in the progeny issuing from it, so that we may consider it as a constant characteristic of this variety. It is, however, more pronounced in winter, when the plants are in full bloom." This Begonia was awarded a certificate by the French National Horticultural Society in January of this year.—J. C., *Byfleet*.

THE NARRAS PLANT.

THIS anomalous Cucurbit has so far baffled all attempts in England to cultivate it, notwithstanding that good seeds have again and again been obtained and sown under all sorts of likely treatment. At Kew many schemes have been tried, but hitherto we have never got beyond seedling plants a foot or so high, which soon perished. Possibly some reader of THE GARDEN is acquainted with the habits of this plant and the precise conditions under which it thrives naturally. We know that it is found in the same region as the *Welwitschia*, but that whilst the latter grows only among rocks and under similar circumstances, the Narras frequents those places where sand only is found. We have healthy young plants of *Welwitschia* at Kew raised from seeds several years ago. We have also good seeds of the Narras, but cannot get plants to thrive. That this Cucurbit is of more than ordinary interest is shown by the following note.

The Narras (*Acanthosicyos horrida*) is unique, as constituting the only instance of one of the Cucurbitaceæ assuming any other than a trailing habit. This grows up into a very prickly dwarf shrub without any foliage, and bears abundance of Melon-like fruit, which is very nice indeed, and of which the natives are passionately fond; in fact, they crowd down to the coast region (where only it thrives) and almost live upon it, and then carry away with them sacks of the seeds, which also are edible; these seeds are brought down by the coasters for market here in a small way. The Cape Town children are always glad to see Boter pitgies (butter seeds) exposed for sale at the fruit stalls; but the actual fruit cannot be had out of Damaraland. Mr. Palgrave describes it as really delicious, but from what he says of its mode of growth and the kind of soil which it affects, I think there is small chance of its growing in Europe. The seeds are like Melon seeds in size and shape, but the shell is harder, and the kernel is not unlike that of Almonds. I have tasted them and found them to be very good, even after having been subjected to the drought and rough usage of a small packet sent from Central Africa by the post.

Kew.

W. WATSON.

Tree Carnation cuttings.—Mr. Gilbert asserts (p. 291) that these fail to strike under glass lights. Had he given them personal supervision, he would have detected the first symptoms of decay from damp, and would have tilted the glass or removed it altogether, especially at night. The object of covering them with glass is to prevent evaporation. A house entirely devoted to cuttings would be shaded from sun, even in March, little air would be admitted, and the atmosphere would be moist; therefore, covering cuttings under such conditions would undoubtedly cause them to damp off; but in a house, such as ours is, set apart to hasten the flowering of plants for the greenhouse, the air is much drier and ventilation more ample. In that case covering the cuttings with glass lights is a necessity. I should add, however, that our lights have movable tops to be tilted as the conditions of the cuttings may require. We never lose any under glass, but have had a few dry up without it.—J. D.

Forcing Lily of the Valley.—At the recent Bath spring show visitors had an opportunity of comparing the two systems under which this Lily is forced, and of which much has been heard lately. Messrs. Cooling were awarded the first prize for three pots of it, each containing about 100 imported single crowns. They were brought on gradually, two months being the time allowed for

them to develop, and the result was all that could be wished for. Every spike was strong and fully expanded, while the foliage was well matured and spreading, in this respect especially presenting a strong contrast to the second prize lot, which had been grown in about one half the time. The spikes of bloom in this case were also abundant and strong, but the foliage was only partially developed, being nearer yellow than green in colour and neither handsome in appearance nor serviceable in a cut state. Growers for market expressed the opinion that Lilies of the Valley can usually be forced very rapidly into bloom, but on the whole it is advisable to give them more time, and this appeared to be the prevailing opinion.—I.

EFFECT OF FROST ON PLANTS.

RESPECTING the many cultivated plants that will not bear more than a few degrees of frost, it is only necessary to consider the wide difference that exists in their composition in regard to water to understand how differently they are affected by the action of cold. Frost kills or injures plants in more ways than one, but in the case of such as are tender the effects usually vary in proportion to their more or less watery-succulent nature, and to the condition in regard to moisture overhead and at the roots in which they may happen to be at the time when they get frozen, as this has much to do with their powers of resisting cold. Some plants will bear cold to an almost incredible extent provided water is withheld. I have seen large examples of *Agave americana*, that have stood in pots for a whole year or more without water until their leaves became shrivelled, bear as much frost without being affected as would have killed them had they been plump and full of moisture. The hardier kinds of *Echeveria* are in like manner indifferent to a considerable amount of cold when their roots and tops are quite dry. But this condition of dryness may easily be pushed too far in the case of some kinds of plants, especially such as are grown in pots, and which, if the soil has been allowed to get so dry that they are in a stagnant, enfeebled state, are often killed by cold, when, had the roots been in a more moist condition, little injury would have been the result. This particularly applies to plants of a non-succulent character, such as Ferns and many greenhouse species that contain a considerable amount of fibre in their branches and stems. Shrubby *Calceolarias*, with the soil contained in the pots they are growing in in a moderately moist state, suffer little when caught by frost that would kill others that had the soil too dry to keep the leaves crisp and plump. The Lemon-scented *Verbena* will bear several degrees of frost when the soil is in a half moist state, whilst if dry when frozen, it rarely recovers. *Centaureas*, even with the pots plunged, if hard frozen when the soil is very dry are frequently killed, whilst others similarly placed that happen to be somewhat moister at the roots escape. Numbers of other plants might be named that are very susceptible to injury from frost when the soil in which their roots are placed is too dry, thus showing that although many plants will bear a lower temperature when the soil about their roots is quite dry, still there are others to which the principle does not apply, and that so far from being able to stand more frost when their energies are stagnated from want of water, they suffer in proportion to the extent to which the drying process has been carried.

TO SUM UP THE MATTER, it is evident that the least injury will occur to most plants growing in pots that get frozen when the soil is as dry as it will bear to be without their actually suffering through want of moisture; whereas, if in the latter condition, they are less able to withstand its effects than if the soil is somewhat moist. Plants that have been treated in a way not favourable to quick or vigorous growth, such as when their roots are cramped for room in small pots, and that have grown old under such conditions, with their stems and branches hard and woody, will bear a considerably lower temperature than where treated the reverse of this. I may mention a case of this nature. I have a plant of the old scented-leaved *Pelargonium* that has been grown as an experiment for twelve years in a 6-inch pot without

ever being repotted or any addition made to the soil, simply living on artificial manure given during the growing season; so treated and headed down early each spring, it makes growth little, if any, inferior to that which would be obtainable in the same sized pot with new soil given annually, but, needless to say, the stem and lower part of the branches are as hard as that of an old Gooseberry bush. The plant was unintentionally left out of doors one night early in the present winter when there were 11° of frost, which killed others of the same kind as effectually as if they had been boiled, yet the old plant, although the last season's growth was destroyed, is none the worse below, as it has broken freely from the hard old stem. I have never seen that this *Pelargonium*, when in a young free-growing condition, would bear a lower temperature than any of the zonal varieties, but the latter, from their stems, even when old, always remaining much more succulent than the scented variety in question, will not stand anything near the cold that the hard wood of the scented sort will. Those who have had anything much to do with plants of a non-hardy nature will have had opportunities of seeing cases of a like description which are so far instructive that they show that when a plant is placed under conditions that are not favourable to free growth, and when the stems have become thoroughly hard and woody, they will bear proportionately more frost than when young and more liberally treated.

PLANTS WITH DRY TOPS.—In regard to the ability of plants to bear more frost when their tops are dry than when wet, it may be set down as applying to all those that are hardy as well as the kinds that are tender, as the more moisture there is hanging about them the more they suffer from its being confined. Beyond the injury that occurs to plants that are not hardy when their tops get frozen there is another way in which even hardy plants that have their roots confined in pots, or similar appliances, suffer if the soil in which they are growing gets frozen. That is through the expansion common to all bodies that absorb water when the water they contain gets frozen, and which in the case of the roots so placed crushes them to an extent that often causes their destruction, and which would not occur were they in the open ground where the soil is not so confined. Consequently, when any plant, however hardy it may be, has its roots so confined, and is within the reach of frost either out-of-doors or in unheated pits or frames, the pots should be protected in some way, or plunged deep enough to keep the soil within them from being frozen. Respecting plants that are naturally quite hardy, high cultivation is well known to have much to do in making them liable to suffer from severe frost. Take, for instance, the native plants from which have sprung some of our favourite culinary vegetables, such as *Celery* and the different varieties of the *Cabbage*; the former, needless to say, is naturally as hardy as the native Grasses, and even under cultivation suffers little if the plants are growing in ordinary garden soil with their stems trailing on the ground in place of being earthed up in the way it is required for use. The original *Cabbage* in its natural condition is as hardy as the commonest weed, but cultivation has reduced it in the various forms it now exists in every garden to a condition that renders it impatient of standing exceptionally trying winters like the present, as most gardeners know and now feel the inconvenience of. The *Broccoli*, *Kales*, and *Brussels Sprouts* required for winter use, when grown, as they usually are, in ground that contains a good deal of manure, like everything else under similar conditions, have their cold-resisting powers reduced. In their case the best means of correcting the enfeebling influence of the many generations of cultivation they have undergone is to grow them on ground that is not over-rich, and give them plenty of room, with the object of securing sturdy growth rather than size without enough solidity in the plants to admit of their braving a hard winter. T. B.

5469.—**Straw mats.**—The twine for binding on the straw is fastened in the ordinary manner to the base of the stout strings which form the framework of the mats close to the nails which hold them. The

straw then taken in the left hand is laid crosswise on the strings, the piece of wood round which the twine is wound being grasped in the right hand, leaving about 6 inches of twine free between it and where it is fastened to the stout string. Holding the straw firmly in its place, pass the reel of twine to the right of the string and behind it; then back again to the front on the left-hand side of the string, passing it to the right again underneath the twine. This forms a running noose, which being tightly drawn down fixes the straw firmly in its place. In description this appears to be a complicated affair, but it is not so in practice, as a trial or two will prove.—J. C. B.

PLANT NAMES.

THE constant recurrence of discussions on this all-important subject in the pages of *THE GARDEN* does not seem to lead to much result, though I am glad to see that the craze for English names appears to have died away to a great extent. With regard to the letters of Mr. Douglas (p. 255) and "F. W. B." (p. 273), I should like to say a few words, more especially as the work of the *Narcissus* committee, from which so much was hoped, does not seem to have at present had very much effect either in the elimination of what I must consider synonyms among these plants, or in the establishment of a sound system of nomenclature among *Narcissus* growers.

A sound system, in my opinion, is one which retains botanical names for all plants which, when growing in a wild state, afford such constant botanical characters, that they can be separated and distinguished from their allies. But it must be remembered that botanists, especially of the old school, are anything but infallible, and that very many names have been given and descriptions properly published of plants which do not afford such characters, or which, when brought into cultivation, lose them. And therefore the work of the horticulturist must have considerable influence on purely botanical nomenclature, by enabling botanists to test the constancy and verify the distinctness of the characters on which the plants were originally described. And it will frequently be found that names which have been applied by good botanists to apparently distinct plants will by such a test be found unworthy of recognition and sink to the rank of synonyms. Mr. Baker, than whom no one knows this better, was therefore suggesting an admirable bit of work for *Narcissus* enthusiasts when he proposed, last Tuesday, that steps be taken to procure, from their wild sources in Italy, the numerous forms of *Narcissi* described, but not figured, by Parlato, the distinctness and constancy of which is doubtful, and many of which are perhaps in cultivation under other names.

Parlato was, no doubt, quite right to name these plants in a special work on the Italian flora, but it does not follow that we shall be right to recognise his names, as our knowledge of *Narcissi* is much greater than Parlato possessed; and the genus *Narcissus* is an excellent instance of the tendency in a genus to develop local varieties, some of which are not constant in cultivation, and others may be artificially produced by cultivation. When, therefore, Mr. Wolley Dod, as chairman of the *Narcissus* committee, proposed, as I understood him to do, that a plant sent from Portugal should be then and there named *Johnstoni*, I thought that we should, by accepting his proposal, be acting contrary to the well-known and universally accepted botanical rule which lays down that no name can be recognised unless accompanied by a proper botanical description, published in a recognised botanical or horticultural journal, and that this name, if given hastily or without sufficient definition, would even then be liable to be considered as a synonym. It is because botanists have been in many cases too

hasty, too careless, or because they have not allowed enough for the tendency to variation in so many genera, that such a great number of synonyms exist; and the great object of our committee being to establish uniformity and accuracy of nomenclature, we must be careful not to add new synonyms to those which already exist. Then as to the question of horticultural nomenclature, the rule which we have adopted for Narcissi must, I think, be accepted for all genera. It is that varieties which have originated in gardens either from seeds, sports, or hybridisation should be distinguished from natural botanical varieties by suitable florists' names, and the acceptance of these names by the horticulturists of all countries, which is for commercial reasons especially most desirable, must depend on the authority of the namer. There are, no doubt, many professional and amateur gardeners whose names would be accepted as a rule on account of their well-known care not to give new ones unless the variety was really new, distinct, and desirable; and when such plants have been submitted to the floral committee and certificated under such new names the double authority of the introducer and the committee ought to cause the general acceptance of such names. But in order to give proper authority great care must be taken, as we undoubtedly have had numerous varieties of plants certificated which, even if new, are not sufficiently distinct. Both raisers of new plants and the committee will only have themselves to blame if their authority is not generally accepted.

On the question of naming Orchids, which was considered at the scientific committee last week, it seemed to be thought by some that that committee was competent to decide at once as to the novelty, distinctness, and correct name of all plants brought before it, but this is evidently not possible, because to enable even a specialist like Professor Reichenbach to decide such a question a great deal of work must be gone through, a great many books, specimens and notes consulted, and in some cases information obtained from other sources.

Professor Reichenbach has for many years had almost a monopoly of the great family of Orchids, and if he does not know a plant, it may be reasonably concluded to be new; but though I do not question his authority on Orchids as being superior to that of any other living man, yet I cannot believe that he has not in many cases been obliged to modify or change his judgment by the receipt of new specimens and the general increase of his knowledge. If he were now to publish a general catalogue of Orchids, which would undoubtedly be an enormous boon to the botanists and gardeners of the world, I believe that he would no longer recognise some plants which he had formerly considered as distinct species, and that many alterations would take place in horticultural nomenclature in consequence. But believing, as I do, that it is better that a plant, whether species or variety, should everywhere and by everyone be known by one name only, even if that is not an absolutely correct one, than that confusion should be introduced by change, I hope that the law of priority will not be made too absolute.

Now we have to consider how the committee of the Royal Horticultural Society may be best enabled to carry out these objects, and I think that some changes might be made in their system with advantage. It frequently occurred when I sat on the floral committee that no sufficient information was sent with the plants brought before them, and it also happened that plants of botanical rather than horticultural interest were submitted to the votes of men who had little knowledge of and less interest in such plants.

I would therefore suggest first that the floral committee be divided into two bodies, one consisting of men whose special knowledge of florist flowers enabled them to decide as to the novelty and merits of new varieties of Azaleas, Hyacinths, Gladioli, Begonias, Pelargoniums, Cyclamens, and all the other plants which having been made a speciality by florists have developed innumerable garden varieties, and this committee should be presided over by an eminent amateur florist.

The other to consist of men whose tastes and experience have directed them rather towards botanical horticulture, and this committee should be presided over by a man who combines botanical with horticultural knowledge, which is often not the case in the present floral committee.

I would also suggest that all plants submitted to either of these committees should be entered on a printed form supplied by the society for that purpose, which should specify the name of the plant, the authority for this name, the native country, and by whom introduced; whether the plant had been in any way protected or not, whether it had been previously shown or not, and any other peculiarities which would aid the committee in deciding as to its distinctness and merits.

All this published in the annual proceedings of the society would, in the course of years, form a most valuable catalogue of new and rare plants which are too often lost sight of, either because the introducer knows they have no chance of being noticed by a committee consisting largely of florists, or because no information is given at the time they are submitted. I subjoin a specimen of the kind of entry I would suggest, and hope that it may not, like so many other reforms, be lost sight of in the press of business coming before the council.

PLANT ENTERED BY H. J. ELWES, PRESTON, CIRENCESTER.
Botanical Committee, R. H. S.

| | |
|--------------------------------------|--|
| Name of plant entered April 2, 1886. | Fritillaria imperialis var. inodora. E. Regel. |
| Where described. | "Descriptiones Plantarum," Fasc. ix., 1884, p. 13, figured as F. Eduardi (A. Regel) on plate 11; also described and figured as F. imperialis var. purpurea in <i>Gartenflora</i> , 1884, plate 1065. |
| Introduced from. | Mountains of Bokhara and Darwas, 6000 feet to 7000 feet elevation, by A. Regel, and distributed by St. Petersburg Botanic Garden. |
| Whether previously shown in England. | No. |
| Peculiarities. | Differs from the cultivated and wild forms of F. imperialis by absence of scent and by colour of flowers. |
| Hardiness. | Grown in open air; quite hardy in Russia and England. Signed, H. J. ELWES. |
| Certificate granted. | Signed, M. FOSTER, <i>Chairman</i> . |

PLANT ENTERED BY H. J. ELWES, PRESTON, CIRENCESTER,
May 10, 1886.
Floral Committee, R. H. S.

| | |
|---|--|
| Name of plant. | Primula acaulis Perfection (Hort. Elwes). |
| By whom raised. | Raised from seed of P. acaulis lilacina (Hort. Ware) x P. Golden King (Hort. Nelson). |
| Whether previously shown. | Shown on March 29 as grown under glass; returned to be shown again from open air. |
| Peculiarities. | Distinct from Dean's Improvement in being three weeks later, and from all other varieties in colour, which is constant. Signed, H. J. ELWES. |
| Certificate refused, as the committee do not consider lateness of flowering an improvement in Primulas. | Signed, G. F. WILSON, <i>Chairman</i> . |

If such entries as these were made, three points would be gained. First, the committee would know upon what they were asked to decide, and if they did not consider that there was proper authority for the name, they would forward the plant to Kew or elsewhere for comparison.

If they did not consider the plant distinct, they might refuse the certificate on this ground alone;

or if they thought it generally inferior, they might certify to this effect. Secondly, the exhibitor of the plant would know on what ground his plant was accepted or rejected. And lastly, the public would know a great deal more than they do now, and it would always be possible to refer to the annual list of plants certificated for information, which is otherwise hard to obtain. It might often happen in the case of Orchids and others that the opinion of both committees was requisite. The botanical to say whether a new variety was correctly named or not, and the floral to say whether it was deserving of recognition; but in any case it would be better if men who pretended to no special knowledge of a plant under consideration should not vote, as they used to do sometimes, simply to oblige a friend. And the constitution of these committees should be strengthened and improved by every possible means, as the more first-class men who sat on them the more value would their decisions have.

H. J. ELWES.

GARDEN FLORA.

PLATE 538.

HYBRID ALSTROEMERIAS.*

BOTH *Alstroemerias* and the allied genus *Bomarea* have risen largely in popular estimation within the last few years. Their variety of colour and markings is endless; they are useful, too, as well as handsome, and with one or two exceptions their cultivation is by no means difficult. In borders, indeed, specially prepared for them they may be grown with great success, and there is little reason why the equally charming *Bomareas* should not be grown in the same borders. They should always face due south, and if possible be situated in front of a wall or house, up which the *Bomareas* could be readily trained; some of the hardier species of *Bomarea* at any rate would no doubt prove amenable to such culture. In many gardens, and notably at Munstead, *Alstroemeria aurantiaca*, *hæmantha*, and others grow and flourish too with little or no trouble even in the ordinary border, and with no more preparation than that usually made for common hardy plants. On the top of chalk hills near Dorking might have been seen last year *hæmantha* in a border in front of an outhouse facing the south literally covered with bloom. Shelter from the east and north and natural drainage have a great deal to do with the successful growth of the two genera just named, and the soil should be light and sandy. A few of the hardier *Alstroemerias*, such as *A. aurantiaca* and *hæmantha*, might be naturalised on sunny banks in the wild garden, and it would be interesting to watch their progress and that of seedlings which spring up about them, as I am under the impression that natural crosses would occur amongst them. In preparing a border for these plants the first point is that of drainage. The border should be 2 feet deep at the least, with a firm bottom sloping to the front, where it should be 6 inches lower than at the back; there should be 6 inches of good rough draining material, and the whole should be filled up above the level of the surrounding ground, and the surface should have the same slope as that of the bottom. Grit or coarse sand should be plentifully used along with the soil; indeed, the lighter the soil is the better, and the crown of the plants should not be nearer the top than 9 inches nor farther from it than 1 foot. Most of the species may be propagated by division, especially the strong growing kinds, but as they produce seeds

* Drawn in Mr. G. F. Wilson's garden, Oakwood, Wisley, by Mrs. Duffield in August.



HYBRID ALSTROÆMERIAS

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pretty freely, that is much the best way of increasing them. The seeds, which are as large as small peas, should be sown in shallow pans in autumn as soon as collected, and if kept during winter in a cold frame they will be germinating now and will be ready for planting out about the end of May; only such seeds as are needed should be allowed to mature, as in some cases they are borne in great numbers and materially weaken the plant for the ensuing year. A top dressing or mulching at flowering time is always beneficial, and they will be all the better if liberally supplied with water. In a cut state the flowers are very useful, lasting as they often do in good condition ten days if supplied occasionally with fresh water and the ends are cut with a sharp knife. They are also frequently used for making up loose bouquets, for which they seem to be specially well adapted. Large numbers have yet to be introduced, and although many are more curious than beautiful, the majority would

4 feet high, and the flowers are produced in an umbel surrounded by a whorl of leaf-like bracts; they number from seven to eight up to twenty or thirty, or even more in the case of robust specimens, and are produced from June to August. Its synonyms are *A. concolor* and *A. aurea*. A large bed planted with two or three forms of it at Munstead was a blaze of colour last July even when other outdoor plants were literally dried up.

A. BRASILIENSIS.—This is perhaps one of the most tender species of the group to which it belongs, and almost sure to be destroyed if left out during winter. It is, nevertheless, owing to the curious colours of its flowers, well worth cultivating. In a cool greenhouse it grows vigorously, and often attains 3 feet in height, clothed with numerous lanceolate or oblong leaves. Its flowers are amaranth-red, mottled or striped with mahogany colour and purple. They are produced in July and August.

A. HEMANTHA.—This is an extremely variable Chilean species, and one which, we think, is responsible for a vast number of so-called garden hybrids, but which are really only seed variations. The flowers on the left hand side of the accompanying plate doubtless belong to this plant, as well as half-a-dozen or more forms figured in the first series of the "Flores de Serres," varying from deep rose through lemon-yellow to white, all truly handsome, and making up of themselves quite a superb bouquet. Its nearest ally is *A. aurantiaca*, from which it is easily distinguished by its more glaucous, fringed leaves and almost uniform reddish flowers. It is rather dwarf in habit, neat and compact, varying from 1 foot to 2 feet high. The lower leaves are lanceolate, while those on the upper part of the stem are linear, and fringed at the edges with soft white hairs. The flowers, which are few in number in a head, are surrounded with nine or ten narrow bracts. Their colours, which range through brilliant red, purplish, orange-yellow to light crimson, are variously marked or streaked on the larger of the inner segments. Seed of it was first sent to this country by Lady Oakes about 1837. Plants of it look well either in a border or on rockwork, and it is per-

differ somewhat from *Ligtu*, but not materially. It possesses a sweet scent not unlike that of *Mignonette*. Other named varieties are *pallida*, which has larger and paler flowers; *Presliana* (*albiflora*), a small-flowered sort, not very showy; *angustifolia*, a kind with very narrow leaves and small inconspicuous flowers; *flava*, dwarf and few flowered; and *Hookeriana*, merely a slight variety.

A. PELEGRINA.—Of this a few varieties are in



Alstroemeria psittacina.

cultivation; they succeed in a south border, in which they attain a vigour not equalled by plants grown in pots. *Pelegrina* was introduced by Kennedy and Lee about the year 1750, and three years later it was widely distributed. It grows from 1 foot to 1½ feet in height; its leaves, which are lanceolate and twisted on the flowering stems, are longer and narrower on those that are barren; the flowers, of which some six or eight are collected in a head, are large and beautiful as regards markings. They are lilac or pale purple, and mottled with reddish purple on a pale ground; the variety called *albescens* is more curious than beautiful, the outer segments being green and white, while the inner ones are mottled with dull purple. The white variety is not so plentiful as it deserves to be, its flowers being useful for many purposes. *A. guillotensis*, from Buenos Ayres, is a variety with large, massive flower-heads, which are at their best in June and July. It is figured in the *Botanical Magazine*, t. 139.

A. PSITTACINA (the Parrot Flower) seems to be appropriately named. It is almost the only representative of the Brazilian section capable of being cultivated out of doors in this country. It grows



Alstroemeria aurantiaca.

doubtless prove acquisitions to those already in cultivation.

A. AURANTIACA.—This Chilean species is probably the best known of all the *Alstroemerias*, and, excepting *A. hemantha*, it is certainly the easiest to deal with. We have seen numerous forms of it possessing different colours, but orange-yellow predominates, thus distinguishing it from the other species in cultivation. The form represented in the right hand corner of the annexed plate nearly corresponds with the variety called *aurea*, figured in the *Botanical Magazine*, t. 3350, and the type is well figured in Sweet's "Flower Garden." It is perfectly hardy in the open, requiring no protection even during severe weather, i.e., if planted deeply. As regards vigour, it is unsurpassed by any of the others, the stems being stout enough to carry the large head of flowers which they produce without the use of stakes or other support. Almost any position will suit this species, although it does best when planted near a wall, its east or west exposure being immaterial provided necessary precautions are taken to ensure good drainage. It grows from 1 foot to

feet high. In warm seasons it flowers from July to October. *A. Simsii* (Sweet's "Flower Garden," tab. 267) is a variety of this species, more robust in habit, with the upper leaves an inch or so broad.

A. LIGTU.—This is also Chilean, and one of the oldest cultivated species. It does well under cool greenhouse treatment, but in the open it can be got to flower only under the most favourable circumstances and in the southern counties. Its flowers, too, so early outside, that its blossoms are invariably destroyed. It must therefore be kept in the greenhouse or conservatory, unless handlights or other means are used to protect it in cold weather. It grows from 1 foot to 2 feet in height, rarely exceeding the latter. Its leaves, which are lanceolate, are pointed and more or less contorted. The flowers are large, the outer segments being purple-red or lilac, while those of the inner row are prettily striped with dark yellow on a white ground. There are several forms and varieties of it, the most notable being streaked with bright purple on a white or pale ground. Its synonyms are *A. chorillensis*, of Herbert's "Amaryllidaceae," and *A. lineatiflora*, of the *Botanical Register*; both

readily on sunny spots on the rockery, and all the better if the tubers are close to the sunny side of the stones. The soil should be light and gritty, and it should be protected in winter with a square of glass to keep off damp. It stands pretty hard weather, however, without being hurt. It grows from 2 feet to 3 feet high, erect and compact. The leaves are light green in colour, and the flowers, which are produced in large um-

bels, are purple at the base, gradually becoming green at the tips, the whole being prettily spotted with purple. They are produced from August to October. It is the *A. pulchella* of gardens, Banksiana, &c. *Psittacina* var. *Erembaulti* is a hybrid which flowered first in Edinburgh fifty years ago. It differs from the type chiefly in having white, crimson or red, and yellow-spotted flowers. It is very difficult to manage in the open border.

A. PULCHRA.—This could be ill-dispensed with in a collection of these handsome flowers. It is nearly allied to *A. Ligtu*, but has much narrower leaves and fewer branches. It is not so hardy as some of the other species, and requires protection in winter. It grows a foot or more in height and has numerous linear, pointed, hairy leaves about 3 inches long. Its flowers, which are produced in loose umbels, are purplish tipped with greyish white, and spotted with yellow and deep purple. *St. Martin's Flower* (*Flos Martini* of gardens) is a handsome variety of this species, first introduced by the Royal Horticultural Society. Its leaves are narrow and not unlike those of the type. The flowers, however, are as large as those of *hæmantha*. They are white with purple blotches and banded with orange underneath, the segments being curiously serrated on the upper sides. It flowers with us in July and August. It is a Chilean species and is the *A. tricolor* of Loddiges' 'Floricultural Cabinet.'

A. VERSICOLOR.—This is a Chilean species and extremely variable, if one may judge from the number of varietal names that it possesses. It has probably something to do with many of the forms which we see in gardens, especially on the Continent. It varies in height from 6 inches to about 2 feet. It has numerous close, fleshy leaves that grow erect, and are linear shaped. The flowers, which are in compound umbels, are usually finely rayed, two flowers in each, reddish yellow, and spotted with purple. They are produced in July and August. The varieties belonging to this species are *recumbens*, *Kingi*, *Cunningiana*, *tenuifolia*, and *nivalis*. It is a native of Chili.

The following are either not in general cultivation or not yet introduced, viz.: *A. flava*, *Diagi*, *inequalis*, *Gayana*, *chilensis*, *hirtella*, *citrina*, *pallens*, *pygmaea*, *tigrina*, *puberula*, *nubigena*, *parvula*, *revoluta*, *xanthina*, *inconspicua*, *aracana*, and *rosea*. These are all Chilean kinds. The following are Brazilian, viz.: *A. scaberula*, *longistaminea*, *inodora* (*nemorosa*, *Bot. Mag.*), *foliosa*, *filipendula*, *caryophyllæa* (*Ligtu*, *Bot. Mag.*), *spathulata* (*Neilli*), *venustula*, *crispata*, *crocea*, *pauperula*, *violacea*, *lineatiflora*, *Sellowiana* *longistyla*, *Burchelli*, *Gardneri*, *platyphylla*, *cunea*, *Isabellana*, *plantaginea*, and *zamioides*. *Albens*, *labrata* and *rubella* are named hybrids in Paxton's *Magazine of Botany*. D. K.

Preservation of rare British plants.—I was pleased to read (p. 252) that an attempt is being made to put a stop to the destruction of rare British plants. I can testify, from actual observation, that unless something is done, and that very soon, many kinds of plants will become extinct. Ferns are especially liable to be rooted up in the most indiscriminate way, owing to the fact that they find a ready sale in towns, growing, as they do, in shaded gardens where flowering plants would stand no chance of succeeding. This is the time of year, when the young fronds are just commencing to grow, that the greatest destruction is done. Lately several professional collectors, men of the half-gipsy and half-tramp class, who know every copse and dell in the county, have solicited orders from me for Fern roots; they can tell exactly where the few Royal Ferns (*Osmunda regalis*) still left in their native haunts are to be found, and with the Fern roots they bring in Primroses, Daffodils, or anything likely to find a customer. In fact, they have something to collect during every month in the year; one of them sent off several thousand Briers to a London nurseryman during the past season. In fact, few counties have a larger population that lead this wandering life than Hampshire, principally, I presume, owing to the large extent of Crown and

forest land which it contains, and over which little supervision is bestowed; at least, they appear to have no dread of being molested in their depredations. These people make a living in the way just indicated, but tourists and others who wantonly destroy rare British plants, or root them up simply because they are rare, have no such excuse; and I trust that some good may result by keeping our native flora from being robbed of some of its choicest ornaments.—J. GROOM, *Gosport*.

KITCHEN GARDEN.

SUMMER SALADING.

IN most cases Lettuces form the chief ingredient in a summer salad, and for this purpose popular taste is in favour of the Cabbage Lettuce on account of the heart leaves being capable of being dressed without being cut into pieces, and when so prepared the appearance of the salad is better than when straight, flat grown leaves are cut into shred-like pieces. So far I can go with those who are in favour of Cabbage Lettuces, but I am persuaded that if anyone wants a firm and crisp full-flavoured Lettuce they must select *Cos* varieties. We will, however, deal with the two sorts separately. As to Cabbage Lettuces, I have grown nearly all the reputed new and old kinds, and I have come to the conclusion that it is a waste of time and space to grow more than three of them. The Giant, Drumhead, and Long-standers are names likely to catch the eye, but when grown by the side of established sorts they prove to be no improvement on them. For an early summer supply the Hardy Hammersmith should be sown about the end of August and the produce should be wintered in cold frames or grown close to warm walls. If a few are transferred in spring to open quarters, they will keep up a succession to the middle of June. To succeed these a sowing should be made under glass early in March and the produce should be nursed on until suitable weather admits of its being planted out. Successional crops may be made in the open from the 1st of April until the end of August and always where they are to remain, for unless the weather is very favourable Lettuces do not bear transplanting. The seed may either be sown in drills or broadcast; in either case the plants should be thinned out as soon as they are large enough to handle. The best kind to sow in the open is *Commodore* Nutt. For early summer use this is the closest and most compact of any. After the middle of July I like to sow *Tom Thumb* for autumn.

In order to prevent a break in the supply it is necessary to sow seed every 3 inches from the middle of May until the end of August, and where the soil is light and sandy it is a good plan to make the June and July sowings on a cool north border. The best *White Cos* for summer use is a good selection of the *Paris Cos*; there is a variety of names in this section, and some of the kinds represented by them are sufficiently distinct perhaps to justify them, but given a thoroughly rich and deep soil and plenty of root moisture in dry weather, and almost any of the sorts may be grown to a large size and be crisp and full flavoured. No one can grow a good Lettuce in a poor dry soil, but many do not get them so good as they might be even when other conditions are favourable, because they do not allow them space sufficient for proper development. In order to grow a good *Cos* Lettuce the plants require to stand 18 inches apart either way. Where large Lettuces are required the plan of growing them in trenches in cases in which the soil is naturally poor and not very deep is an excellent one; the trenches should be prepared in the same way as for Celery, only they should not be made so deep. The soil should be dug out and a layer of manure put in; 3 inches of soil should be placed on the manure. The principal advantage of this plan is that all the water given to the plants reaches the soil in which the majority of the roots are growing.

ONIONS.—Where these are required it is necessary to provide them in a young state, and to do so it is necessary to sow a little seed once a month from the middle of March to the middle of August. As a small piece of ground will suffice for each sowing it is a good plan to set apart a narrow border for such a purpose, so that the sowings may follow each other in proper succession. This is much better than having a patch of Onions in various parts of the garden; the seed may be sown broadcast and raked in; the Queen is the best sort to select for this purpose, as it quickly comes into use and is mild in flavour.

RADISHES.—These must not be omitted; for sprinkling over the top of the salad the red-skinned sorts are best, but in order to have Radishes in good condition for salads they must be of fair average size and tender; therefore they must be grown quickly, and they cannot be grown young and tender in poor ground or without plenty of root moisture. It will be necessary to sow them every three weeks from the first of May until the end of August, and during June, July, and August the seed should be sown on a cool shady border. The French Breakfast or Wood's Early Frame are suitable sorts for summer use.

CORN SALAD (*Lamb's Lettuce*).—This is useful where variety is required, especially in dry summers when Lettuces and Endive are scarce, as if a small piece of ground in a shady corner is sown with it and the plants kept growing by an occasional soaking with water, a constant supply of its leaves will be available all the summer. The first sowing should be made in April and another in June, and if required during winter a larger space exposed to full sunshine should be sown about the middle of August. This plant is not a bad substitute for Watercress.

CHICORY.—This is an excellent ingredient in a salad. Seeds of it should be sown in April and again in June, so as to make sure of a regular supply of young tops. Any open position fairly well sheltered suits Chicory.

ENDIVE is not generally used in summer saladings, but it is sometimes called for. In order to have it when wanted, a sowing should be made early in June, and another three weeks later. It is best to sow where it is to remain, as transplanting renders it more liable to run early to seed. It likes good, rich, well-moved ground and an open position. The seed should be sown thinly broadcast, and as soon as the plants are large enough to handle they must be thinned out, so that those left may stand 1 foot apart each way. Digswell Prize is the best sort amongst the curly-leaved section, and the white Batavian amongst plain-leaved sorts. In order to blanch Endive I find that there is no better plan than to tie them up when the leaves are quite dry.

Amongst other herbs, Chervil is occasionally required for flavouring salads; therefore only a small quantity need be grown. The seeds should be put in early in spring, but as that which is sown early soon runs to seed, a second sowing should be made at the beginning of August to provide a supply for the autumn. Nasturtium flowers are sometimes used for garnishing, but as everyone knows how to produce them, nothing more need be said in reference to them. The green tops of Tarragon are frequently asked for to flavour salads, but as it is only used in small quantities it is unnecessary to occupy much space with it; a couple of clumps on a warm border will suffice. If all the growth on one plant is cut down at the end of June, the second growth will furnish a supply for the late summer months.

J. C. C.

Vegetable Marrows.—We have had two very dry summers, during both of which the value of the Vegetable Marrow as a drought-resisting crop was especially noticeable, and as we usually get a succession of dry seasons it will be well to be prepared for them by having a good supply of this most useful vegetable. The plan of planting on ridges of manure is by no means necessary, as I

find Vegetable Marrows to be far more fruitful when planted in ordinary garden soil and treated like any other garden crop. Our plan is to sow now; by the end of April the young plants will be ready for putting out under handlights, cloches, or any temporary protection, and as soon as they begin to grow sufficiently to require more space all danger from spring frosts will be past. A mulching of stable litter over the roots and plenty of water in dry weather are the main things needful, and also cutting the fruits before the seed begins to swell up, for if allowed to remain on the plant too long they check the formation of young fruit. The long white and striped varieties are, perhaps, the best for general use. The Custard is greatly liked by many, but for market gardens the Bush Marrow has of late become very popular. It is put out between rows of early Peas, which afford it protection during the earliest stages of growth, and when the Peas are removed a mulching is put over the soil. After this, the plants soon commence to fruit, forming large masses of leaves and fruit, but having no long, spreading shoots like the ordinary varieties of Vegetable Marrow.—J. GROOM, *Gosport*.

HOW TO MANAGE A CLAY SOIL.

A NEIGHBOUR of mine has had to deal with a new kitchen garden formed out of a field of very stiff clay, seven acres in extent, and I have been much interested in what he has done to bring it into suitable tilth. His first proceeding was to drain it between 3 feet and 4 feet deep, and his second to plough it; then he double-dug it 20 inches deep, turning up the subsoil to the surface, and burying that which was on the top. Digging was never attempted when the soil was moist enough to stick to the feet; the best part of it had to be dug with a fork in the first instance, and he made a point of turning it up as early in the winter as possible, so that the frost could pulverise it. Any wheeling in of manure or any refuse that it might be advisable to mix with the soil is done on frosty mornings, as it is considered that much harm is done to a stiff soil by wheeling over it when the surface is moist. Broad Beans are planted on the stiffest portion of the land and good crops are the result. They are sown in February, by being dibbled in when there is a slight frost, so that the soil does not stick to the planter's shoes. The holes are filled up with finely sifted cinder ashes, and as soon as the frost will admit the surface is raked over. The ashes are used for two purposes, one to check the ravages of slugs, the other to keep mice away. Red Beet is sown in May, and very fine roots are harvested. Dwarf French Beans grow well also; they stand well in the stiff soil, and produce for a long time. Carrots are well grown; the bed is prepared in winter by digging the ground deeply, putting manure in the trench as the digging proceeds, and larger and longer Carrots are grown in this way than any in the neighbourhood. The soil is prepared in the same way for Parsnips, and both good and long ones are produced. Parsnips are sown in February and Carrots in April if the ground is dry enough; as soon as the young Carrots and Parsnips are coming through, fine coal ashes and lime are scattered over them early in the morning and late in the evening to keep the slugs away, as they are found dangerous to the young plants.

Peas grow very strongly. The first crop is sown in February; after they are sown the drills are levelled in, and fine cinder ashes are sown upon them to the depth of half an inch. An excellent crop of Onions is taken from this soil; manure is dug in in October, and the seed sown early in March. When the Onions are coming up cinder ashes and lime are sown as in the case of the Carrots, but this is done to prevent the worms drawing the plants into the soil as they become very busy after rain. Rhubarb and Cabbages grow to a large size, and Cucumbers are grown on ridges; a trench is dug out, manure is put in, mould on the top of it, a drill is drawn, and the seeds sown in May. Vegetable Marrows are treated in the same way and they do well.

Spinach is sown between the rows of Peas in summer, and after the Peas and Spinach are taken off Turnips are sown; the Green-top Stone is found to be the best. For Potatoes, the ground is dug in winter and laid up in ridges 2 feet apart; in March or April manure is wheeled in between the ridges, the Potatoes are placed on the manure, and the ridges levelled on to the Potato sets. The Ashleaf types do not do well; robust growers of the Regent type do best. Indeed all kitchen crops do well except Asparagus. Fine cinder ashes and lime make very good dressings for a stiff clay soil.

QUO.

WORK DONE IN WEEK ENDING MARCH 30.

MARCH 24.

THE weather continues to be all we could wish, and the contrast in vegetation now and what it was but a week ago is truly amazing. Except Snowdrops, a few Violets and Primroses, hardy Heaths, winter Aconite, and Siberian Squills, there were no flowers in the open garden; now we have a fine show of Crocuses, some Daffodils and Violas, and very soon Tulips and Hyacinths will be in full flower. We protect the beds of the two latter with tiffany, drawn over hooped sticks, when frost seems imminent. This has been a day of kitchen garden seed sowing: Parsnips, Carrots, Onions have gone in well, the soil being in perfect condition. All our kitchen garden seeds are sown in drills; broadcast sowing is wasteful of seed, bad to thin, and to keep free of weeds, and the crops, to me at least, however regular, always look slovenly. Planted Shallots, Garlic, and Onions for seedling; of the latter we have saved our own seed for years past, and have regularly selected the finest bulbs for planting, and the result is a superior strain of Onion that is hard to beat. It is not practicable to grow all the seeds one requires, but my success with Onions leads me to advise anyone that has a peculiar fancy for a certain kind of vegetable to save his own seed for it, and continuously select, year after year, the most perfect type for seedling purposes. I am inclined to believe that there is more improvement to be gained by constant selection than from hybridisation, though I am free to confess that my predilections do not run in the latter direction, and therefore my opinion may not be accepted as of any value. Made sowings of Walcheren and Autumn Giant Cauliflowers, Autumn-protecting Broccoli, early Savoy, and Cabbage. These are all sown thinly in drills on a south border, and netted directly they are sown against the depredations of birds. Planted out Sweet Peas in back part of herbaceous borders. They were sown in 3-inch pots, and are now some 6 inches in height, so they are having sticks put to them at once, which will afford some slight protection against cold winds. Thinning Grapes in early vinery, the growth of wood is now at its height, and we find it necessary to pinch back the laterals twice a week, our rule being never to let growth get so far advanced that it is needful to use a knife; on the other hand, it should be understood that we believe in having plenty of wood and foliage, but only plenty, which means that the trellis must only be covered; no double ply for us in the matter of vine wood. Every leaf should have full exposure to sunlight. Potted Pine suckers, and also shifted more of the Chrysanthemums into larger pots, and potted off Tomatoes that are intended for growing in the open air. By planting-out time, about the middle of May, these will be fine strong plants that will give us ripe fruit from the beginning of July onwards.

MARCH 25.

Weather so splendid, that it must surely have an inspiring effect on the most nonchalant temperaments. "Hants," unfortunately sometimes, does not belong to that class, and he and others have therefore been harder at work than ever to-day in the attempt to bring up arrears. Planted the great bulk of early and second early Potatoes. As to distance apart, we are guided to some extent by the heights and spread of haulm, from 2 feet by 14 inches for the short haulmed, to 3 feet by 18 inches for such kinds as Magnum Bonum and Reading Hero, and all are planted in drills, and on our poorest land before filling in the drills is sown a thick sprinkling of

wood ashes and bone dust. We have also planted Jerusalem Artichokes in exactly the same way, the distance apart of these being 40 inches by 24 inches. Globe Artichokes are very hard hit with frost, that I fear they will be of little use this year, notwithstanding they have had the crown-protecting mulching removed and the ground well covered with good manure; young plants are being raised in heat from seed. Sowed Lettuce on a south border, a few dwarf French Beans in a like position, and Parsley on a west border. Of late years we have been pestered beyond measure with this crop. Last year there was some improvement, but the canker, or whatever it is, is now again very bad; new ground, poor ground, all aspects, soot, lime, wood ashes, guano, and chalk, all have failed, and now we are trying if it will do on our richest ground. Planted a few dwarf bush Apples and Pears; it is rather late, but with thick surface mulching and a heavy watering or two, if the weather proves dry, they will probably do as well as the trees planted in autumn. Peaches and Apricots are almost ready to burst their buds, and our wall protection, which is a fixture—scrim canvas on rollers—and worked in the very same way as ordinary window blinds, will henceforth be brought into use nightly, and in the daytime, too, during bright sunshine, with a view of retarding the flowering to the latest period. Plums and Cherries are very full of bloom buds, and as their walls are not protected with canvas, we use long poles, fixed slantwise against the walls, and to which is fixed thick wasp or fish netting, which, whilst it is protective, also admits abundance of light and air. Indoor work has principally been clearing up after fine potting, such as making the plunging beds trim, linewashing walls, and washing the glass, the latter a most important operation. I know no plant that so soon shows the ill-effects of dull weather by becoming drawn as the Pine; hence every bit of added light, by the cleaning of glass, must in some degree be beneficial. The Smooth Cayenne is the only variety that suffers from sudden bursts of sunshine, and that is the reason why we strive to arrange them in a compartment to themselves, that a slight tiffany shading may be used when needed. Picked surplus fruit off Strawberry plants. Ripe fruit are now moved to a cool house a couple of days before they are required for use, and as little water as possible is given to the plants. Thinning Grapes and putting in cuttings of Iresine, Coleus, single Dahlias, and variegated Mesembryanthemum.

MARCH 26.

Another fine day, but we are having rain this evening. Recommenced the renovation of herbaceous beds and borders; a good dressing of manure is being dug in where there is space for it, and large clumps of any plants that are encroaching on others are being cut away with edging iron, and will be used in other parts of the garden. In parts of beds and borders that are finished digging we have planted in groups of three bulbs of *Lilium auratum*, *Hyacinthus candicans*, and *Tigridias*, and other spaces are left for groups of *Phloxes*, *Potentillas*, and *Pyrethrums* that are now in pots. Made our first sowing of Sweet Peas in the open border, also of *Mignonette*, and in frames sowed a few *Asters*, *Stocks*, *Zinnias*, annual *Chrysanthemums*, and *Sweet Scabious*. Pruned the last batch of *Roses*; they are *Teas* principally and on their own roots, and severe and long-continued as the cold has been, they are not injured—a condition undoubtedly due to the long drought of last year, which tended to the hardening of the growth, perhaps prematurely, but at any rate so effectually that there are no losses by death, that with such weather would otherwise have been the case. Between the *Roses* we have planted a quantity of *Lilium auratum*. We had a few in the beds last year, which were an attraction after the *Roses* were over, and this has induced us to plant them more largely. *Mignonette* we use in the same way in some of the beds, but as we want it in full beauty for August and September we do not sow till early in May. Planting Potatoes. Rolled lawn with horse-roller preparatory to mowing with machine. More Grape thinning; stopped and tied down shoots in second Peach house, and rubbed off a few of the fruit that had set in clusters; well watered the border. For all plants and borders indoors tepid

water we look upon as essential all through the spring months, and none other is used. Planted a new set of Vines on one side of late Muscat house. The house span-roofed—has Vines planted on the north side, and which till now covered the entire roof, the ends—tops—of part of them being rooted in a border on the opposite side of the house; there being signs of deterioration from various causes, mainly, I think, from overcropping, it was determined to sever the rooted tops, and prune the Vines to half their length on the south side of the house, and so make room for an independent set of Vines. A new border has been made, and as the space was too great to fill with new soil the first season, a partition—single brick wall, pigeon-holed—has been built, and the recess thus formed filled with leaves and litter to warm the border, which will help the young Vines to keep pace with the growth of the old Vines that are now just breaking. A couple of Vines of the Gros Colmar variety have been planted with the Muscats, with the view of testing a theory I have long had, namely, that Muscat treatment is what is needed to make this second-rate Grape first-rate.

MARCH 27.

Again fine and mild, but the showers during the night made the ground so wet that it prevented our proceeding with herbaceous plant gardening, but it rather favoured the rolling of lawn and walks, those in particular that were lately new gravelled, our gravel being of that description that if rolled when wet binds down so hard that weeds cannot grow on it, so that, except rolling after heavy rains, we have but little difficulty in maintaining clean and firm walks. Cleaned up fernery and rockery garden. The dead fronds have all been cut away and the ground weeded, and a barrowload or two of soil used to cover the surface roots of a few of the weaker growers. Primroses, Violets, and common Bluebells that are planted amongst the Ferns will very shortly be in flower and relieve the bare aspect that the cutting away of dead fronds has, for the time being, caused. For lack of time and not of interest, our rockery has got overrun with a few rampant growers (not the survival of the fittest in this case) and the weaklings being nearly killed we have had to leave them thus, being content to weed and cut away dead and decaying leaves and parts of plants. Other hands have been busily engaged cleaning and sweeping up, from which we have had rather a long respite. Besides Saturday's wash and scrub out of houses, little time could be spared for other than "must-be-done work," such as looking over Grapes in bottles, thinning out fruit, and shifting Strawberries from one house to another and filling up the vacancies made by gathering of fruit, Saturday being the day on which supplies are required in largest quantity. Pinched the points out of the main stems of our first batch of Melons, as they had reached the desired length, and tied both these and Cucumbers to trellis. Put small sticks to flower-stems of forcing Pinks and Hyacinths. Thinning Grapes.

MARCH 29.

Sunny, with occasional showers; too wet for working on ground, except to trench, which operation is being performed on ground lately occupied with Brussels Sprouts. The long spell of winter is not likely to prove an unmixed evil to gardeners that are sometimes puzzled to find a piece of ground, say, for early Broccoli or Celery, as frequently one has to wait till all the previous winter greens are exhausted, and as the frost has done that this year, the ground can be at once got ready and the desired crop planted or sown at the right time. Since the warm weather set in, I am glad to note that Broccoli have revived greatly; only a very few are killed outright, though the heads of all, except the very latest, will be small. Sutton's Late Queen, Latest of All, Veitch's Spring White, and Model are not injured, and from present appearances will be as good as in other years. Purple sprouting Broccoli and curled Borecole, or Scotch Kale, are, as a matter of course, uninjured. Raked down—we do not rake it off—the manure mulching that was put on the Asparagus plots in autumn, after which was given a good dressing of salt, more to prevent weed growth than to assist the growth of Asparagus. Our plots are level with the soil of the garden, and are planted in rows a yard apart, and

2 feet from plant to plant. No soiling is ever done, other than what accumulates from the annual autumn dressing of well-decayed manure. Clipping Cupressus Lawsoniana hedge. Potted a few Chrysanthemums into 5-inch pots, and gave all the plants more room. Abundance of air, free from draught, is their present requirement. Tying Peaches, and tied out and stopped shoots in third vinery. The varieties Gros Maroc, Alicante, and Alnwick require very careful manipulation in getting them down to trellis, as they snap off with the slightest pressure. As a rule, it is better to defer the tying of such brittle kinds till they are nearly in flower, when they bend easily. Potted young plants of zonal Pelargoniums that are intended for house decoration in autumn, and which will be grown outside plunged in ashes during the summer, the points of the shoots being pinched out twice or thrice, to keep them dwarf, and the flowers regularly picked off till well into August. Plants in frames containing Violas, Calceolarias, Gnaphaliums, and Leucophytons are now fully exposed daily, and as these frames will shortly be required for other bedding plants, the present occupants will shortly be transferred to warm borders close to the fruit tree walls.

MARCH 30.

This has been a showery day, and the wind is so boisterous this evening that March appears likely to end as it began, that is, in storm; but minus the snow and frost, I hope. Continued trenching of old Brussels Sprouts ground, and the clipping of Cupressus Lawsoniana hedge, and began to transplant to nursery ground the small shrubs that we use in the parterre flower beds for winter decoration. There is some little repairing of lawn yet to be done, and turf for the purpose is being cut on the heath where the Grass is of the finest description and does not develop a coarse growth, however rich the soil may be on which it is laid. Potting and shifting to cooler quarters various kinds of bedding plants. All Pelargoniums are now being got out of heat as pits and frames can be spared for them. Green fly having made its appearance on the tips of the shoots of Gardenias, they have been fumigated. Iresine and stock pots of Alternantheras being also attacked with fly were made to share the pit with Gardenias a second fumigation will be given in the morning, and after that a good syringing, and then we shall expect to find the plants clean. Cut all surplus bunches off Vines in early house and continued thinning out of berries.

HANTS.

FRUITS UNDER GLASS.

MELONS.

THE genial change we have experienced has already told favourably upon the earliest as well as later batches of plants, and all are now growing freely. If the incessant firing to which the first set was subjected has favoured the appearance of spider, a brisk bottom heat of 80° to 85°, supplemented by a sharp, moist air temperature by day, will produce a luxuriant growth, which will certainly prevent it from spreading if it does not render its position untenable. But should it retain its hold on the oldest leaves, sponging with warm soapy water will be found the quickest and most efficacious remedy. Cleanliness as well as a drier atmosphere being such important factors during the setting period, the destruction of this troublesome pest should if possible be made complete before the first female flowers open. When this stage is reached fertili-e every flower about noon on fine days until a sufficient number of fruits are set, and pinch the laterals at the first joint beyond as soon as they begin to swell. Having decided upon the number each plant is to carry to maturity, let them be of equal size at the outset. Support them on small pieces of board or wire netting and pinch out every particle of lateral at the first joint from the main stems, but carefully preserve the old leaves from injury, as these play a very important part during the time the fruit is swelling and ripening. As soon as the young Melons have attained the size of large Walnuts, increase the supply of liquid food and make the final earthing with good sound loam, old lime rubble, and a liberal sprinkling of bone dust, thoroughly incorporated some time before it is wanted

for use. As this compost must be firmly rammed, the soil in the pots should be rather dry than wet when it is applied, otherwise it will become adhesive and unfavourable to the ramification of the roots throughout its whole substance. Some time ago I stated that the young plants should be placed on mounds or cones raised to the level of the rims of the pots, which, by the way, should always stand on firm, solid pedestals to prevent them from sinking and dragging or strangling the stems after they are tied to the trellis, and at the same time to admit of turning and renovating the plunging materials when the bottom heat declines. My object in advising elevated planting, it is hardly necessary to say, is to favour earthing up without burying the stems, a practice at all times fraught with danger, if it is not the most common cause of canker. When the roots have taken to the new soil, feed freely with warm diluted liquid, but avoid the use of solid manure; damp all available surfaces with the same and syringe copiously with pure soft water after closing on fine afternoons at a temperature which may range from 85° to 95°. Melons should never be shaded, no matter how hot the weather may be, but they should have plenty of air at the apex through the early part of bright days, and blinds or oiled canvas should be placed over the glass by night quite up to midsummer.

PITS AND FRAMES.

Pay regular attention to linings by renovating them back and front alternately, not only to keep up the necessary degree of heat, but also to prevent it from fluctuating, as is too often the case when the heat is allowed to decline before this important work is taken in hand. Add more soil, good, sound loam, pure and simple, to the hills, as the roots require it; make it very firm with the rammer, and withhold water for a few days unless it is unusually dry. If the whole of the pit or frame is not to be filled with compost, place a few sticks across to form a temporary trellis; train the Vines thinly thereon, and pinch out the points when they are strong enough to show fruit. Sow a few seeds once a fortnight for successional crops and throw away older plants if not wanted, as pot-bound plants, if left standing about, soon become infested with spider.

CUCUMBERS.

Free fruitful growth having at last set in, good cultivators who never allow their plants to make useless growths will now dress them over three times a week. Every point will then be pinched at the joint next beyond the fruit, and the latter will be thinned down to a reasonable number of the most promising for swelling to maturity, that is, if cutting before they have attained their full size can be made compatible with the term; in other words, never allow the fruits to form seeds before they are detached from the plants. Old plants which have been a long time in bearing may now be gradually relieved of a few of their least useful leaves and vines, especially if they have been touched by spider or mildew, not only to get rid of these troublesome pests, but also to let in sunlight and air and make room for laying in young growths as they break away nearer home. Having secured a clean healthy growth of vine and foliage, maintain it by renovating the beds with sweet fermenting leaves whenever the bottom heat sinks below 80°, and encourage the formation of active surface roots by top-dressing with fresh turfy loam and old lime rubble. It will now be necessary to syringe twice on fine days, the first time when the temperature begins to rise, and the second when it is on the turn from the maximum, but yet early enough to run up to any figure under 95°, with closed-in sunheat and atmospheric moisture generated by damping the paths, walls, and floors with diluted liquid immediately after the foliage has been well bathed with pure soft water. The root-feeding of old winter plants may, of course, be freely indulged in, not with solid manure, but with diluted liquid or guano water some 5° to 10° warmer than the bed, and the evaporating pans may be filled two or three times a week, but on alternate days, to keep up the supply of ammonia. Spring-sown plants having plenty of fresh compost and a liberal root-run must not be so freely fed, at least until they get into full bearing, as a gross habit of growth brings on many diseases and mishaps, not

excluding the necessity for shading in bright weather. Good sound loam, a trifle heavier than that used for winter plants, and plenty of rough pieces of old mortar or hair plaster, make the best sustaining compost I have yet met with for summer plants both in houses and frames, and stimulating food always tells quickest and best when applied in a liquid form.

Cucumbers in frames are now growing freely, and well they may, as beds and linings that positively refused to heat through the dead cold weather are now fermenting freely, and the external temperature ranges from 30° to 40° higher than it did a fortnight ago. When the vines, from plants which have been out some time, nearly touch the sides of the frames they must be pinched to induce the formation of fruit-bearing growths, and the hills may receive a good covering of light rich compost consisting of turfy loam, flaky leaf mould, and lime rubble. Unlike Melons, Cucumbers may be earthed up the stems with advantage, and old stems may be pegged down and made to form roots at every joint, but this mode of treatment need not be brought to bear until they have borne a quantity of fruit and show signs of weakness. Frame Cucumbers should be dressed over frequently, and every bearing shoot should be pinched when it has made one leaf beyond the fruit. This constant manipulation, necessitating as it does the pushing up and down of the lights often in bad weather is not unfrequently attended with great difficulty; but so important is the operation, that every favourable five minutes should be devoted to the regulation of the shoots and the prevention of waste or useless growths in frames of limited area. When thoroughly established and growing freely a night heat of 65° to 70°, always with good covering over the glass, should be the aim; 80° if possible should be touched for a time every day, and 90° to 95° will do no harm after closing with sunheat and plenty of moisture.

When frame Cucumbers are only wanted to succeed winter-grown house plants, the month of April is quite early enough to put them out, as they then have the best part of the season before them, and then even it will not be safe to neglect the linings or relax the system of covering up every night. If not already sown, a few seeds of long ridge and short prickly should now be put into pots or sods of turf for planting out on slight hotbeds formed with partially exhausted material from Seakale and Rhubarb. Seeds of better, but yet hardy prickly, frame varieties may also be sown for planting out in Potato pits and frames as they are cleared of their crops.

Eastnor Castle, Ledbury.

W. COLEMAN.

HARDY FRUITS.

ALTHOUGH we have had much snow, many weeks have passed since we had a heavy fall of rain; consequently, notwithstanding the absence of the proverbial March winds and the paucity of bright sunshine, our fruit and vegetable gardens now turn up drier than they have done at this period for some years. As yet no harm has been done, and it is early to think of watering trees that were planted or root-pruned last autumn, but it is not a whit too early to look round the fruit garden, for the twofold purpose of ascertaining that mulching has been abundantly supplied, and the surface of the soil has not been lifted by the frost from the roots, which within the past few months have been raised and relaid in well-drained borders. If on examination the present condition of the one or the other is doubtful or unsatisfactory, now is the time to correct evils, which may prove injurious if not fatal, by firmly treading when the soil is moderately dry, and applying more non-conducting material to the surface. Then, should the weather continue dry, a good soaking on all, with the exception of the most retentive soils, will prove beneficial, and most likely set the trees up for the season. Peaches and Apricots on south walls, especially the latter, often suffer from drought early in the season, and not unfrequently set badly, or cast their fruit after it is set, when timely attention to mulching and copious watering is neglected. Later in the spring the hose is laid on, heavily drained porous borders resting against lofty walls are watered, but the supply comes too late—flower buds drop, bright sun brings out

spider, and the work of the preceding season is stamped with failure. Apricots with me, I am sorry to have to say, are not now looking so well as they did in January. At that time the blossom buds were swelling freely, and I was afraid they would be too forward, but the low temperature which until quite recently has prevailed has completely checked the flow of sap, and blossom buds the size of swan shot, and nearly as hard, are now falling by thousands. Indeed, to such an extent has this long cold weather affected the trees, that I have arrived at the conclusion they will not be worth protecting. Peaches, at one time equally forward, are now looking much better than they did at this time last year. They are very late, it is true, but the buds are bold, plump, and plentiful, and the usual protecting materials are ready for placing over them when the first flowers begin to open. Each tree was carefully washed with soap and water as it was detached from the wall in January. The latter received the annual dressing of soot, lime and Venetian red, reduced to the consistency of paint with soap-suds, and all, with the exception of newly-purchased trees, have been trained since the frost left us. These, for obvious reasons, are left unpruned the first year, and nailing or tying in is allowed to stand over until they break freely into growth in April. Cherries, Piums, and bush fruits are well set with flower buds, which now look promising, but whether they were prematurely ripened by the intense drought we experienced last summer remains to be seen when they open. Apples, too, our mainstay in this and the adjoining counties, are plentifully furnished with bright, plump buds, so far well in advance of those which will produce wood and leaves, a condition which leads one to suppose the wood was fairly well ripened. Flower buds on pyramidal and standard Pears are sufficiently plentiful, but trees on walls facing the south do not look so promising. It does not often happen that wall trained Pears in this country are less floriferous than standards, neither is it a common occurrence for a roasting drought, unsoftened by one drop of rain and very little dew, to play upon the trees week after week in succession. Mulching, the best we could procure, was laid over the roots, and the hose was kept going fourteen hours out of the twenty-four, but all to no purpose. The trees lived, but they could not form flower buds.

If this mild weather continues, work in the hardy fruit garden will now become very pressing. Protection from possible frost will, of course, stand first on the list, but having been so terribly scathed we may reasonably hope the spring, like the past winter, will be an exceptional one. It will not, however, do to trust to chance, as the enemy may at any time return to give us one final parting blow, which will throw us on our beam ends for the remainder of the season. If Raspberries were purposely left full length when the plantations were dressed, the canes may now be shortened back to throw strength into the base buds, and new plantations may still be made, but this work should always be performed when the suckers are detached in the autumn.

Strawberries have had a sharp time, but, favoured by deep coverings of snow, the crowns are safe, and already showing signs of returning vitality. If at command, a good surfacing with rotten manure, or rich loam, and a dash of soot will greatly benefit the plants by inducing the formation of fresh surface roots and protecting from drought the old ones, while the soot, in moderation, also a good stimulant, will destroy slugs and snails now snugly lodged in the old stools and instinctively awaiting a luscious harvest. If old plants are heavily clothed with dead or rusty foliage, it may be desirable to let in sun and air by its partial removal, but this operation, unless extreme neatness is imperative, is not in every instance needful or advantageous. Autumn-planted beds must now be cleared of weeds, and firmly trodden or rammed when the soil is dry to restore it to its solid condition. A little additional mulching will do no harm, and a thorough soaking on all but the heaviest and coldest soils will be highly beneficial.

FIGS

On walls may now be partially, if not entirely, uncovered. If dry Fern has been used it may be drawn away, little and often, to gradually inure the

terminal points to the weather. When all the covering has been removed, the condition of the trees will determine the best mode of pruning. If hard bit by the frost, many of the shoots or branches which have lost their points may be cut well back to induce fresh growths, which will refreshen the trees for another year, if they do not ripen up any fruit in the autumn. Others which have escaped must be well thinned in the usual way and neatly trained, but by no means crowded, otherwise solar heat will be prevented from penetrating the walls when the foliage is fully developed and the young Figs are swelling. Limited root space and moderate feeding being essentials, let each tree be well mulched and thoroughly watered. Cope extra good trees with broad boards, and protect for a time by dropping down sheets of frigi domo or canvas.

Eastnor Castle, Ledbury.

W. COLEMAN.

FLOWER GARDEN.

EVERLASTINGS.

Most people are acquainted with the *Helichrysums*, or Everlastings, but recently they seem to be less grown than hitherto. Why, it is hard to say, except perhaps on the ground that floral tastes alter. Perhaps just now *Rhodanthes* and *Acrocliniuns* are preferred, but, beautiful as these



Double *Helichrysums*.

are, they are not so readily amenable to common garden culture as are the *Helichrysums*. There are several other Everlastings of annual growth, such as *Helipterum Sandfordi* and the annual *Xeranthemums*, that are not so well known as they should be, and it seems passing strange that seed houses offering collections of Stocks, Asters, &c., should not also submit collections, not merely of *Helichrysums*, but of all the most useful of annual Everlastings. We are indebted to Australia for almost all of these curious Composites, and in the representatives of native flora to be furnished at the forthcoming colonial exhibition no doubt Everlastings will be found. Few things should more fully bring home to the mind of the floral and fruit-loving cultivator how cosmopolitan horticulture is than a stroll round a well-furnished garden, and though Everlastings may at the best be thought but unpretentious flowers, yet they serve to remind us not merely in our gardens, but during the long winter months, that they are natives, not of this country, but of the antipodes. *Helichrysums* are of single and double forms, but without doubt the best are those which are most double, because these

give us the most effective colours. For winter use the most striking hues are best, especially the bright crimson, white, yellow, purple, and red. There are other and varying shades, perhaps a dozen or more, and these, too, upon tall forms or habits of growth as well as upon dwarfier ones. These latter are admirable for pot culture. Naturally, the *Helichrysums* prefer a sunny aspect, because the full beauty of their flowers is only fully apparent when expanded. On the other hand, the facility with which the blooms close up as soon as rain falls shows what may be called even in flowers the instinct of self-preservation to be a prominent characteristic. In gathering blooms for winter preservation it is wise to select those not fully expanded; gather them into small bunches, and hang them where the air is dry and the temperature rather cool than otherwise. Still further, it is advisable to preserve them from dust by placing the bunches in paper bags. As to culture, that is of the simplest. Seed may be sown now in the open ground in rows thinly, or if sown in a frame, then the plants may be dibbled out when strong enough. They are easily suited as to soil, but if fairly good the blooms are all the finer. Where the seed is obtained in colours it is a pleasing arrangement to dibble out clumps of half-a-dozen plants, one of each colour, or if preferable each clump may be of the same hue. As the taller forms average 2 feet in height, they are best somewhat thrown back in the border behind Stocks, Asters, Zinnias, and others of our most beautiful yet late-blooming autumnal annuals, which at that season are so welcome. D.

Wreck of winter Stocks and Wallflowers.

—This has seldom been so complete as it has been this winter. In several large gardens recently seen there is hardly one left. Wallflowers against warm walls have gone the same way as those in the open, the whole being swept off bodily. This leaves a blank in the springtime that nothing can fill to the same extent with sweetness and sentiment. Of course such plants might be preserved in cold frames; but unless they can pass through the winter in the open air, their numbers and beauty must ever be largely contracted. Besides, in such seasons as we have just passed through, Pinks, Stocks, and Wallflowers can hardly be put out with safety until it is time for them to be in flower. The odour of Wallflower or its presence is never so welcome as when both are enjoyed during the harsh winds of March. But March, up to the 20th this year, has rendered the flowering of these old favourites out of the question. The seasons must become milder or the winter Stocks and Wallflowers be made hardier before our old feasts of these spring flowers can be once more enjoyed. It seems as if these plants were really growing more tender than they used to be. As in so many other cases, it is more than probable that the size of the flowers has been enlarged at the expense of vigour of constitution. Another point is worth noting. The old double yellow and blood-red varieties propagated by cuttings through successive generations seemed far more hardy than the majority of the single seedlings. These hardy sorts also seem to have almost dropped out of cultivation, and it would be wise, in the matter of Wallflowers especially, to hie back to the older and harder strains if such winters as that, may we venture to add, just closed are to be repeated. —D. T. F.

Campanula pyramidalis amongst Evergreens.—As this *Campanula* is of tall growth, it is often placed amongst low growing shrubs, where in dry seasons, such as we last year experienced, the soil becomes so parched that many herbaceous flowers cannot attain their true character. It is all very well to see flowers amongst evergreen shrubs; but the roots of these latter rob the soil to such an extent of both

nourishment and moisture, that in hot summers there is but little left for anything of a more feeble character that may be set out amongst them. If any of your readers have grown this *Campanula* in such positions, and have been disappointed with it, I would ask them to try it in another way, giving it generous treatment. The lighter and more porous the natural staple the deeper should it be stirred, and the richer should it be made by means of manure. Let the latter be thoroughly decomposed and well mixed with the soil to a depth of 15 inches at least, then there will be something for the roots to feed upon when the hot, dry weather comes. A very heavy soil will be the better for being lightened in the way well known to cultivators generally. Like all plants of a biennial character, it is absolutely necessary that this *Campanula* should be sown early enough in the year to get a good long season's growth. By the end of the autumn the crowns of foliage should have attained a diameter of 1 foot or more; then one may expect to see stout flower-stems 5 feet in height, and bearing more flowers than anyone would care to count. The effect produced by such large specimens is very good. The seed may be sown in February in warmth, but as soon as the young plants appear they should be moved to a cool temperature, as the object is only to get them up, and not to force them along. This gives an advantage of two months over plants raised in a cool house; but the method I have found to yield the best results is to sow in autumn, but not too early, only allowing sufficient time to get the young plants large enough to pass the winter safely. In March prick them out thinly in boxes or pans, and about the end of May they will be large enough to put in their permanent positions. Water them in hot dry weather and they will make rapid progress. If they are sown at the latter end of the summer or very early in autumn, they will often bloom the first season, and before they have attained sufficient strength to do so properly. This premature blooming spoils them for the following year. *Campanula pyramidalis* make an excellent pot plant, and at one time it was much grown in this way. If the young plants are shifted on instead of being planted out, they will come by the end of the season into 8-inch pots, and are then of great service for conservatory decoration.—J. C. B.

SHORT NOTES.—FLOWER.

Tagetes.—Yellow kinds of these, such as *T. aurea*, *lutea*, *signata*, and *signata pumila*, are very useful for bedding. The way to raise them is to sow them in pans or boxes in light rich soil where a little heat can be afforded, and after gently hardening off they may be dibbled out in the open.—D.

Tropeolums.—The climbing kinds of these come in admirably for planting to run up old tree stumps or to clothe naked walls or other unsightly objects, and the dwarf sorts do well in beds, where, if planted in rather poor soil so as to prevent too much leafage, they make a magnificent show. In order to get them early and strong two or three seeds should be raised in each small pot, and planted out without any check or disturbance, or they may be sown any time now where the plants are to stand.—S. D.

The account of Linum (p. 282) much interests me, and induces me to ask "D. K." or any of your readers if they have ever met with *L. hypericifolium* or *L. ascyrofolium*. The first is figured in Salisbury's "Paradiseus" No. 79, and *Botanical Magazine*, 1048, and must be a fine plant, and being from the Caucasus would be quite hardy. The second is figured in *Botanical Magazine*, 1087, and is very pretty. Being a Spanish plant, it may not be quite hardy, though the *Botanical Magazine* reports it as for several years in the Botanic Gardens at Brompton. I should be glad to hear of either of these plants.—HENRY N. ELLACOMBE, *Bolton Foreman, Gloucestershire*.

Calendula sicula fl.-pl. and Ipomœa hederacea (H. M.).—These may be sown with other annuals in the open air now. The latter should be sown thinly, and finally left about an inch apart. *Statice Suwarowi* is a new annual *Statice*, lately introduced to this country by Messrs. Haage and Schmidt. It should be sown now in heat, pricked off when fit to handle, and planted out about the middle of May where it is intended to bloom. It grows from 1 foot to 2 feet in height; the flowers are pale rosy lilac, densely packed in short spikes. It is said to be very effective in beds, and to last in flower throughout the summer. *Cucumis perennis* should also be sown in heat, potted on when large enough, and grown on an old spent manure bed in the same way as Vegetable Marrows are sometimes grown. It is largely cultivated in North America.—K.

ROSE GARDEN.

TEA ROSES IN WINTER.

THE winter now, it may be hoped, happily over has hit Tea Roses so hard and seriously crippled, if not actually killed, so many of them in many gardens, that it seems needful to reconsider their winter treatment and inquire whether some safer and surer means of protecting them cannot be devised and put in general practice. There are at least three practicable and simple means of carrying the tender Teas and Noisettes safely through the most severe winters; these are thorough protection in the open air, growing them in pots, and lifting the plants in the late autumn and storing them in frost-proof quarters from November to May. Thorough protection in the open air may range over the wide area from a glass screen over a heated wall to an opaque thatch of straw, reeds, litter, or boughs over bed or border, making either almost rain and wholly frost-proof. If any plants deserve the protection of the old conservative flued or otherwise heated walls, assuredly these are all the better varieties of Tea Roses. Such a wall clothed with *Maréchal Niel* goldened over from base to summit in May would be a sight such as has seldom been seen within the domain of horticulture. The great merit of walls of this description consists in their heat only being used when necessary. Covered partly with shutters and partly with glass, the latter would admit sufficient heat during most of the bright days of winter to render the case frost-proof at night; and if not, a mere blaze through the flues would suffice to exclude even sharp frosts, for the great merit of flued walls consists in the fact of the whole of the heat being utilised. Slowly and surely each molecule of heat put into the wall is given out again and arrested by the surface case and used to the best effect to conserve the Roses or other plants on its surface. Provided the frost is excluded, the less heat applied the better, for any excess is apt to engender red spider as well as to excite the Roses too early in the season. The excessive heating of conservative walls was one chief cause of their falling into disuse and going wholly out of fashion. Another cause was the comparative worthlessness of not a few of the plants grown on them in olden times. I shall never, however, forget a glowing block about 144 feet square of *Cianthus puniceus* on a conservative wall. Could it have been contrasted, as it might easily be now, with a similar or larger block of golden *Maréchal Niel* Rose, the rich effect would have been doubled many times; but unfortunately the era of conservative walls was long before that of Tea Roses. Had they been contemporaneous, the probability is the former would have abounded among us till now.

DESIRABILITY OF RESUSCITATING CONSERVATIVE WALLS FOR TEA ROSES.—Of late years many walls have been built and many more diverted to the use of Tea Roses. The shelter of walls has proved stimulating and useful to the plants, and the profits from Tea Roses have far exceeded in most cases those derived from fruits. But Roses on walls have suffered severely this winter and are often crippled and killed in severe weather; and as some sort of protection is needful to avoid such losses, the question naturally arises whether flued walls would not in the end prove cheaper as well as safer and better. It is astonishing how suddenly and surely the destructive effects of cold are counteracted by a very small amount of heat within the wall itself. The protective power of this is indefinitely multiplied if the wall is enclosed with glass or opaque shutters or curtains. The amount of protection in such cases cannot be measured by

the mere thickness or resisting power of the enclosing substance, the strata of air within the case affording far more potent protection than the substance of the screen itself. The gaining a month or two in the first crop of Roses would also go far towards paying the expenses of the structure as well as the cost of heating and covering it.

THE PROTECTION OF TEA ROSES ON UNHEATED WALLS OR OTHER BUILDINGS.—This is of two kinds—permanent and portable. The chief permanent protectors are copings on the summit and projecting piers on the surface of walls. The first should be a foot wide and water and frost-proof. The amount of protection afforded by such copings must be seen to be appreciated. Stone, compost, or wooden copings of such widths suffice to save most crops of Tea Roses, while turf, thatch, or straw copings afford still more protection. When glass copings are used, Hartley's rough plate or some thick form of fluted glass is the most efficient. Piers projecting a foot or so from the general wall surface also afford powerful protection by breaking the force of the wind as it sweeps along the wall face and forming every space between the projecting buttresses into virtually a sunk panel. Walls of this character and supported at intervals of 12 feet by pillars need not be more than 9 inches or even 4½ inches thick unless they exceed 8 feet or 10 feet high. The economising of bricks in the substance of the wall more than suffices to erect the projecting columns, and thus most of the advantages of a panelled wall are secured without any extra cost. But where expense is no object and the Rose wall itself may be placed so near the dwelling house as to make it important that it should in itself become an object of beauty, a considerable amount of ornament may be combined with the greatest capability of shelter. The sheltering effects of pillared and panelled walls may be greatly heightened by planting the projecting parts with the coarser and freer growing Roses, Clematis, Ivies, or other massive foliaged plants. Nothing answers better for this purpose than Ivy trained over projecting pillars or copings to a considerable depth.

PORTABLE PROTECTORS FOR TEA ROSES ON WALLS.—These are very numerous, and those consisting of bunting, canvas, netting, matting, and other textile fabrics are probably in the end more costly than the permanent protectors and conservative walls already described; but scanty and sparser thatches of hay, straw, or other litter, the dried fronds of Bracken and shrub or tree boughs and branchlets, such as those of Laurel, Yew, Spruce, or Silver Fir, are as cheap and easily applied as they are efficient. In the use of these and other substances it must never be lost sight of that the wall itself is a great protective force. In our climate on an average of seasons it may be safely taken for granted that no amount of cold that passes through the substance of the wall will injure Tea Roses on its surface; hence a mere thatch of less or more thickness over and among the boughs will suffice to carry Tea Roses safely through. To secure this desideratum so devoutly to be wished, however, it is very desirable that the protection should be applied in good time, be left on sufficiently long, and removed tentatively when dispensed with. The uselessness and folly of locking the stable after the steed is stolen is vividly illustrated in the application of protection after the Roses are frozen. It is mostly the first frosts and the last that work the most mischief among Tea Roses and other tender plants; hence the importance of being beforehand with the frost with our protection in the early winter, and a little behind the latest stinging frosts of the

spring with our removal of it. With a safe introduction and a telling finish, the middle period of protection, like the substance of a speech, may be left to take care of itself. Among the greatest merits of the portable protectors here recommended is the quality of most of them to become small by degrees and delicately, if not beautifully, less with the mere lapse of time. This is more particularly the case with branchlets of trees and shrubs. Sufficiently massive and dense to be impervious to cold at first, they gradually defoliate as the spring sunshine gains strength, until at last little but frameworks of withered branchlets remain. These, though apparently so flimsy, mostly suffice for the purpose, and when finally removed, the Roses once more enjoy the open free air to their manifest advantage instead of the risk of injury or destruction they must have run had they been uncovered all at once.

D. T. F.

ROSES IN POTS.

WITH few exceptions, the hardier kinds of Roses are naturally the least able to bear being grown permanently under glass, yet there are many growers who manage to keep up a continuous supply of blooms under glass from the time they cease to appear out-of-doors in autumn until returning sun-heat brings them again in the open air. It is a matter altogether different to get Roses with little heat to bloom in April, or May, compared with the warm treatment which they need to have when flowers are wanted all through the winter. Then it is that the tender condition of the growth, unavoidable from its being produced in heat during the short dark days of winter, tests the skill and attention of the grower to keep it clean and healthy in the way that is needful to get a succession of bloom from the same plants. In the whole range of plant-culture it would be difficult to point to anything more tender than the leaves of Roses that have been produced under conditions such as those to which winter-forced plants are subjected. Liable as Roses under ordinary conditions are to mildew, the tender leaves in question are infinitely more apt to suffer from that pest than when grown with less heat and more light. Nothing favours the attacks of mildew so much as cold air coming in contact with the foliage; so unable are delicate leaves to bear its influence, that the opening of a side light or wall shutter of the house in which they are grown for half an hour will bring on an attack of mildew difficult to get rid of. It is well known that the free admission of air is one of the best means of hardening the soft growth that many plants make when subjected to more heat than they require, and many who have undertaken the forcing of Roses in winter acting on the supposition that the principle holds good with Roses, as with other things, give them air, and on that account the attempt has ended in failure. Much as has been said on the forcing of Roses, it yet seems far from being sufficiently understood that giving air to them when grown in the heat that is requisite to keep them flowering through the winter and early spring is to court failure; when admitted in any but the smallest quantity, and that at the ridge of the house, you may keep on dusting the plants with sulphur until they are poisoned with it, and still the fungus will keep on persistently appearing.

Amongst those engaged in gardening pursuits at the present day there are none who more thoroughly master the cultivation of the subjects which they take in hand than the leading market growers. Keen competition sharpens their wits; they try every plan they can think of that is at

all likely to answer their ends, and in the forcing of Roses, as in other things, they have brought their practice to a point that is not likely to be excelled. They would no more think of opening the ventilators until the time has come when the external air is warm and genial than they would of admitting air during hard frost. In not a few cases there is no means of giving air at all to their Roses except at the ridge. Until well into the new year the market growers confine their forcing wholly to the Tea varieties, which are as strong and vigorous when started in the autumn as it is possible to get them, and, to keep up the strength of the young wood that is made during winter in a way that admits of its flowering freely, the plants are continually supplied with manurial stimulants, which they will take to an extent that few of those who force Roses in private gardens have an idea of. I need scarcely say that it is only Tea varieties that will give a succession of flowers in the way under notice. The manner in which the plants subjected to this hard forcing increase in size and strength year after year shows the excellence of the treatment which they receive. In some cases they are kept wholly indoors all the year round, with, as a matter of course, a fair supply of air in summer when recruiting their strength for a repetition of forcing. Rest they know not, being always growing more or less; but, whether indoors or outside, they are equally well cared for as regards keeping them perfectly free from mildew, aphides, and red spider, the three pests against which Rose forcers have to wage incessant warfare.

THE BEST TIME TO REPOT is after the plants have had time to get over the effects of forcing and are again about to begin growing freely. A compost consisting of the best yellow loam, rich and somewhat heavy in texture, with plenty of manure and a little sand, is what they require; but much of the vigour essential to the production of fine flowers and plenty of them is secured by the use of concentrated manure. As to the question of pot cultivation or planting out, it may be said that if the plants are turned out in a well-prepared bed they are in a better position to take care of themselves if in any way neglected than they would be in pots, and they will get larger bushes individually; but as against this there is no chance of a relay by introducing a second set of plants to follow those that have bloomed during the last two months of the year and on into January. Nor is there the same chance of regulating the supply, as, being fixtures, all have to be treated alike, so that, taking all into account, the advantages are much on the side of pot culture. The Tea varieties do well on the seedling Brier; they soon root above the graft, and in this way give little trouble in the way of suckers and time is saved, as grafted plants sooner arrive at a useful flowering state than cuttings.

GENERAL JACQUEMINOT will bear forcing to come in earlier in the year than other hybrids, and is useful to give the requisite colour to mix with Teas. But it is not unlikely that something in the way of dark-coloured Tea varieties may make their appearance, and it is highly desirable that they should. It is only on these that much dependance can be placed for Roses during the two last and the two first months of the year. It is well to bear in mind, that where a regular supply of good presentable flowers is required, it is necessary to devote a house to them proportionate in size to the quantity wanted. At all times of the year pot Roses dislike to be associated with other plants, and still more so in the dull, short days of winter, and with a good house that will afford them all the light possible

no one need think of attaining more than indifferent success who does not study their wants and give them all the attention which they require. A night temperature of from 50° to 55° for most of the varieties will answer, but to do the favourite white sort *Niphetos* as it should be done it requires keeping something like 5° higher than the others. Where, as in most private places, one house has to suffice for all, this variety should be kept at the warmest end.

T. B.

TREES AND SHRUBS.

CARPENTERIA CALIFORNICA.

THIS is one of the greatest acquisitions among flowering shrubs that has been introduced during the last half dozen years. It is a free, much-branched Evergreen, that bids fair where favourably situated to attain the dimensions which it reaches in California, viz., from 6 feet to 15 feet in height and very bushy. The foliage is of a peculiar shade of pale green, while the flowers are pure white relieved by golden coloured anthers. The blossoms are produced early in summer, and, in addition to their other recommendations, they are agreeably scented. The hardiness or otherwise of this Californian shrub has not yet been thoroughly tested; a specimen of it here not far from London, though somewhat sheltered, has been a good deal browned by recent frosts, but as none of the shoots appear to be injured, it will doubtless quickly recover. Even in its native country it is said to be very scarce. It was introduced by Mr. John Saul, of Washington, but M. Victor Lemoine, of Nancy, was the first to distribute it in Europe, and also the first to flower it, blossoms of it being produced at his establishment in 1884, a year in which it also bloomed with M. Lavallée at Segrez. By botanists it is regarded as a near ally of the Mock Orange (*Philadelphus*), but it differs from it in many ways. To the lovers of choice flowering shrubs it is one that can be highly recommended. Up to the present it is to be found in but few nurseries, but in all probability it will ere long occupy a prominent place therein. It strikes readily from cuttings made of young shoots taken during the summer months. They must be put firmly in an open compost largely composed of sand and peat. They must be kept close, and care taken that they do not damp off, which they are somewhat liable to do. The young plants, too, are rather delicate during their earlier stages, especially if the winter be damp and cold. It would make a good wall plant, and would flower more freely in such a position than as an open-air bush. It would doubtless flower well in a cool house.

A.

Buddleia globosa.—If planted in almost every garden it would be by no means a matter for surprise considering the great beauty of this *Buddleia*, instead of which it is rarely met with, certainly not so often as it should be from its wealth of blossoms, the length of time they last in perfection, and the in all respects distinct character of the plant. The reputation it has acquired of being tender no doubt prevents many from planting it, but on the whole the *Buddleia* is as hardy as many other shrubs, and as an additional favourable point it quickly recovers if cut to the ground during severe winters, though of course occasionally it will perish outright. On our light, sandy soil (not far from London) it forms good sized bushes, and about midsummer is one of the

most attractive of outdoor shrubs. The scent of the flowers reminds one of honey, and to most people it is very agreeable. None of the other *Buddleias* thrive here, for though *Lindleyana* will stand for some years, its rate of progress is but slow, and the flowers are, at all events as usually seen, not very striking.—ALPHA.

FITZROYA PATAGONICA.

I HAVE just read Mr. Webster's interesting description of this rare Conifer, and join with him in saying that a line from owners of good specimens, not only of this, but of *Cunninghamia sinensis* and the reputed tender *Araucarias*, would prove highly gratifying to readers of *THE GARDEN* in general and lovers of choice Conifers in particular. Hardly had I laid down my copy of *THE GARDEN* and taken up a contemporary of the same

drained soil resting on the old red sandstone or igneous rock will be found to suit many of the slightly tender varieties perhaps better than the limestone. For plunging in flower beds in summer a new and novel use may be made of them, while for terrace work they are invaluable, as most of them can be pruned back as freely as a Bay or a Laurel when their winter quarters are found too small for them. Amongst the noble specimens used for outdoor decoration during the summer at Ferriere I recollect seeing several extra good trees of *Araucaria excelsa*. In reply to my inquiry I was told that they had been hard pruned in nearly to the main stems, and evidently they were fifty per cent. better than others whose size did not necessitate this treatment. Lovers of rare trees who have neither snug corners nor cold winter houses to devote to their specimens need not despair, as few are destitute of, if they are

not over-burdened with, bare walls which they may prefer seeing covered with graceful evergreen foliage slightly differing from the Ivy. "T. B." has enumerated a number of shrubs which may be planted alternately with Clematises, Roses, and the like, but, although the paper is not to hand, I think I am safe in saying he has not mentioned the *Fitzroya* or *Saxe-Gothæa*. At Battle Abbey, in Sussex, we meet with a whole host of greenhouse plants, including the *Mandevilla* in fruit, rambling and clambering over walls and feeding on the crumbling masonry, but this is an exceptional situation. In colder places we occasionally see *Cupressus macrocarpa* so trained, and the few who are fortunate enough to see the rare *Fremontia californica* in flower are ready to fall down and worship. These Conifers are harder than *Fremontias* and *Clethras*, *Edwardias*, and the like; why not then use them for covering walls where there is no chance of their standing out in the open? Planters who wish to give these things a trial will, however, do well to note Mr. Webster's remark that home-propagated trees which have been trained to rough it through their youth are infinitely superior to attenuated samples from the murky atmosphere of glass houses in which they have lost their constitution, if they ever had one, if not their identity. Plenty of English—British I ought to say—raised cuttings and seedlings are to be met with in our best Conifer nurseries, and now is the time to plant.

W. COLEMAN.

Eastnor Castle, Leabury.



A new shrub (*Carpenteria californica*); flowers white (half natural size).

date than my eye caught sight of Mr. Ward's account of Whittinghame, the home of the Balfours. Situated as this well-known place is so far north (East Lothian), one would hardly expect to find the *Fitzroya* growing so well and apparently setting the biting winds which blow across the German Ocean at defiance. Such, nevertheless, is the fact, for Mr. Ward assures us that a specimen of this lovely tree 20 feet in height is growing there in company with *Picea Pindrow* and *P. Webbiana*, also two tender or miffy trees, but seldom met with in good condition hundreds of miles further south. As I have before observed, no one would think of planting these trees generally and extensively, but so interesting are they, and cheap withal, that owners of large places offering snug corners and varied sites might surely give single specimens a trial. Elevation, provided shelter can be secured, is, of course, the first point to be considered, and a warm, well-

Rubus nutkanus.—This species is very far removed from the ordinary type of Bramble, forming, as it does, a cluster of stout, erect stems reaching a height of 3 feet or 4 feet, and furnished with large-lobed Vine-like leaves. It is seen to the greatest advantage when treated as an isolated specimen, or if associated with the bolder herbaceous plants (for which it is well suited), sufficient space must be allowed for its full development. Apart from the handsome foliage of this Bramble, an additional feature during the summer is the large white blossoms, which are freely borne, and, consequently, very conspicuous. Another species a good deal in the same way is *R. odoratus*, which is, however, stronger growing, and does not flower till later in the season. The blossoms of this last kind are purplish.—ALPHA.

Rhododendron hirsutum.—This little alpine *Rhododendron* is considered by Loudon to be but a variety of *R. ferrugineum*, both being natives of the mountainous parts of Switzerland. Though in most cases preferring an elevated position, they are by no means difficult to cultivate, providing the situation is fairly moist and the soil in which they are planted is of a vegetable nature. *R. hirsutum* forms a low, much-branched little bush, with clusters of bright, glowing, crimson-coloured blossoms. There is a very fine variety with blossoms almost a scarlet-crimson. These alpine

Rhododendrons do well here on a sloping bank fully exposed to the sun, but a liberal admixture of leaf mould, no doubt, tends to prevent too rapid evaporation during the hot days of summer. As rockwork plants these smaller Rhododendrons are well suited, as they are just at home when the roots find their way in the crevices between rocks.—T.

PLANTING RAILWAY STATIONS.

I AGREE with "P. G." as to what is desirable at railway stations in the way of planting. Railway directors in their public capacity look very much at the question from a money point of view, and only care to expend money on what is likely to produce some tangible return. If we ask at once for planting to be done up to a certain ideal, we are practically barring the way to any movement at all. "P. G." apparently thinks I was speaking too loosely when I remarked "that in whatever way it may be carried out it cannot fail to bring about improvement." It is perfectly certain there are right and wrong ways in which the work may be done, and a great difference between good work and bad, yet I would prefer to see a station yard or approach imperfectly planted to not being planted at all. Tree planting, although governed by laws, cannot be compared to a piece of joinery, where every joint can be made to fit exactly. The most careful work does not always produce a satisfactory result, whilst on the other hand what has been done in a perfunctory manner turns out successful. I am not arguing from this that work may as well be placed in the hands of the inexperienced as in the hands of the trained, but merely to point out that I combat the idea that if the planting cannot be done by a special staff it should not be done at all. I did not speak of the staff as a whole. The question of the suitability of the Larch, Scotch, and Spruce would depend much upon the character of the site to be planted. Where this is of a considerable size the prospect of ultimate utility must be taken alongside with that of effect. On waste spots by the side of railway lines thousands of Larch have already grown to a useful size. If, where the areas by stations are large enough to render the idea of planting for use of importance, some other trees were employed for the foreground, the Larch would come in well to fill up the bulk of the space behind. Where the available planting ground occurs in mere plots the circumstances would be quite different. It would be easy to suggest a long list of possible subjects, but I think amongst the additional common trees spoken of by "P. G." the Birch is the most acceptable he has hit upon. This will grow upon many soils where others will not, and in situations close to the line is a tree the fall of which would be accompanied by less danger than many. It is not unusual to find Mountain Ash in the vicinity of stations, but it is a tree which I could not favour so much as some others. The Laburnum and the common Lilac, too, would give brightness to the place in spring. If deciduous trees are gone in for to any extent, the Maples should certainly have a place. With most planters a collection is never complete without a Lombardy Poplar. It would be very seldom, however, such a tree could be admitted for station planting. "P. G." speaks of the Plane, but he does not say anything of the Sycamore. This is a tree which could be used for isolated positions, or in conjunction with others. One great point in its favour is its grateful shade in the summer, and its wood is more useful than that of the Horse Chestnut, which in general aspect it roughly resembles. With respect to climbers, there is no doubt they could occasionally be used with good effect; but, as a rule, I would rather see the foreground filled with other subjects if it was

necessary. The Laurustinus, for instance, makes a good low shrub. It matters but little in which way the trees are obtained, or the particular species which are available, so long as some judgment is used in their employment, and the aim kept in view of making the site more pleasing in appearance, for the existing state of many station approaches and premises could scarcely be worse. J. D. W.

BIRCHES IN WINTER.

THE beauty of the common Birch, the queen of the woods, is, I think, more pronounced in winter than when in leaf. Just now, where associated with other trees, the shining white trunks of the Birch are conspicuous for a very long distance, and closer inspection reveals the elegantly drooping spray so different in outline from the Oaks, Beeches, Elms, and other forest trees. There is, too, a good deal of individuality about the Birch, differing from each other as specimens do in the tone of the bark, in the arrangement of the branches, and in the density and pendulous character of the shoots. Among the varieties of the common Birch whose distinguishing features are strongly defined even when devoid of foliage are the upright-growing fastigiata or pyramidalis, though in a well-marked specimen the first name is the more appropriate, for some individuals are nearly as upright as the Lombardy Poplar, and this habit, combined with the silvery white bark, renders it a most striking tree, and one contrasting widely with the gracefully drooping character of the species. Very different from the above is the weeping Youngi, which, when grafted standard high, forms a head of long, almost unbranched shoots, that take a direct downward direction, thus rendering it one of the most graceful of weeping trees. Though the purple-leaved variety has during the winter shed its distinguishing feature, there is another with strongly marked foliage, that from its habit may be picked out at any time. I allude to the cut-leaved pendula laciniata, that generally assumes the shape of an open pyramid, with the main branches somewhat ascending, and the tips of the shoots with the minor branchlets droop in a most graceful manner.

The black Birch of the United States (*Betula nigra*) is the most widely removed from our common European kind, forming, as it does, a free, bold, but somewhat slow-growing tree, often dividing into several branches at but a little height from the ground. The small spray does not show the drooping character of the common Birch. The prominent winter feature of the red Birch is the bark that peels off and hangs in flakes from the main stem and principal branches, thus giving to a tree of this species a wild and picturesque appearance. The colour of the bark is reddish, thus accounting for its name of the red Birch. The paper Birch (*B. papyracea*), which is put to so many uses by the North American Indians, is a free-growing kind, more upright in habit, and less graceful than the common Birch. Its bark, which is stripped off in large flakes and used as shingles for roofing, for boxes, and even for making canoes, is externally of a silvery white hue. There are several other kinds, but without any very striking winter characteristics, unless it be the little low-growing *Betula nana*, which is especially interesting as being almost, if not quite, the most northerly representative of a ligneous vegetation. T.

Erica cinerea.—Among hardy Heaths this is one of the most conspicuous about July, at which time many flowering shrubs are past their best. Of this Heath there are several varieties, among the best being coccinea, a very bright crimson-red. This forms a low dense tuft completely covered with its glowing blossoms. In *atro-purpurea* the purplish red colour is a little deeper than in the ordinary form, while in *alba* the flowers are white; but the gem of the collection is the first named. The different kinds of hardy Heaths are

a much neglected class, for they will thrive under anything like favourable conditions, are quite hardy, and do not need much space to develop themselves, while when out of bloom the fresh green of their foliage (almost Moss-like in some kinds) is very pleasing.—T.

Crataegus parvifolia. This is one of the most distinct of Thorns, forming as it does a rounded, much-branched bush, about 1 yard high, clothed with dark green foliage and studded with solitary pure white flowers about half an inch in diameter. When in a thriving condition it is a pretty little flowering shrub, and blooms at a time when most of the Thorns are over, viz., about the same season as *C. tanacetifolia* and *pyrifolia*. This Thorn, according to Loudon, was introduced into this country previously to 1713, but it is at the present day far from a common plant. It is a native of North America, and succeeds best in a somewhat shaded position.—A.

ORCHIDS.

NOTES ON MORMODES.

IN this genus may be found species with singular looking flowers; flowers of that description are not, however, always remarkable for beauty or delicate perfume, but amongst the Mormodes some are remarkable for both. The first species seems to have been introduced in 1834; it was named by Lindley *M. atro-purpureum*, and was figured in the first series of the *Botanical Register*, t. 1861. This was sent from the Spanish Main. *M. buccinator* came in 1835 from Mexico, and is described as having pale green flowers, with an ivory white lip. In 1836 *M. lineatum* was found in Guatemala on almost inaccessible branches of trees overhanging a deep stream. Its sepals and petals are greenish externally, the inner surface being yellow striped with reddish brown. The lip is whitish and spotted with reddish spots. This species does not require a very high temperature, a cool Orchid house being the best place for it; but it requires more light than the *Odontoglossum* and *Masdevallias*. *Mormodes luxatum*, from Mexico, has been in cultivation since 1842. It was found in the neighbourhood of Valladolid. Its flowers, which are of a pale yellow colour, are deliciously fragrant and large in size, being 3 inches in diameter. A six-flowered spike of this is figured in the *Botanical Register* for 1843, t. 33, and was thought at that time to be very wonderful indeed. Sir T. Lawrence, who flowered it at Burford Lodge in 1878, obtained a spike 3 feet long, and bearing twenty-five flowers, thus showing the progress made in the culture of these plants since 1843. The variety *M. luxatum eburneum* is a grand form recently introduced in quantity, but even now its culture is not so well understood as it ought to be. Mr. F. Sander, who is doing good service in teaching us how to grow many difficult Orchids, has made a good hit with this remarkable species. I saw a fine group of plants the other day starting into growth after six months' rest in the St. Albans Nursery. During that period they had had no water, but now that water is being applied it is necessary to be careful not to wet the bulbs or growths; the space between the bulbs and inner sides of the pans only receive water, and during the growing period no shade whatever is afforded them. Most Mexican Orchids do well under this treatment, or at least a very slight modification of it. Certainly no finer growths could be desired than may be now observed in one of the Cattleya houses at St. Albans. Other remarkable species of Mormodes are seldom seen, doubtless because it is thought they are difficult to grow. Where is *M. Ocanæ*, discovered by Schlim and flowered at Chelsea some six years ago? A handsome specimen of it with four spikes was exhibited at South Kensington on October 18, 1879. The spikes in question were eight-flowered, the flowers being large, dull yellow in colour, and thickly covered with irregularly formed chocolate spots. *M. pardinum*, spotted, and the yellow-coloured variety, *M. pardinum* var. *unicolor*, are also handsome, and

worthy of culture in even small collections. *M. pardinum* is well figured in Mr. Bateman's great work on the "Orchids of Mexico and Guatemala," tab. 14. Mr. Barker, of Birmingham, was the first, I believe, to flower *M. pardinum* var. *unicolor*, and Mr. Parkinson, gardener at Woburn, flowered the normal form in September, 1840. Both are occasionally seen in cultivation. A handsome example of the yellow form was to be seen a few years ago at Kew, where the delicious perfume exhaled from the flowers scented the whole house. The late Mr. W. W. Saunders used to purchase what he called the rubbish at Stevens' Orchid sales, and amongst it he picked up occasionally various distinct and new species of Orchids. Amongst these was a *Mormodes* which was named *M. Greeni*. This species is described by Dr. Hooker and figured in the *Botanical Magazine* (t. 5802). The eight-flowered spike illustrated shows the formation of the flowers to be very similar to that of *M. luxatum*, except that they are yellow and thickly covered with reddish brown spots. Were there a spotted form of *M. luxatum* of this colour with the lip tinted purplish, it would give a fair idea of this species, which is probably uncommon. *M. Colossus* is one of the most remarkable species in the whole genus. It was described by Lindley in Paxton's *Magazine of Botany* under the name of *M. macranthum*, while at the same time Reichenbach gave it the name of *M. Colossus*. It is a Central American species, having been introduced by Warszewicz from an elevation of 7000 feet. It first flowered in 1850. The pseudo-bulbs are about a foot in length, and the formation of its flowers is quite different from that of the *M. luxatum* type; the sepals and petals are narrow lanceolate, pinky at the base with a yellow tinge at the points; the lip is bright yellow and the flowers of large size. The large succulent bulbs of this and many other species of *Mormodes* have a tendency to rot when the atmosphere is moist and shady. They should therefore be treated to more light, and no shade at all except during scorching hot days in summer; in winter they should have complete rest. Owing to the bulbs being fleshy and the leaves deciduous, they do not suffer from long continued dryness any more than would *Calanthes* of the *vestita* type. Referring to *M. Greeni*, I find that it is considered to be a synonym of *M. uncinata*. These *Mormodes*, flowering as they do at different periods of the year, would make a striking and interesting feature in any collection of Orchids.

J. DOUGLAS.

The proposed Orchid society.—I presume this is abandoned, at least for the present, a circumstance which I do not think need be regretted, for this year at least, as the most ardent admirer of Orchids must surely be satisfied with the provision made for them by the Royal Horticultural Society at its provincial show at Liverpool in June next. Altogether the very handsome sum of over £140 is offered in prizes for Orchids, and in my opinion the Royal Horticultural Society and the Liverpool Horticultural Company deserve to be congratulated on their liberality in this and in other sections.—J. MUIR, *Margam Park, S. Wales.*

SHORT NOTES.—ORCHIDS.

Lycaste Skinneri.—I have a plant of this beautiful Orchid which had flowers cut from it at Christmas, and several have been cut from it since. There are now twenty-two fully expanded flowers on the same plant.—M. STANDING, *Pelching House, Sussex.*

Odontoglossum cirrhosum Klabochianum.—This is the finest coloured form of this *Odontoglossum*, the flowers being deeply spotted much more copiously than in the typical kind, and the yellow crest of the lip is brighter also. We saw a flower of it the other day from Mr. Titus Salt's collection.

Cattleya Trianae hoolensis.—We saw a flower of this variety at Mr. Williams' nursery the other day, to whom it had been sent by Mr. Potts, of Hoole Hall, Chester. It is an uncommonly fine variety; in fact, one of the finest we have seen. Its chief beauty lies in the lip of the flower, which is very large and well formed. Its colour is an intense carmine-crimson, barred with gold. The sepals are deep lilac.

The Orchids now in flower at the Victoria Nursery, Upper Holloway, include the following noteworthy kinds, which with those of ordinary interest make a beautiful display. The most remarkable plant is *Odontoglossum cuspidatum*, an extremely handsome species quite unlike any other, but most resembling the rare *O. elegans* and *O. Pollettianum*. It appears to be a natural cross between species like *O. Halli* and *gloriosum*, for its flowers possess a combination of colours to be found in these. The flowers are twice or thrice as large as ordinary *gloriosum*; the sepals and petals are long and narrow, and the lip is much attenuated. The ground colour is white, and the whole flower is beautifully spotted and blotched with cinnamon-red. The growth is like that of *gloriosum*, the spike being tall and branched. Another Orchid above the usual run is *Houlletia odoratissima*, of which there are several plants in hanging baskets just bursting into bloom. It has flower-stems about a foot in length, terminated by several drooping flowers about 3 inches across, of a pale, dull purplish red colour. It is deliciously scented, like Violets; hence the specific name. The new *Cattleya Lawrenceana* is represented by several specimens varying a good deal in the colour of the flowers, some being very deep and rich, while one is extremely pale, quite a light purple, lip and all, and different from any other we have seen hitherto. The uncommon *C. nobilior* is in bloom. It may be best described as a robust growing *C. bulbosa*. Among the *Dendrobies* is that charming species *D. primuminum*, perhaps the prettiest of all species of a similar colour; the delicate straw-coloured lip is like a beautiful shell set in a framework of amethysts. The handsome *D. Cambridgeanum* is represented by a superb variety bearing larger flowers than we have yet seen. Its deep golden yellow flowers measure 3 inches across, and being surrounded by foliage their effect is enhanced. *Oncidium sarcodes* is now in perfection, and there is a specimen here bearing branches 5 feet or 6 feet in length, and with eight branches furnished with scores of large golden flowers barred with brown. It is so unusual to see such an elongated spike of this Orchid, that the fact is worth mention. Among other *Odontoglossums*, besides many fine forms of *O. Alexandræ* and *Pescatorei*, may be seen the rare *O. facetum*, which is near *O. sceptrum*, but has smaller flowers more copiously spotted; the exquisite little *O. roseum*, perhaps the prettiest coloured species in the genus, the tint being a carmine-crimson, and *O. Halli leucoglossum*, the white-lipped variety which is so highly prized. The grand collection of *Vandas*, which is one of the main features in Mr. Williams' Orchid collection, have a few flowering specimens among them, and these include the scarce *V. Parishii Marriottiana*. The late *Calanthes* include the snow-white *C. nivalis* and the beautiful new *C. Sanderiana*, a valuable addition, as it extends the *Calanthe* season considerably. It is a variable plant; some forms are very light, others a deep claret colour, but all are very elegant in growth. These are the chief flowering Orchids we saw the other day, but presently there will be a grand display, for there are some hundreds of spikes of *Odontoglossums* (chiefly *Alexandræ* and *Pescatorei*) almost ready to burst, and among the fine collection of specimen *Cattleyas*, *Lælias*, and the like there are crowds of flower-sheaths formed.

Odontoglossum ramosissimum.—We had no idea of the extreme beauty of this Orchid until we saw a plant of it the other day in Messrs. Shuttleworth and Carder's nursery at Clapham. We had hitherto regarded it as a third-rate plant, but seeing this superb variety induces us to alter our opinion. To those who do not know the species it may be best described as being similar to *O. cirrhosum*, having similar spider-like flowers, long twisted sepals and petals, and a curled-up lip. In this particular variety the flowers were pure white, blotched and spotted with claret-purple, while the lip is adorned with a large purple blotch. The characteristic of the species, as its name implies, is its much-branched spike, which bears innumerable flowers as large as those of *cirrhosum*. It is an old introduction from New Grenada, and named long ago by Lindley. Among other *Odontoglossums* in bloom in this Orchid nursery there were, besides many extremely fine forms of *Alexandræ*, which is the chief speciality of the

firm, such beautiful things as *O. Oerstedii majus*, *O. membranaceum* and *Cervantesi*, *O. triumphans* and *O. Halli*, and a wonderfully fine form of *O. Wilckeanum*, with markings on its flowers difficult to describe.

Dendrobium sulcatum.—A flower-spike of this rare species has been sent by Dr. Paterson, of Bridge of Allan. It is an ally of *D. densiflorum*, having similar pseudo-bulbs, surmounted by a few evergreen leaves. The flower clusters droop, and each bloom is of an amber-yellow pencilled on the interior of the lip with red veins. It is an Indian species, introduced fifty years ago. Dr. Paterson also sends flowers of two superb varieties of *Odontoglossum Alexandræ*, one much spotted, the other remarkable for its large size and fine form.

The white Vanda teres.—This extremely rare variety is so seldom heard of, that the fact that we saw it the other day just bursting its flower-buds is worth recording. The plant, a good specimen, was in Messrs. Shuttleworth and Carder's Orchid nursery, in Park Road, Clapham. Col. Charlton sent us last year a pale lilac variety named *candida*, but the flowers on Messrs. Shuttleworth & Co.'s plant were quite white, so far as we could judge from a partially opened flower.

Dendrobium luteolum.—This is by no means a showy Orchid, but it is serviceable and might well be grown in quantity where large supplies of cut flowers are required. It is of erect habit, flowers freely on the young leafy growths at this time of year, and lasts about two months. The colour is pale or primrose-yellow, and as shown recently by Mr. J. Cypher in a collection of plants at Bath is decidedly pretty and effective. This and other *Dendrobies*, including *Wardianum*, *crassinode*, and *nobile*, shown at the same time were remarkable alike for their vigour and freedom of flowering, though grown in very small pots. In Mr. Cypher's opinion, *Dendrobies* require but little pot room, and small-sized pots may have much influence upon the pseudo-bulbs, these being stout and sturdy, and flowering most satisfactorily without so much baking as more succulent growths require.—I.

Bougainvillea speciosa.—We have a large old specimen of this fine trailer growing against the roof in a tropical house, and which for several years had never flowered, notwithstanding its robust health and the adoption of what was considered the proper treatment for flowering it. Someone advised close pruning after growth had ripened; we tried this, but no flowers came. Then we were advised to try total dryness at the roots and root-pruning; we also tried this, and got no better results. Last summer the plant grew vigorously, and was allowed to have its own way till November, when we ceased watering it, and in this way brought down most of the foliage. To test the pruning and non-pruning plans we spurred in all the year's growth on half of the plant, and left the other half uncut. A month ago the plant began to grow, and we at once gave it a good watering. Flower-buds appeared soon afterwards, and were present on both unpruned and pruned shoots. That pruning after growth is made is wrong for this *Bougainvillea* this experiment clearly shows, and also that pruning has little to do with the immediate production of flowers. In *B. glabra* the flowers are on the young shoots, clothing them a foot or more from the tip downwards, but on *B. speciosa* they come soon after the first three or four leaves on the new growths have developed; the flower-buds are in fact set before growth recommences, and on a properly-managed plant they would be present, not only at the base of the newly-ripened shoots, but all the way along them. Hard pruning, therefore, means the sacrifice of most of the flower-buds; such at all events is clearly the lesson taught by the above described experiment. The cause of the appearance of the flowers on our plant this year must be sought either in the treatment during the growing time or that which followed; probably in both; but at all events pruning had nothing to do with it.—B.

SOCIETIES.

ROYAL AQUARIUM, WESTMINSTER.

MARCH 30, 31.

INSTIGATED, apparently, by a desire to provide for their patrons some elevating form of enjoyment, and stimulated, moreover, by the popularity which so far has attended the exhibition of the National Chrysanthemum Society, the directors of this well-known place of public entertainment have established a series of flower and fruit shows for the present year, the first of which, held on the above days, must be regarded as decidedly encouraging, for the display of spring flowers seen in response to a liberal schedule of prizes was remarkably good and extensive; indeed, the best held in London this season; and it must have proved a pleasant surprise to the frequenters of the Royal Aquarium. The general features of the building are well known, and it will be understood that, happily, no long monotonous run of tabling is possible, and the breaking up of the show by employing detached tables running lengthwise in some cases, and in others transversely, produced a pleasing effect, and when seen from the galleries gave a most picturesque result. Daffodils, as Narcissi are popularly termed, formed a striking feature, the huge collections of cut blooms staged by Messrs. Collins and Gabriel, Messrs. Barr, and Mr. T. S. Ware alone sufficing to make a show. The former enterprising firm certainly had the greatest variety and the most thoroughly representative collection; the flowers, being chiefly set up in neat bunches and all carefully named, were not only of fine, fresh quality, but very distinctive, and not crowded in arrangement. The two latter exhibitors had, perhaps, more flowers; indeed, the Messrs. Barr's collection was in effect a grand group, the varieties being generally arranged in bulk, and was materially aided by colour found in scarlet Anemones, blue Scillas, Chionodoxas, Squills, &c., and other interesting hardy flowers. Mr. Ware's collection, if less varied, was a large one, and included some beautiful forms. Amongst the most striking in the groups were *spurius*, *obvallaris*, *Van Sion*, *Achilles*, *cernuus*, *Bicolor*, *Empress*, *Horsefieldi*, *lorifolius*, *Emperor*, *ornatus*, *maximus*. A newly imported sort from Saragossa, in Mr. Ware's lots, was rich in colour and with a deeply lacinated tube. Of pot collections of 50 each, there were three; the finest, chiefly Polyanthus forms from Mr. H. R. Wright, Lee, Kent, included such good kinds as *Grand Monarque*, *Grand Primo*, *Charles Dickens*, *White Perfection*, and *Bathurst*. Mr. Ware had a very good lot, and from Messrs. Williams and Son, Finchley, came a smaller lot of plants.

There were of Hyacinths three lots of 100, the two best, and both capital, showing fine spikes and good cultivation, coming from Mr. Wright and Messrs. Williams; the latter's plants, if not quite so large as those of Mr. Wright, were yet compact, had massive spikes, and were in smaller pots. The whole of the collections seemed to represent Hyacinths as grown for market. Amongst prominent kinds were *Koh-i-noor*, *Rubra Maxima*, *Grandeur à Merveille*, *Von Schiller*, *Cavaignac*, *Grand Maître*, *La Grandesse*, *Lord Derby*, and *Obeliaque*.

Tulips were in strong force also, two collections of 50 pots being staged, and in most cases were good. Messrs. Williams and Wright were the competitors. Amongst fine kinds were *Joost Van Vondel*, white; *Ophir d'Or*, yellow; *Proserpine*, rose; *Vermillion*, brilliant scarlet; *L'Orient*, pink; *Vanderbeer*, purple; and *Kaiser Kroon*, orange and scarlet. Rarely have finer collections of Cyclamens been seen at any one show, over 300 plants being staged, and many very fine. The St. George's Company, of Hanwell (Mr. H. B. Smith, manager), not only had the finest 50, all in 8½-in. pots and grandly bloomed, but also a splendid lot of 150 in smaller pots. Mr. J. May, of Hillingdon, who had the next best 50, was behind only in having smaller plants, but of a grand strain, including many deep-coloured forms and well grown. Mr. Wiggins, gardener to Mr. Clay, of Kingston, also showed in good form, having a fine dozen plants in the amateurs' class that probably no other gardener could have beaten. Messrs. James Carter & Co. had the best group of *Cinerarias*, well grown plants, and carrying

very fine showy flowers, bright in hue, and if in some respects not up to the florist standard, were very decorative and effective. Another collection was less meritorious. A couple of large and highly ornamental groups of market plants were pleasing features, the best being very rich in colour given by Tulips, *Azaleas*, *Genistas*, *Cinerarias*, *Primulas*, *Lilies* of the Valley, and dressed with *Dracenas*, Ferns, and other good foliage plants. The other group, though showing the most tasteful arrangement, yet contained only white *Spiræas* in flower. A dozen grand clumps of Lily of the Valley were staged by Mr. Wright, and were worthy of high admiration. The only exhibitors of hardy spring flowers were Mr. Ware and Mr. Dean, of Bedford, the former showing many of those beautiful things for which the Hale Farm Nurseries are so famous, and the latter many beautiful *Primroses* and *Polyanthuses*. These collections, if less showy than some others, nevertheless attracted much notice. Amongst miscellaneous exhibits were a couple of boxes of single zonal *Pelargoniums*, from Mr. Cannell, Swanley, including some two dozen bunches and as many kinds. Very striking of these were *Eurydice*, pink; *Brunhilda*, orange-salmon; Mrs. Johnson, rosy red; *Lady Reed*, oculated; *Norah*, blush; Mrs. Halford, deep salmon; *Ruby*, vermilion-scarlet; *Queen of the Belgians*, white; and Mrs. Gordon, deep crimson. Mr. F. Perkins, Northampton, staged a box of large bunches of flowers of his splendid white regal *Pelargonium Volonte Nationale*, one of the finest of its class for forcing. The exhibition was admirably arranged by Mr. R. Dean.

CRYSTAL PALACE.

MARCH 26 AND 27.

THIS was the first of the series of shows which will be held at the Crystal Palace this season. The display was an attractive one, and quite brightened up the surroundings of the central transept where it was held. There was, however, a lack of novelty about it, although it was evident from the schedule that it was the desire of the company to have a show out of the ordinary run. For instance, they set apart classes for groups of forced hardy shrubs, for *Amaryllises*, for *Azaleas* of the Ghent, mollis, and pontica sections, for forced hardy perennials and bulbs, for *Rhododendrons* and the like, but none of these classes were represented, notwithstanding the high value of the prizes offered. Consequently one only saw in the competition classes groups of Dutch bulbs, *Cyclamens*, *Narcissi*, and other every-day flowers. The miscellaneous class was really the most important, as it was the largest, portion of the show. In this class there were large collections of Daffodils and other hardy spring flowers from Messrs. Barr, of Covent Garden, and Mr. Ware, of Tottenham, which attracted a deal of interest. Messrs. Paul, of Cheshunt, had an admirable group of pot Roses, large trained specimens of standard sorts, besides smaller plants of new sorts. Mr. Bause, of South Norwood, showed a grand group of the fine-foliaged plants he grows so well, such as *Dracenas*, *Crotons*, *Palms*, and Ferns. Added to these were extensive groups of early *Gloxinias* and other flowers from Messrs. Cannell, Swanley; *Cyclamens* from the well-known *Cyclamen* nurseries at Hanwell, and *Hyacinths* from Mr. Wright, of Lee, one of the principal market growers about London. There were two interesting groups of stove and greenhouse plants, one from Messrs. Laing, of Forest Hill, who were first, the other from Mr. James, of Lower Norwood. Messrs. Laing's group was effectively arranged, and contained, amongst others, such noteworthy plants as the new *Cattleya Lawrenceana*, *Imantophyllum* Mrs. Laing, which, in addition to a fine new *Begonia* named *Gloire de Sceaux*, received first-class certificates. The Orchids in Mr. James' group were a special feature, and being so out of the common, won most attention from visitors.

In the other competing classes the chief prize winners were Mr. Wright and Messrs. Williams, of Finchley. These took all the prizes in the class for three dozen *Hyacinths*, three dozen Tulips, and two dozen *Narcissi*, and these, being large groups, made a good display. The *Lilies* of the Valley from these exhibitors were also of the highest quality, particularly those from Messrs. Williams, which were the

finest we have seen, the plants being masses of bloom. The *Cyclamens* were shown by the two noted growers, Mr. Smith and Mr. Wiggins (Mr. Clay's gardener at Kingston), and, as may be imagined, these were unsurpassable, but as regards the other classes, the competition was poor, as may be inferred from the prize list, which we publish in full in our advertising columns. It will be the fault of the exhibitors themselves if these important spring shows at the Palace decline, for out of a total of twenty-six classes there were no fewer than eleven unrepresented, although the prizes offered were of excellent value.

The special show of spring flowers which Mr. B. S. Williams makes annually in his nursery at Upper Holloway is now at its best. It is as large as usual, and consists, as in previous years, of extensive collections of *Hyacinths*, including the best of the named sorts, Tulips, *Narcissi*, and *Lilies* of the Valley, which are simply the perfection of well-flowered plants. Such an exhibition is a valuable aid to amateurs who can go and take leisurely notes of the best sorts of Dutch bulbs, which cannot be done comfortably at a crowded flower show. There is also the advantage of seeing the sorts of a similar colour side by side, so that their differences, which cannot be defined in a description, may be seen. This attractive show of bulbs is held in the large conservatory, and, being in combination with noble *Palms*, *Tree Ferns*, and other fine-foliaged plants, besides a crowd of other greenhouse flowers, the effect is admirable. The special show extends also to the other departments, for the Orchid houses are becoming gay with bloom now that the dark days and fogs are gone. Notes on the most noteworthy Orchids the visitor may find now in bloom is given in another column, also upon the *Himantophyllum*, which is unquestionably the finest collection in the country. The houses of *Rhododendrons* and *Azaleas*, *Camellias*, *Heaths*, and other hard-wooded plants constitute a show in themselves, and added to these is the grand collection of *Amaryllises*, which have of recent years acquired such importance as to demand a special house for them. We gave a description of this house last year. The house is crammed with plants and there is a fine show of bloom, but the flowering season is not yet at its height, but, judging by the thicket of spikes almost ready to unfold, the display will be grand in a week or two. Among the sorts in bloom the other day the following we thought the most worthy of notice: Dr. Masters, the finest without question of all the sorts yet raised as regards brilliancy and evenness of colour, fine shape of bloom, which, however, is not large; Joseph Broome, a grand flower of the largest size and best form, colour a deep velvety crimson flushed with a brighter hue; Mrs. Findlay, a small flower, but of admirable shape, colour a splendid scarlet with each petal banded with white; Marshalli, a smallish bloom, of perfect shape, colour a rich deep crimson veined with an almost black tint—one of the very best sorts; Prince Teck, a grand sort, of a vivid crimson. Other good sorts out were those named *grandidens*, W. Pitt, and Firefly. Some extra fine varieties are expected to flower this season of the *Acramanni* section, which has received special attention from Mr. Williams on account of the extreme richness of colour prevailing in all the varieties belonging to the group. The *Amaryllises* are, on the whole, later in flowering this season, but this is fortunate than otherwise, as the colours come richer and the flowers finer in bright weather.

Cut flowers.—Many kinds of bulbs are invaluable for supplying cut flowers, and there can be no doubt that the sooner the flowers are cut the better for the bulbs, provided no foliage is cut off. When the flowers are removed the bulbs get the benefit of what they would have required for their support. We have now rows of Daffodils, Jonquils, early and late Tulips, *Hyacinths*, and various other bulbous plants showing their leaves, and in some cases flowers between rows of *Roses* and other plants that admit of a row of bulbs being put between them; for, when required to supply bloom in quantity, there is no plan like letting the bulbs that are to furnish it remain permanently in the ground, or when they require replanting to do it with as little delay as

possible. That gem of autumnal flowering bulbs, the *Gladiolus*, does especially well with us in this way; single roots of choice kinds planted three years ago, and just now lifted and replanted, had formed masses of great bulbs piled one above the other, and although only just below the surface, and the soil so hard frozen for weeks that we could not get a spade or fork to enter it, they seem safe. The scarlet *Gladiolus brecheleyensis* makes very large bulbs in this way, and sends up great branched spikes of bloom that are most useful for decoration; in fact, Roses and bulbs get on capitally together, and with a good supply of them for the cut-flower basket one of the modern gardener's cares is greatly alleviated, as he gets not only brilliant colours, but fragrant blossoms as well, with a minimum of attention. Our soil, I should add, is light and well drained; therefore the roots are never injured by stagnant moisture.—J. G., *Hants.*

GARDEN DESTROYERS.

The Eucharis mite.—Although a good deal has been written about this mite lately and several remedies recommended for its eradication, I have come to the conclusion that it is impossible to get rid of it. We have a collection of *Eucharis* plants here that were attacked by it. We turned the plants out of their pots, shook away the soil from the bulbs, cut off the roots and removed all the diseased parts. Some of the bulbs had two or three layers taken off them which made them resemble peeled Onions. They were then washed in warm water in which some soft soap had been dissolved. We afterwards plunged them in sawdust in a propagating case over hot-water pipes. In a few weeks they commenced to throw up young leaves, which were so healthy, that we thought we had got rid of the mite, and therefore made preparations to pot them; but when they came to be taken out of the sawdust we found them to be infested by it as badly as ever. About that time a writer in *THE GARDEN* (p. 602, Vol. XXVIII.) said that he had eradicated it by using a solution of one pound of sulphide of potassium to a common zinc pailful of water. We therefore thought we would give this remedy a trial. The bulbs were put in a mixture of the same strength as that recommended for about three hours, and afterwards we potted them. The pots were all plunged in a Melon house, and for a time they appeared to be doing so well, that we were in hopes that we had done for the mite at last. Not so, however, for upon examining the bulbs I find the mites as numerous as ever. I think if the bulbs were dried it might kill the mites, only I am afraid that the drying would ruin the bulbs. What do *Eucharis* growers say to the drying process?—W. J. MITCHISON, *Clonard, Dunderum, Dublin.*

—(D. M. R.).—The bulb which you enclose is attacked by the same mite as that with which the *Eucharis* bulbs are infested. These pests attack many kinds of bulbs—*Hya-cinths*, *Vallotas*, *Lilies*, &c.; probably none would come amiss to them. Other fleshy-rooted plants are also injured by them. I am afraid I cannot add much to my advice given in previous letters. The greatest care, however, should be taken to make sure that no earth which is contaminated should be used in potting bulbs. To insure this, after infested bulbs have been repotted, the potting bench should be very thoroughly cleaned. Whenever bulbs are being repotted, if there be the slightest suspicion that all is not right, they should be examined with a pocket lens (an article no horticulturist should be without). I have before recommended soaking the bulbs in a solution of sulphide of potassium. A correspondent in *THE GARDEN*, I see, recommends its use in the following manner: "I use a strong solution—one pound in a common zinc pailful of water; in this I set the pots for twenty-four hours, and in the case of large pots set a saucer under them and water them several times with the liquid. After this treatment I could find no trace of the insects."—G. S. S.

Beetles (J. F.).—The beetle you forwarded is the clay-coloured Vine weevil (*Otiorhynchus sul-*

catus). It is very destructive to the foliage and tender shoots of Vines. These beetles only feed during the night, hiding themselves in the daytime under any shelter they can find, such as cracks in walls, under loose bark, in the earth, in the haybands round the stems of Vines planted in outside borders, &c. They should be searched for in these and similar kinds of places. Spread sheets under the Vines and enter the house after dark with a bright light; this disturbs them, and they will generally fall, pretending to be dead. If they do not fall, give the Vines a sharp tap or two, which will bring them down. These weevils attack other plants besides Vines. Their grubs are very destructive to the roots of various soft-wooded plants.—G. S. S.

Moles.—"G. S. S.," I find, defends these. A mole in a meadow may do but little harm, but a mole in a garden is a very different thing. Perhaps "G. S. S." has never known what it is to have a mole in a seed bed, as I too often have had, and though I know it is simply searching for food, yet it has, in lifting the soil, exposed the seeds to the wind and sun, and generally, in deranging the bed, done great harm. The same thing has constantly occurred in the case of beds of seedling plants; indeed, there is no end to the injury and annoyance which moles will incur when they once get into a garden. They prey quite as largely upon earthworms, which seem rather helpful to cultivation than otherwise, as upon grubs. In any case, gardeners act in a spirit of self-preservation if they do their best to extirpate moles when found in gardens.—A. D.

—"G. S. S." asks (p. 262), "Why should anyone wish to kill moles? They are such useful creatures." Well, did "G. S. S." ever have a mole seeking food three or four times a day in a row of earliest Peas, or in all directions across his Onion and Carrot beds, or any other small plot of ground on which he had bestowed a great deal of labour? Just let one or two locate themselves on a lawn, or in a nursery seed bed in which are valuable tree and shrub seeds, and I think there will be no need to ask, Why wish to kill moles? It is said, "He liveth best who loveth best all things, both great and small." But I do not love a mole in a garden nor in a field of young corn.—N. F.

—The injuries inflicted upon our crops by vermin are so extensive, that in our eagerness to check their ravages we sometimes kill our friends as well as foes. Therefore, there may be much truth in what "G. S. S." says (p. 262) regarding moles. It must not, however, be forgot that worms, which constitute the principal food of moles, perform an important part in the economy of Nature. As "G. S. S." truly says, "knock the molehills to pieces and the grass will not suffer in any way." On the contrary, he might have added, it would be improved. Moles in seed beds, however, often do much damage, and therefore their extirpation is desirable. Darwin calculated that every acre of ordinary soil contained about 53,000 earthworms, and that not less than ten tons of soil per acre passed annually through their bodies, and that new mould was produced by them in this way to the extent of about 22 inches in the course of a century. Moles, therefore, do us but little service in destroying earthworms.—J. B. WEBSTER.

Grafting *Clanthus Dampieri*.—I have noticed one or two communications recently in *THE GARDEN* upon this subject. The most recent one affirms that it is possible to graft *C. Dampieri* upon *C. puniceus*, but that the union thus formed is not a lasting one, i.e., that after some time the stock throws the graft off. No doubt this does occur when the operation is imperfectly performed, that is when the graft is attached to a stock which has been raised from a cutting. Should any of your correspondents desire to succeed with grafting *C. Dampieri* on *C. puniceus*, they must sow seeds of the latter a couple of months or so before they sow seeds of *C. Dampieri*, so that the young plants of *C. puniceus* will be getting firm by the time those of *C. Dampieri* are just firm enough to

handle. In grafting, take a young plant of *C. puniceus* for the stock, and cut off its head just above the cotyledons, or seed leaves; then take a young plant of *C. Dampieri*, and cut it off below the cotyledons, and make it in the form of a wedge; then split the stock down between the cotyledons, insert the graft, and tie with a bit of fine thread. Place the plant thus operated on under a bell-glass and over just a little warmth, attend to moisture and shading, and in a very few days the union will be complete. It is a delicate, though simple, operation, the result of which is so perfect a fusion between scion and stock, that separation is impossible. As soon as the union is complete, gradually inure to exposure and pot on as required; they (that is stock and scion) grow rapidly, and will make a good specimen in one season, and with careful culture will last two or three years. It is useless expecting *C. Dampieri* to live on for ever, as it is not its nature so to do, and no possible method of cultivation will make it other than it is—a short-lived plant. The proper and only sure way of enjoying the beauty of this plant is to sow a few seeds of each species annually, or biennially, and manufacture fresh stock.—T. SMITH, *Neury.*

OBITUARY.

DIED at Rough Bank, Sheffield, Mr. JOHN SIMONITE, in his eighty-sixth year. He caught a chill three weeks ago, which brought on a severe attack of bronchitis, from which he never rallied, and expired on Friday, 26th March. He was father of Mr. Ben Simonite, so well known as a cultivator and raiser of florists' flowers. Mr. Simonite was also a raiser and cultivator more than half a century ago. Much sympathy will be felt in florist flower circles for Mr. Ben Simonite, who had the help of his aged father in his garden up to the time of his illness which resulted in his death.

QUESTIONS.

5476.—**Leather as manure.**—I have about one ton of tanned leather clippings. Can anyone tell me if they are valuable as a manure, and how to apply them?—CONSTANT SUBSCRIBER.

5477.—**Fernery.**—In *THE GARDEN* for August 29 last a very interesting account is given of a beautiful suburban fernery. Perhaps the writer of that article, or the proprietor, will kindly state its dimensions, as an assistance to anyone contemplating the erection of such a structure. Some idea of the cost may then be formed.—F.

LATE NOTES.

Malformed *Fuchsia* (E. H. C.).—An interesting example of the way in which sepals may, under certain conditions, assume the form and colour of leaves.

Violets (G. H. Monaghan).—Very fine flowers, particularly the double white, than which we have not received larger blooms or any so white.

Fern roots (F. H. D.).—The white substance found amongst the Fern roots is an animal production belonging to one of the American blight insects. The remedies used against aphides will remove the cause in this case.

Pruning to promote vigour.—I have not adduced any such example as "D. T. F." states (p. 233) showing "the invigorating effects of excessive pruning." The snow-riven Thorn trees I mentioned pushed strong shoots in consequence of a vigorous constitution derived from their previous free growth, and not because any vigour was put into them by being broken or pruned; and that was what I said.—J. S. W.

5475.—**Edgings for walks.**—I can safely recommend "M. C. E." to use flagstone edging, as being altogether more suitable, more durable, and cheaper to set than either tile or terra-cotta, both of these last named being very likely to perish from frost. The flagstone does not need a brick foundation.

Late Broccoli.—Sutton's Late Queen, Veitch's Model, and Carter's Summer are all good, as are also Cattell's Eclipse and Ledsham's Latest of All. With any or all of these there need be no scarcity of good Broccoli up to the end of May. Last May we had a large plantation of the above varieties, for which we got 4s. per dozen wholesale on the ground.—J. R.

Names of plants.—*R. Macdon.*—1, *Acacia longifolia* var.; 2, *Cornus mas*; 3, send a frond with spores at back. —*H. R.*—*Crocus ochroleucus*; 2, *C. vernus* var.; 3, *C. biflorus*; 4, *C. vernus albus*. —*J. Collier.*—*Cymbidium pendulum*; *Lycaste gigantea*. —*Anon.*—10, *Narcissus tazetta* var.; 11, *Anemone fulgens*; 12, *Narcissus namus*. —*G. K. Bedford.*—1, *Himantophyllum miniatum* var.; 2, *Candollea cuneiformis*; 3, *Adiantum gracillimum*; 4, *Primula verticillata*.

WOODS & FORESTS.

UNDERGROWTH FOR COVERT.

I THINK there is often a lot of unnecessary trouble taken in getting plants to form a good undergrowth for covert. I know a wood which is seldom if ever drawn blank, yet the covert is of the simplest character. In the immediate vicinity of the house the case may be rather different, and in smaller areas the growth may perhaps be more dense with advantage, but here a great proportion of the underwood is Oak, growing from old tree and other stools. This is cut down periodically with the other wood. The wood from these stools, though, of course, the common Oak the same as they originated from, retains its leaves all through the winter, and even now there are acres upon acres of wood with last year's foliage adhering to it. This undergrowth of Oak is unquestionably the staple of the covert, and could, if necessary, be made more dense. There is a proportion of Ash, Willow, Hazel, White and Black Thorn, Bramble, &c., but they are all subservient to the Oak. The great objection to the use of Oak seems to be its habit of growing too high and leaving the ground bare. This, however, is true of most of the other woods used if left to themselves. The Ash in this respect is certainly a freer grower than the Oak. What is wanted to keep a good undergrowth is to make the cuttings come in at shorter dates—in other words, to cut the wood before it has the chance to grow into a mass of bare stems where the growth is wanted. Any ordinary hedge will give a sufficient proof of this. If it is cut at frequent intervals the whole growth becomes thick and makes a good hedge close to the ground. If the hedge is left for season after season it becomes thin at the bottom, and all the growth is concentrated above one's head where it is not wanted.

There is, of course, the drawback of the wood being of less value if coverts are cut more frequently, but the one thing must be weighed against the other. If wood be the primary object, then the cuttings must be arranged to bring it in at the age when it is most valuable. If, however, game is sought for the cuttings must come at more frequent dates. In raising covert in large woods—the one of which I am now speaking approaches two hundred acres—cheapness and efficiency should be looked at together. It may be that an owner does not stand at the cost. Yet this is no sufficient reason why money should be largely spent upon subjects which are no better than those which are to hand. If, for instance, as in the case under notice, the soil naturally produces good Oak covert, why should it be considered the correct thing to go away for miles and fetch thousands of young trees of other species, which may or may not succeed, and which if they do will answer no better than the native growth. Then in the matter of food, the common growth of the district is generally to be preferred, and will yield more than the stuff which is often brought to replace it. What sort of sustenance is to be gleaned from the produce of the Conifers which are often adopted for covert? So many new notions of what should or should not be in too many instances a mere grasping at the shadow and losing the substance. The trial of new subjects in a certain way is of course perfectly legitimate, but it should be kept within its proper limits. To improve upon Nature's arrangements is a thing which cannot be readily done. It is easy enough to see an apparent advantage on one side, but the chances are that

in practice it will be found that a corresponding drawback exists on the other.

There is another thing in connection with the growth of Oak from the young stools, viz., the opportunity it gives for establishing a future crop of young Oaks. Some of the best Oak woods I know have been started in this way, and are now and will for many years to come be a source of profit. It is not on every soil of course that Oak will be the natural growth. Where this is so, the natural growth if at all in character with the object aimed at should be preserved. This has been over and over again proved, and should be the test for raising coverts cheaply and well. If it was attempted to grow agricultural crops upon soils which the experience of generations had proved them to be unfitted to, failure would result. If coverts are attempted with plants which are foreign and unsuited to the ground the result will be the same.

WOODMAN.

WOOD-PAVED ROADS AND PATHS.

"T. B." does not after all (p. 271) prove anything very bad about wood-paved roads and paths, as if Elm will last half-a-dozen years under unfavourable conditions it cannot be said to be a bad paving material. When I made the remarks upon which "T. B." founds his criticism they were only offered tentatively, but so far they have rather received support than the reverse. I certainly did not overlook the fact that wood is more or less perishable, but there are few things which are not open to some objection or other. If what "T. B." says proves anything, it is that where wood is used there should be a fair amount of traffic, and that it would be unsuited to roads and paths which are hardly ever used. On such, he says, the material ordinarily employed is practically everlasting. When work of any kind has to be carried out latitude is generally allowed for the exercise of a little common sense; therefore a man who had paving or road-making to do at all would not be likely to lay wood on roads which were seldom used, and work in stone, &c., where the traffic was pretty constant. There is one exception to the rule about using wood only where there is wear, and that is in such places as "T. B." quotes about paving under the Ash tree. This is mentioned as a case of failure, but with this I do not agree. The great advantage of wood in such a place would be its comparative dryness, as the seat itself would not be likely to be occupied at such times as the floor would be sodden.

I did not advocate the purchase of wood for such uses, and only considered its preparation as practicable when there was power at hand by which it could be sawn. Most likely in the place of which "T. B." speaks the facilities for preparing were imperfect. If so, I should at once discountenance any attempt to use it, or at any rate to any extent. The sections of Apple tree laid in the way "T. B." says can hardly be accepted as a fair example of the utility of using wood at all. The objection about frost, too, amounts to but very little, as there are few surfaces which would be in a satisfactory state under similar conditions. I mentioned concrete for a foundation, but if this is objected to on the score of expense, some substitute, no doubt, can be found which is less costly. Where much wheeling has to be done, and there are few gardens where the barrow is not in frequent request, wood would certainly be a better material to go upon than stones or gravel. If not, why are planks used for the express purpose? For walking upon wood is certainly better than gravel. It will be of little use, however, to multiply instances for or against the use of wood. This will be for those who contemplate laying new areas to decide. It is not every place where gravel or stone is to be had; in these wood may be abundant. It is well to have as many strings as possible to one's bow, and to have wood to fall back upon, if it is not necessary to use it often for

paving, can certainly be no disadvantage. Where the soil is clay, for instance, and the work is not enough to set about burning ballast, wood may help the roadmaker over a difficulty, notwithstanding the opinion of "T. B." that it will help him into one.

WILTS.

FOREST ROADS.

"YORKSHIREMAN" seems somewhat hard to please (see p. 225). Sledges were merely recommended in such bad cases where the two-wheeled timber ginn and four-wheeled wagons were alike impossible. In ordinary cases the timber gin—or cut, as your correspondent calls it—is the best of all contrivances for getting timber on to the hard road and conveying heavy timber direct to the mill or yard without further transfer to wagons or carts. As to the latter, two-wheeled carts are mostly more convenient and expeditious than four-wheeled wagons, as they admit of more facile modes of loading familiar to foresters and carters, by which horse power does most of the labour of loading. "Yorkshireman," however, seems to make light of that, and affirms that it is the journeys that occupy most of the time. That is not our experience, nor that of many foresters; though, of course, a good deal depends on the length of the journeys. As a rule, however, the loading absorbs a very large percentage alike of the time and expense of removing timber. "Yorkshireman's" estimate of 5d. a foot for delivery seems enormous, especially at present prices for timber. Only a few days since I was offered 6d. a foot for fair Elm trees where they lay, within about two miles of a town. Light loads on woodland roads also pay so well, that almost all carters who carry timber by contract adopt it, dragging out the trees either singly or on timber gins, or in light loads on two-wheeled carts or wagons to the nearest metalled road, unloading and returning to the wood for more, until a sufficiency is obtained to make such a load of timber as the strength of their horses and the character of the road in regard to hills, &c., will enable them to carry. If such adaptation of the burden to the carrying power of the road is unpractical, then I plead guilty to being so in company with many of the best foresters and most skilful timber carters I have ever known.

But really all this was beside my purpose of my last letter, which was to advocate the importance of a dry site and form for forest roads, and the most economical methods of using and preserving them in good condition, on all of which points I am pleased to find "Wiltshire Forester" in cordial agreement with me.

D. T. F.

Effect of planting on climate.—The presence of forest or woodland undoubtedly has the effect of rendering the temperature of a place more equable, as it prevents to a great extent the radiation of heat from the surface, which is very considerable from the exposed soil at night. Trees and vegetation generally never become so hot when exposed to the sun as bare earth does. I have often noticed on a bright evening, when walking along a road, how much warmer it feels when one passes under overhanging trees; and yet, except under peculiar circumstances, during the day the interior of a wood always feels cool. The large amount of heat which is radiated into space from open situations is shown by the fact that in the Tropics ice can frequently be obtained by placing water at night in shallow open vessels in fully exposed places. If forests could be made to grow on the arid plains of India, the temperature there would soon become more uniform—that is to say, the daily range of the thermometer would be less. The forests in the west of Scotland and Ireland cannot, I think, in any way cause the

climate in those parts to be drier than it otherwise would by using up the water falling in the form of rain. The roots of trees, no doubt, withdraw a large amount of moisture from the soil, but at the same time their leaves are constantly giving out large quantities into the air. Trees by retarding the absorption of moisture by the atmosphere tend rather to make a district damper than drier. Rain falling on a bare hillside runs off more quickly in streams than off one clothed with woods and is more easily re-absorbed by the atmosphere, which, however, is in such constant motion (at any rate in this country) that the rain which falls in any particular place would not, except under peculiar circumstances, be from clouds formed from moisture derived in that locality. Our heavy rains are from clouds formed from vapour derived from the Atlantic Ocean.—G. S. S.

TREE GROUPING AND THINNING.

THE winter, or at any rate the season before the leaves appear, is the time in which this should be done. Thinning is generally understood after a fashion, but it is not so much recognised as may be that it is not only in planting that there is work to be done in the proper grouping of trees. When planting is undertaken, however well it may be carried out, years must elapse before any real effect is gained. Where trees already exist, the only care required is in knowing what to cut and what to leave. The great danger with most people is that of falling into formality. The notion that thinning means leaving each tree at so many feet from every other tree has to be combated. Nature never has, and never will, arrange her productions in perfectly straight lines and at perfectly equal intervals, like the bars in a row of iron palings. If the artificial is wanted, there are plenty of ways of getting it without pressing a thing so essentially natural as trees into service. In tree grouping everything should be done to avoid falling into such an error. One of the great charms of trees and woodlands is the surprises which they afford us at every step; some new and unexpected feature is constantly turning up. In cutting out tree groups the work needs constant supervision. It is impossible to lay out a day's work beforehand. The fall of a single tree or bush is enough to change one's aims and to reshape one's ideas. A good example of this occurred lately where some groups of Birch were being brought more into view. From the approach to the mansion the tops of a few of these trees could be seen amongst a quantity of rather unsatisfactory underwood on the borders of an Oak plantation. It was intended as soon as the ground was cleared that the area should be planted entirely with young Birch. On the undergrowth of Hazel and Ash being removed, the result was so satisfactory and the effect of the few groups of Birch so good, that it was found unnecessary to plant more. Overcrowding is an error often committed. Some trees require to be in dense masses, but not all. Evergreens cannot, as a rule, be effectively isolated unless there is something specially noble or characteristic in a particular tree. Most deciduous trees can be dealt with in somewhat looser groups, but, as has been said, the work should be done in the season when the leaves are absent. It is very often that better results are obtained from trees which occur accidentally than from those which have been planted for the purpose. It may not be known to the individuals themselves, but it is more from the way in which trees occur in our hedgerows than from the trees themselves that objections to their existence are raised. The trees in a line of hedgerows broken up into three or four groups will be infinitely more acceptable than interminable rows without a break.

In districts where the tree grows freely the Elm lends itself well to this purpose for grouping.

It is a very common occurrence to find one or two towering trees of this species supported by half-a-dozen others in various stages of growth. Where a taller tree appears to be crippling and overgrowing a younger one the young tree must, in almost every case, be sacrificed, as when once checked, if the cause was removed, it will be a long time before it will regain good growth. It does not follow, however, because trees grow closely together they are necessarily in the wrong place. The general appearance and contour of the group must be the guide. The line making the finished group must be kept intact at all cost. Thinning for the sake of timber and for the sake of the landscape must be made to agree as well as may be, as one cannot be followed to its full length without trenching on the other. A collection of pollards—worthless for timber—will often form an effective group in the landscape. Young trees alone—small trees are not necessarily all young ones—do not as a rule make good groups. Consideration, therefore, should be used before an old tree is condemned. Because a tree is out of the perpendicular it does not follow that it should be cut away. Some of the leaning trunks in an old Apple orchard would make effective trees for grouping. As much as possible trees of the same species should be kept together, and not several kinds jumbled promiscuously together. Even with the same species the habit of growth varies so much, that occasionally their proximity mars the character of the group.

In other instances separate species go well together, as with the Oak and the Ash. When a couple of fine trees stand not sufficiently close to make a group and not far enough apart to give the idea of two isolated specimens, there is some difficulty in deciding what should be done. The feeling will be towards sparing the two, but possibly it will hardly be the wisest course. Six or seven scrubby-headed Wych Elms would not be likely to be favourably regarded by many, but a group of these trees near here are very effective; both their stems and branches are very characteristic. Single Elms and Oaks, when their proportions are sufficient, have often as great a value as groups of smaller trees. In making groups an important thing is to judge their appearance from several standpoints, as what may be entirely satisfactory in one situation may be indifferent or unsatisfactory from another. Where the sacrifice of one or the other must be made, the best result from the most frequented spot will of course be attempted. Old Thorn and Maple trees often form good groups. These are trees which will have little attraction to those who look upon trees as of so much value for timber, so they generally remain unmolested.

RUSTIC.

How the Elm is propagated.—There is one point which must always tell largely in favour of hedgerow trees, and that is they occupy no appreciable space and cost nothing to plant. The Elm is a good example of the way in which these trees are propagated. This is probably one of the finest Elm-producing counties, yet it is very seldom one sees or hears of Elm being planted. A little study of the hedgerows will explain how this is. If there is no seed matured, Nature does not fail; and go almost where you will in the neighbourhood of the Elm an abundance of young trees in various stages of growth are to be seen. From suckers there comes our supply of Elm saplings which will ultimately develop into stately trees. This seems to me a partial solution of our tree-planting difficulty. Every tree will not, of course, reproduce itself like the Elm, and every soil and situation will not suit this tree. It is, however, a tree for which there is always a demand, and if the price

is comparatively low, one which it would pay as well to encourage as many. In some counties the Elm is scarcely to be met with. This fact may have some bearing on the question of its being indigenous or otherwise. As it is so widely distributed, should it not be found upon every soil which would naturally suit its growth? This must be left to those who care to fight out such matters, but from a practical point of view the Elm ought to be on every soil where it will grow well and propagate itself. Once establish a few Elms in this way and a regular supply will be kept up naturally without further expense or trouble being incurred. A better all-round wood than the Elm it would be difficult to meet with. The Oak and the Ash has each its special excellence, but the Elm is a wood which can often be pressed into service as a substitute for either of these, and yet it has a considerable range of uses for which the other two could not be employed. In the landscape it is an effective tree, and for shelter for cattle it is unsurpassed. With regard to reproduction, as has been said, there is scarcely a tree among our common species, if the Poplars are excepted, which propagates itself more cheaply or surely. This is a thing too much lost sight of. Let some say what they may, the growth of the Elm in the hedgerows should be looked upon favourably, and not only this, care should be taken that young trees be not wantonly destroyed. In some places, of course, they occur much too thickly, but what is wanted is regulation, not destruction. The degree of thickness most proper will vary according to circumstances, and under no pretence should trees in hedgerows be thinned out like Turnips in a field, with the difference of being so many feet instead of inches apart. The irregularity of the occurrence of trees, except, of course, where they are too thick, is one of the chief beauties of the landscape. When thinning is to take place, the object should be rather the formation of irregular groups, a kind of nine-pin arrangement with the trees at stated intervals. When hedge-cutting is going on, on some estates it is the practice to allow the hedge-cutter a nominal sum for each young sucker saved. This, perhaps, is as good a plan as any, as with a careless man young trees as well as the hedge plants will fall to the bill or axe, and the work of reproduction is thrown back several years.—D. J. YEO.

Mammoth trees.—Can any reader tell me the sizes of the largest trees of *Sequoia gigantea* in California?—A. MC.

** The dimensions of the Sequoia in the Calaveras Grove, from which the sections of bark exhibited at the Crystal Palace were taken, were as follows, viz., circumference at base, 84 feet; ditto at 20 feet from the ground, 69 feet; at 70 feet from the ground, 43 feet 6 inches; and at 116 feet (the height to which it was stripped of its bark), 39 feet 6 inches. The height to the first branch was 137 feet, and total height 321 feet. Different accounts vary a little, but these I regard as being the most correct. This probably was not the largest tree known, although it is the largest of which I can give anything like exact figures. It is recorded of one tree that across its butt as it lay upturned it measured 35 feet without its bark, and that when in its vigour and with its bark on it must have measured 40 feet in diameter, or 120 feet in circumference. The bark exhibited at the Crystal Palace could not have been shown at the exhibition of 1851, as the existence of the trees was unknown at that date. If desired, I could give some further information about the American trees, but am sorry I have no data with regard to the Australian Eucalypts. Some figures, however, which were published some years ago giving the sizes of some Tasmanian forest giants (Gum trees, but specific name not stated) may be of service. One of these was 130 feet in circumference at the ground, and at 3 feet from the ground 102 feet; the height was not ascertained. Another lying on the ground reached to 220 feet in height without a branch. This was 30 feet in diameter at base, and 12 feet diameter at the first branch (220 feet).—ED.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

BLUE FLOWERS.

TRUE BLUE is always most welcome in the garden, and never more so than in early spring, when, as a rule, blue flowers are not by any means so plentiful as we would like them to be. The Siberian Squill (*Scilla sibirica*) is, I think, the finest blue flower of the early spring, especially when growing in full exposure; it then assumes an intensity of hue hard indeed to beat. It is, moreover, easy to be had in quantity—two qualifications of no mean order. *Scilla bifolia* is a pretty plant, which is also common, but rather purple than blue, and not at all so striking. The newer *Chionodoxa Luciliae* improves on acquaintance, and now that it is getting established, we can the better estimate its merits. It varies a good deal in shade; the prevailing tint, however, is *Nemophila insignis*-like and very charming. We shall not see this bulb at its best until it becomes wedged into close masses, so that flowers and leaves can hold each other up. Now, thin as they generally are, the spikes have a disappointing habit of falling down on the ground on being hit by a puff of wind or a rain-drop. As an earnest of what we may expect, I have found this season a spike with fourteen flowers on it. Anyone who wishes to be successful should plant this bulb with a shovel rather than with a dibber. *C. sardensis* is a more intense blue, earlier to bloom, and more prone to fall down than even *Luciliae*; we have, however, too little experience of it at present. *Crocus Sir John Franklin*, planted in bold masses, has an intensity of colour which is very telling. The blue Grape Hyacinth is another good blue to be had in quantity, hardy and lasting a long time in beauty. All blue flowers are charming, even alone, but they one and all have an added charm when associated with some pretty contrasting plant. I have worked out the following combinations with excellent results: A good-sized, irregular mass of *Scilla sibirica*, freely interspersed with dots and clumps of white Roman Hyacinth; both are in full bloom together, the latter plant commencing rather before the former. *Scilla sibirica* associate with the vernal Snowflake is very pretty, but I think the latter plant associates much more happily with the purple *Sisyrinchium grandiflorum*. A broad crescent-shaped masses of white Roman Hyacinth filled in and carpeted amongst with *Anemone apennina* a charming mixture, though not lasting, as the Hyacinth is a little past its best ere the *Anemone* comes in; a broad irregular belt of *Chionodoxa*, backed up by and filled in with white Primroses, is truly charming. Again, *Chionodoxa* planted around and amongst strong clumps of *Primula viscosa nivalis* is very beautiful. White Dog's-tooth Violet interspersed among *Scilla bifolia* is pretty, and single blue Hepaticas and dwarf Daffodils make a pretty picture, which is also lasting. Hepaticas this season, for some reason or other, lost most of their leaves. This, however, does not seem to have impaired their flowering, the blossoms being individually fine and quite as numerous as though the foliage had been retained. *Narcissus pallidus præcox* planted among *Scilla sibirica* makes a charming mass, but the *Narcissus* is a flimsy and unsatisfactory flower outside, being quickly spoilt by rain storms. A striking effect

is produced by a bold mass of *Narcissus cernuus*, thickly carpeted with blue Grape Hyacinth, the latter extended here and there beyond the Daffodils; this blue-flowered bulb is one of the most satisfactory we have, being beautiful in colour and never injured by any weather; it lasts long in beauty, and can, moreover, be had in abundance. It should never be planted singly, but should be spread upon the ground thickly and be dug down. *Scilla sibirica* and *S. bifolia alba* have not come out, the latter being too late. I am, however, hopeful that they will overlap, if only slightly. I have not found the white *Crocus* to associate well with blue flowers of other genera; better effects are obtained amongst themselves, in combination with blues, purples, and other colours. A pretty effect is produced by planting the white form of *Anemone apennina* amongst the blue. It will be seen that all the plants just referred to come in with the first breath of spring. Later on we shall have much greater variety, but I cannot call to mind just now anything that does come later which is more effective than some of these are.

Newry.

T. SMITH.

GARDEN DESTROYERS.

THE RABBIT PLAGUE.

"AGENT" has earned the gratitude of thousands of suffering and sorely tried gardeners by his trenchant exposure (p. 295) of the incalculable loss inflicted in gardens, fields, and forests by rabbits. He is also probably right in asserting that the Ground Game Act has aggravated the evil that it was meant to cure. Its useless restrictions handicap the exterminator of these pests just at the points where success is most easy, and so converts his prospects of easy victory over the rabbits into mortifying defeats. There is also great force in "Agent's" views in relation to the shifting of responsibility from the shoulders of the landlord on to that of the tenant, or, more correctly perhaps, the sharing of the responsibility with him being all in favour of the rabbit, and yet it is singular that the self-same law applied to hares has reduced the latter from hundreds to fifties, and even to fives. In fact, on not a few estates overrun with hares before the passing of the Act they are now well-nigh extinct. On fields on which it was easy to count a hundred hares on a morning on the early clover it is now very rare to see five, or to be able to shoot a brace a day. Of course, there is an immense difference in the rate of increase between hares and rabbits, but this hardly disposes of the almost opposite results in the number of the two since the Ground Game Act. Hares are much more in the power of tenant farmers than rabbits, and, as "Agent" so well shows, the latter are protected just where well-directed attacks would prove most telling in reducing their numbers and cutting off their supplies. Unfortunately, too, in not a few cases "velveteen" has a vested interest in rabbits; the surplus are given as a perquisite or as part payment, and wherever such arrangements prevail, rabbits will swarm to the end of the chapter. If anyone is in doubt what that means, let him read "Agent's" remarks, or, better still, stroll through a garden or park, farm, or forest where rabbits abound, and he will return to declare that one-half of the evils or plague of rabbits has not been set forth in "Agent's" appeal. My own experience and observation go far beyond "Agent's" temperate statement of facts. One of the fairest and most productive gardens ever known was smitten with barrenness and blasted with utter desolation beneath the blight-

ing plague of rabbits. The estate had changed hands, and a youth fresh from college came into possession who was afflicted with a fur craze. He succeeded an old colonel, who combined the courage of a soldier with cultured taste, and who for years found his chief pleasure in the formation and furnishing of his garden. Game also abounded on the estate, from the bounding deer downwards through all species and varieties of furs and feathers; but the garden was held sacred from their presence, and neither fur nor feathers were allowed to roam over it to its injury. But now part of the flower garden was converted into a rabbit warren, and all kinds of game were encouraged to overflow both kitchen and flower garden, until neither fruit, nor flower, nor vegetable could thrive.

Here is another case showing the wreckage of farm crops through the plague of rabbits. A rich West Indian planter died suddenly. The estate was let as a large game preserve to a rich millionaire from a distance, who had no interest nor connection with the district, excepting that of a game rearer, slayer, and seller. Rabbit culture was carefully promoted, hares were purchased and turned adrift by the hundred, pheasants' eggs bought by the thousand, a staff of six new keepers established, and the game had it all their own way for a time, until nearly the whole of the undergrowth and young trees in the woods were destroyed and the shrubberies eaten up. The tenant farmer's claim for compensation for destroyed crops far exceeded the game rental of the estate. Then, after something like a social revolution, the ruin and removal of most of the tenants, many of whom had been on the estate for years, the plague of excessive game was stayed.

My third illustration is that of the estate of an extensive planter, who for nearly half a century had made planting his hobby, and, of course, kept up but a very limited stock of game in consequence. At his death, changes of management occurred, and one of these consisted in allowing rabbits to increase and multiply at an enormous rate. It was represented that they were more profitable than sheep, and this even seemed confirmed when at the end of the year a clear gain of £200 in cash was credited to the rabbit account. A severe winter followed, and the woods and shrubberies that had been furnished at enormous expense for years with a rich collection of shrubs, and especially Hollies—many of them averaging from 10 feet to 15 feet in height—were cleared of at least a thousand pounds' worth of valuable shrubs and trees. Hollies and other shrubs of all sorts and sizes were barked round, and the wreckage of the rabbits appeared in dead battalions all through the succeeding season. Thousands of promising trees were also utterly destroyed. And it was the sight of this wholesale destruction that wrung from me the opinion that I have often expressed since, that rabbits on a well-furnished estate—in the forest, park, garden, or on the farm—are the most costly luxuries that can be indulged in, and bring about, not in figure of speech, but sober fact, the abomination of desolation. They may be fairish food, and it may or may not pay to keep them wired-in closely in warrens, but every rabbit at large on a well-farmed or gardened estate, whose skin and carcass may fetch a shilling, has already destroyed a pound's worth of property. This may seem an extravagant statement, but I believe it is strictly true. Rabbits are most gluttonous feeders; they poison, probably, four times as much as they eat, and they wantonly destroy as much, or more, as they both eat and poison. This wanton waste of food is really "the unkindest cut of all." Though rabbits are the worst of all vermin in the garden, it must not be taken for

granted that hares are not mischievous, nor that feathers are harmless. The plague of hares is sufficiently trying when they are found at dewy eve or early morning in force on choice beds of flowers, cropping early layers, or among sweet vegetables. But, as already remarked, this plague has disappeared where the Ground Game Act has been loyally carried out. But feathers in the form of a few hungry coveys of partridges, or many hundreds of hungry pheasants placed on short commons to force them to cater for themselves in the autumn, among sweet, tender crops of salading Peas, Cauliflowers, or other similar plants, are almost as disastrous and destructive as a flock of lambs. Not seldom, too, feathers aspire to higher game that is superior food to these. Tomatoes, Pears, Peaches, Plums, Strawberries are by no means beyond the level of the dietary curriculum of hand-raised pheasants, and the safest course alike for feathers and fruit is to keep the two as far apart as possible. One taste of these good things creates a craving for more, and unless this is checked in the bud the probability is strong that one or both may come to grief before the season is over, and if not, "velveteen" is almost sure to get into many a tiff or passion, and no one knows better than "Agent" how seldom that promotes the harmony, peace, or prosperity of well ordered estates. D. T. F.

Moles.—It is all very well for "G. S. S." and other naturalists to plead, as they often do, for moles and other pests with which gardeners have to contend, but they cannot have much experience of the mischief which these troublesome creatures work both in garden and field. No doubt moles do effect some good in grass land much infested by wireworm, &c., but my experience of them is that they do much more harm than good. So much are we troubled with them here, that I have offered our men 18d. per dozen for all they can catch on garden or farm. I know of no better trap for catching them than the ordinary galvanised iron mole traps, sold at 4s. 6d. per dozen. Bullfinches, too, are often defended upon the plea that they destroy insects, but my experience of them is that they do no good whatever, but much harm. Our fruit bushes this winter have been completely stripped of their buds by them, although I had them washed over several times with soot and lime. Safety consists only in bundling up the bushes with straw bands in autumn. SANGUINEA.

Rabbit-proof plants.—To a certain extent any list of rabbit-proof plants must be misleading, for there is not one plant or tree, so far as I know, that they will not attack, either stem or branches. I am, unfortunately, too familiar with their depredations. Still, with those named by "Agent" when once established they do not seriously interfere. With us the Hydrangeas are unmolested, and they grow to a very large size. *Kalmia latifolia* they do not interfere with after they have cleared off the bottom branches, and the same may be said of *Azalea amona* and *A. myrtifolia*, both of which are evergreen. If large plants of *Euonymus* are put out they will only nibble off the lower branches. Amongst deciduous shrubs we have the following growing fairly well where rabbits abound, viz., *Rhus Cotinus*, *Althæa frutex*, *Syringa*, and *Forsythia suspensa*. These have been planted ten years. Amongst Conifers I find they do least injury to *Picea cephalonica* when in a young state. Some Pampas Grass which we planted five years ago, and protected at first with wire netting, they do not now interfere with. Like "Agent," I have great faith in Privet for forming game covert. The best way in which to deal with it is to put in plants 4 feet high, and let them grow in their own way for two years; after that the long shoots should be brought down to the ground and pegged down; by adopting this method a perfect thicket of Privet may be made in a few years, as if the shoots are firmly fixed in the soil they will push out roots and ultimately form distinct plants.—J. C. C.

HYBRID AMARYLLISES.

THE annual show which the Messrs. Veitch make of Amaryllises at their Chelsea Nurseries is again at its best, and, fine as its predecessors have been, the present excels them all as regards extent, variety, and high quality. There has probably never been such an exhibition of Amaryllises anywhere as that which is now the main feature of the Chelsea Nursery. The great span-roofed house is crowded with flowering plants, and as each plant bears one or more spikes, carrying from three to even seven flowers, there were probably between two and three thousand flowers expanded the day on which we visited the show. The plants are particularly fine this season, and, notwithstanding the long period of dull weather which we have had, the spikes have developed strongly, and bear on the average more flowers than hitherto on the same aged bulbs. As we have often described the mode of culture here, as well as sketched the history of the magnificent strain of Amaryllises which exist here, we need only note the new sorts that struck us as being distinct from older kinds and the best of their class. The varieties as a whole may be grouped under three or four classes, which are different from what they were a few years ago. The chief of these groups may be conveniently termed the Empress section, for that splendid variety *Empress of India* was the origin of it. All the hybrids that have had this variety either as a seed or pollen parent show in their flowers unmistakable evidence of their parentage. All have bold and handsomely shaped flowers, varying in colour from the most vivid scarlet to purplish rose, and some are even light kinds. The best of the new sorts in flower of the Empress type are the following:—

Prince Albert Victor, flower large, fine form, petals of great substance, upper one 4 inches across, petals white banded. This is unquestionably one of the finest of this year's seedlings. *Etna*, brilliant scarlet, netted with deeper veins, and white; *Serenata*, very large, vermilion, netted crimson; *Anchises*, vivid scarlet, each petal banded with white; *Dunholm*, flowers $8\frac{1}{2}$ inches across, plum-crimson; *Fortunata*, orange-scarlet, white star; *Diomedes*, large, showy flower, but not remarkable for fine shape, crimson red, veined black; *Junius*, deep crimson; *Star of India*, vivid orange-scarlet, white centre; *Triumphans*, spikes a yard high, five flowers on each, colour glowing scarlet, $8\frac{1}{2}$ inches across.

Then we come to a distinct group which had its origin in one of the Westonbirt seedlings named *Bellona*, the characters of which are the smallish and perfectly shaped open flowers and rich self colour without a trace of white or green in the centre. The best of these, besides the well-known Dr. Masters, include the following, which are all self-coloured, that is, the flowers contain but one tone of colour, and have no pale centre. All are exceedingly beautiful, particularly the smaller-flowered kinds, which most nearly approach the original *Bellona* and Dr. Masters. The finest of the batch is one just named *Lorna Doone*; this has intensely deep crimson flowers, of smallish size, but of exquisite shape. It is looked upon as the best of the group. Other good kinds are: *Lord of the Isles*, vivid crimson; *Caltha*, like Dr. Masters, but deeper centre; *Daimio*, carmine-crimson; *Cossack*, large flower, vivid colour; *Veronese*, carmine-crimson; *Byron*, crimson-lake, velvety.

The third section includes the white and light-coloured sorts, which are not plentiful, unfortunately. The finest pure white is one named *Lady Howard de Walden*. It has tubular flowers of thick texture and good form. *Lady of the Lake* has a large open flower, milky white, here and there flaked with crimson; *Marcia*, white flaked and feathered with crimson; *Ellen Terry*, white, feathered with crimson; *Emeta*, flowers like *A. reticulata*, white lined and pencilled, one of the most distinct of all the sorts, and one that should be the forerunner of a new strain. Other good sorts of other sections are: *Temon*, flowers small, carmine-crimson, two spikes, seven flowers on each; *Eurytis*, deep crimson; *Clandon*, perfection in shape, salmon-red, white centre.

Seedlings that have not flowered before are opening daily, so that there are constant surprises in the way

of fine things among them, and what is considered the finest sort to-day may be eclipsed to-morrow. The splendour of such a show as this cannot be described; it must be seen. It will be good for another two or three weeks. Indeed, there will be stragglers in the way of late flowerers until the new autumn flowering race commences to flower which will continue throughout the winter.

COOMBEHURST, KINGSTON HILL.

THIS is one of the numerous gardens that are to be found in or on the confines of that beautiful stretch of woodland known as Coombe Wood, lying between Wimbledon and Kingston-on-Thames. In very few of these gardens is the natural character of the woodland preserved as at Coombehurst, Captain Vyner's Surrey residence. The trimly kept lawns on the south side of the house run into and imperceptibly join charming woodland glades where Nature is her own gardener, where beneath groves of white-stemmed Birches one may see in May a blue carpet of Bluebells and other spring flowers, either the native growth of the place or naturalised exotics. When the late Mr. Vyner altered the house and the grounds immediately surrounding it, he wisely kept the hand of the improver from interfering with the adjacent woodland. Had he not done so, perhaps the Birch grove would not, as it is now, be the glory of the place. One may go into a hundred gardens, even in Surrey, and not find such a beautiful feature, and anything done to mar its beauty would be a pity. Mostly all of the Birches have attained that age and size when they show their greatest beauty of branch and stem, and as you look through the somewhat irregular plantation of them the contrast of the white boles and greenery beneath is striking. What it is in Bluebell-time one may easily imagine. This wood overlooks the valley through which runs the Beverly brook; in the distance may be seen Wimbledon Common; while between that and this house there is a stretch of ever-varying woodland, here and there studded with gentlemen's seats. Such are the main features of Coombehurst, and the minor parts of it are quite in harmony with the surroundings. The house is perched on a sloping ridge with high ground at the back, and the lawns run rather steeply from the terrace down to a little rill, where the polished part meets the undisturbed woodland. The lawn, too, is admirably designed. You cannot see it at all at a glance, but it runs off into the shrubberies in little glades and recesses, which gives that play of light and shade which adds so much to the charms of a garden. The place is well provided with trees, most of which form part of the original Coombe Wood, and with this native growth exotic trees and shrubs of all kinds have been interspersed. *Rhododendrons* thrive admirably here, although the soil is not peaty. There are prodigious masses on the front lawn, but these have been cut in such a wall-like fashion that they spoil the view of the house from the lawn; therefore, they are left out of the illustration herewith given. Behind the house is a good Rose garden with the beds devoted to particular sorts—a capital plan, as the effect of masses of one colour is so much better than the "spottiness" of mixed tints. Leading from the tennis lawn is a grove of Nut trees of ancient and picturesque appearance, and these, like the Birches, are a remarkable feature. In summer the shady walks among the Nuts are delightful, and here, too, in spring the place is lit up by spring flowers. There is a well-kept kitchen garden, fruit and plant houses; but these are not extensive, the place being used chiefly as a summer residence. W. G.

NOTES.

THE WEST WIND.—March came in with bitter frost and snowstorms and goes out with a wild west wind. On this the last day of a month proverbially windy the storm fiend seems more mad and furious than usual, swirling round the young leaves and snapping off the Daffodil blooms and buds by the hundred. The windfall of flowers is, however, but a trifling matter, since the bulb growth would be all the stronger for this storm robbery, but unfortunately the leaves are in many cases also broken, and this is a loss far more serious and ill to bear. This roaring wind is furious, one moment coming in sweeping gusts; then it slackens, and we get driving sleet, or it veers a little southward and the sleet becomes pelting rain. In its warmth and moisture it differs from the marrow-chilling wind of the east, which dries and shrivels up everything—human kindness even—whereas the west wind has the rough freshness of a roystering boy. I think it is Kingsley who praises the west wind. I also am a lover of a fresh breeze, and enjoy a walk over a wind-swept moor or down, but in a garden one can better enjoy the soft and genial

the Hookers, Olivers, Grays, Harveys, Wrights, and others who have travelled are very careful to make all allowance for this dual state of things, but to the garden specialist it is a hard saying and one they too often think unworthy of acceptance. Nature is quite willing that we should have plenty of new lamps for old ones—plenty of that infinite variety which is said to be so charming, and if we like to think we, like the fly on the wheel, are making great progress, she is happy, but she goes on with her own work all the same.

MEGASEA CRASSIFOLIA.—A good spreading mass of this old Saxifrage is now one of the prettiest sights in the garden. It grows in the irregular nooks formed by some large growing Holly bushes, and naturally spreads itself about in a pleasing manner. Apart altogether from its great clusters of soft pink blossoms and dainty buds, the plant would be well worth growing for the sake of its great bronzy foliage, even if it never flowered. It grows well in any good deep soil, but all the family evince a fancy for lime in the soil, and where this does not exist it should be supplied artificially. All these large-leaved

private places where cut flowers are extensively used in the house. I have often remarked how well Lilies, Crown Imperials, Narcissi, Spanish Irises, and other bulbs grow amongst Moss, China, and other Roses in old-fashioned gardens. The finest mass of *Narcissus cernuus*, double and single-flowered, I ever saw was in a big round bed of Moss Roses and Sweet Brier. A great bush of Sweet Brier in the centre afforded plenty of its deliciously scented leaves; and even at Christmastide its crown of glowing scarlet hips made it a thing of beauty. In April the bed was a mass of creamy-white Daffodils, edged with pale blue *Scilla bifolia*, and then in May came the earliest Rosebuds; but the real harvest of blossoms was in July, and then the dying leaves of the Daffodils were forgotten.

THE GOLDEN FLOWERED FORSYTHIA.—Once more the old grey stone walls are covered with the warm brown tracery of slender branches, each thickly strung with elegant yellow bells, which as seen in the mass somehow give one the impression of a swarm of golden bees. Except of course and always *Jasminum nudiflorum*, I know of no other wall shrub so quick in growth



Coombehurst, Kingston Hill.

Apple-blossom days in which the tenderest leaflets are undisturbed.

CULTIVATED PLANTS.—Cultivation is another word for alteration, and one of the main factors of evolution in the garden. For example, you go to France or Spain, or Italy, and collect any wild plant there; now if you make a careful drawing, or, better still, a life-size photograph, of your wild species, you have fixed the actual characters of its native growth for ever. Say it is a Tulip or a Narcissus, or a Primrose or a Gentian. Bring home your plants and grow them for, say, five years in your garden, and then at flowering time compare the illustration or portrait above referred to with the cultivated plants. Yes; there is an alteration; always that, better or worse, as the case may be. Wild Tulips become scarcely recognisable after a few years' cultivation in the garden. So also of wild Narcissi and Primulas, of nearly all the wild plants known to me. So great is the change effected in some cases that if the wild and the cultivated phases of the self-same species be laid side by side it is really difficult to believe them to be of the same origin. The botanist, especially

Saxifrages or Megaseas deserve more attention, especially those which retain their bold and shapely leafage throughout the winter. *M. purpurascens* is quite beautiful in leafage, and its blossoms are rich in colour; while one or two varieties of *M. cordifolia*, such as Barr's rosea and Ware's atropurpurea, are well worth a good position. As planted in good bold groups among stones, or used to carpet the bare borders amongst shrubs, these plants are most beautiful, reminding one of good statuary in bronze.

BULBS AND ROSES.—It is a very pretty idea that of marrying Queen Rosa to Narcissus; and one that is well worth carefully adopting wherever there are borders and beds devoted to Roses. These last are ever welcome from June until November's frost and mildew end their reign; but months before the Roses attain their full leafage and flowers spring bulbs may have made the bare earth around and beneath them lovely with their blossoms. London market gardeners manage to grow spring flowers everywhere—by the edges of walks, beneath Apple, Pear, and Plum trees, or in long rows beneath the bush fruits, and this plan may often be followed in

and so generally satisfactory as this introduction of the late Robert Fortune. Cuttings root freely and flower the second year, so that one has not long to wait, as is so often the case with flowering shrubs. Almond blossom is pure and rosy against the April sky, and the blood-coloured *Pyrus japonica* is bursting into bloom, each glint of crimson-red set in leaflets of the tenderest greenery. The white form of this shrub is very chaste, by which I mean the large pure white variety with a greenish centre, introduced, I think, by Veitch; and figured years ago in *THE GARDEN*. But amidst all other shrubs in bloom, be it *Daphne* or *Rhododendron*, my eyes wander back to the golden bees on the wall. There are two Forsythias, and, to my mind, *F. suspensa* is the best for general culture, being more elegant in growth, even if not also more profuse in blossoming. The only drawback is its deciduous habit, but planted along with Ivy or with *Clematis cirrhosa* it would form a good combination.

EDGINGS IN GARDENS.—This question of edgings for borders and walks in gardens is likely to occur for all time. Well-kept edgings

of Box are good in their way, so also the broad bands of green Ivy so common in French gardens, but very beautiful and permanent edgings may be formed of rough granite or other hard stones. These stone edgings may be varied at will; they may be neat and formal, or rough and irregular, and one may form pockets or niches in them for choice little alpine plants if so disposed. Once well formed they are practically indestructible, and need but little after attention. These edgings are very pretty and natural when planted with Saxifrages and Sedums, or one can sow seeds of *Erinus alpinus*, *Grammanthes*, *Ionopsidium acaule*, *Mesembryanthemum tricolor*, and other bright small growing plants so as to cover the stones with a living carpet bejewelled with flowers in their season. There is scarcely any limit to the variety of ways in which these edgings of roughly quarried stones may be disposed, lengthwise or transversely or diagonally, so as to form clefts, chinks, and crannies for all sorts of pretty things. In breadth they may vary from a couple of inches to 2 feet, and so also the height is simply a matter of taste, or of keeping with other things. Wherever stones are readily obtainable these edgings may become beautiful little rock gardens, full of interest and really useful, while their after keeping is not nearly so troublesome as are the formal lines of Box, poodle-clipped into fictitious monotony.

IRIS STYLOSA.—Why is it that a flower so lovely as is this Algerian or winter Iris is after all comparatively rare in gardens? Here on the limestone formation it grows like a weed, and seems especially happy amongst stones in the soil. Good strong old weather-beaten and sun-scorched clumps flower best, and it is best to gather the buds when they reach full size—a condition readily recognised by the inner colouring of the petals showing itself—and then they open out perfectly in water indoors. To my mind it is one of the choicest of all hardy flowers, and especially valuable as blooming from February to April, a time when most other Iris flowers are scarce. On some soils the plant grows too freely and does not flower. Planted near the foot of a sunny wall, or near stones and boulders in fully exposed positions, it generally does well. A friend who failed in flowering it does so now quite easily, after having planted it amongst stones and old lime rubbish. A great bowlful of its blossoms exhale a delicious perfume, and always remind me of the flowers of *Vanda cœrulea*. Of course they are different, but, as I think, none the less lovely. It is a good subject for pot culture in a frame or cool house, and altogether one of the really good hardy plants that are far too rarely seen.

THE SPRING VETCH.—In a whole gardenful of beautiful spring flowers this old-fashioned *Orobis vernus* is just now most pleasing to me. It is a long time since I saw it in a long row in an old mill-house garden, with other rows of the old Dusty Miller *Auricula* on either side. Every flower was at that time a nameless thing—a beautiful mystery, a joy as fresh as the air and the sunshine, affording delight a child can only express as the birds express their happiness in ceaseless motion and in happy song. That old garden in the moist meadows near the white-washed mill, with the golden Willows and tall Poplars beside the river and its old-fashioned flowers, always comes back on the wings of memory whenever I see the spring Vetch in bloom. Big clumps of it are now very beautiful, its blossoms changing from reddish purple to blue, so as to give a shot appearance similar to that of silken textiles. It is another of the plants which enjoys a few spadeful of lime rubbish if planted in earth naturally destitute of lime or chalk. On

some dry, hot soils it has a stunted, weedy look, but when it luxuriates and forms great spreading crowns of young leafage and blossoms, it is to my mind one of the freshest and most pleasing of all the perennials of spring.

Ghent Azaleas.—In the sunny south of England, as also in some parts of Ireland, these plants are hardy and form great flowering bushes full of colour in May and June. In Surrey and Sussex groups of these plants give quite a soft flush of rainbow-like colour to the garden landscape, while on the Bagshot sand they grow even more luxuriantly perhaps than they do in Belgium. Then they are twice beautiful in the year, in spring from the time their tender leaves appear until they finish flowering in early summer. Then in that great mid-season floralia, when the Iris, the Lily, and the Rose vie with each other like rival Graces, we forget our Azaleas until sunny autumn paints their leaves with rich fruit-like hues, now bright as gold, or deep stained as with blood or wine. Last October, in the Edinburgh Botanic Garden some deciduous Azaleas quite lit up the place with light and colour, so lovely was the hectic flush of their dying leaves. They are not hardy everywhere, and do not like chalky soils, but they may be grown well in pots in a greenhouse, or even in a sunny garden frame. At this season they add quite a charming variety to the Indian varieties, extending their rather limited range of red or white colouring into the most exquisite of buff, salmon, sulphur, and rose-tinted shades. Arranged in bold groups in the conservatory, along with the Japan Maples, these plants are most exquisite, and one lovely phase of floral beauty is absent where these plants are not grown.

Scarlet Pau Anemones.—*Anemone fulgens* is as capricious as it is beautiful, and never looks better than when planted on dry, grassy banks in the full sunshine. On some soils it grows like a weed and flowers profusely; on others it dwindles and dies away. The common wild English Daffodil is another instance of a plant perfectly robust and hardy in the fields, but which shrinks from garden cultivation. Well grown, there are no flowers so brilliant just now as are these scarlet Windflowers. They are happy in the warm winds of showery April and May, and sway and nod and flutter bright as Poppies on the borders, their brilliancy enhanced by clumps of *Narcissus cernuus* with grey-green leaves and gracefully nodding buds and blossoms. About two years ago Dr. Mahaffy, when on a visit to Prof. Schliemann, the Greek antiquarian, dug up a few *Anemone* roots which bore one solitary flower last season, and are now throwing up stout and promising flower-buds. It is a vivid orange-scarlet eight-rayed blossom, having a clear ring of bronzy amber encircling the rich blue-black centre of the flower. It is difficult to imagine aught more beautiful in its way, as it spreads itself open like a gorgeous butterfly in the sunshine. A wise man told me the other day of a white *Anemone fulgens*! He had not seen it, but knew a man who had done so; and as he would not let me convince him that *A. stellata alba* was the plant he referred to, I hope *A. fulgens alba* may prove an actual fact. Who can tell us of the white Pasque flower?

Galanthus Virescens.—At my own request Mr. E. G. Loder has very kindly sent me a flower of this rare and curious Snowdrop, which appears to have been introduced by Herr Max Leichtlin, and to have reached Mr. Loder's garden via that of the late Mr. Harpur Crewe. It would be interesting to know where it is wild. Here is a little word-study of the flower. The three outer segments are rather long and more slender than in the common Snowdrop. They

are white with a clouding of very pale apple green in the centre of each on the outside. The inner segments differ from those of most other Snowdrops in being wholly of a clear bright green colour margined with a narrow white line. The greenish tinge on the outer segments is so pale, that when I first saw the flower two years ago I thought it due to the shrivelling of the flower during its journey. The green inner segments of the flower at once serve to distinguish this variety from all other varieties of *G. nivalis*, but we have a late blooming form of *G. plicatus* which has green inner petals very similar to those of this virens kind. Even so late as the first day of April I picked quite a respectable little bunch of Snowdrops of the common Crimean kind (*G. plicatus*) which is later than the type. The flowers of all the Snowdrops fade so quickly under bright sunshine, that for the sake of late flowers a few bulbs should be planted at the back of a north wall or hedge, or in the shade of Hollies and other shrubs on the Grass.

Floral Friendships.—These friendships amongst garden flowers are often accidental, but the results are often very interesting. Here is a great, irregular cloud of *Anemone apennina*, beautiful enough in itself as one would think, and yet after it had died down last autumn, someone noticed the patch of bare earth, and planted a few roots of *Narcissus pallidus præcox*, forgetful, it may be, of the *Anemone* roots below. Now, the Daffodil flowers of softest yellow and of noble form are ten times more pleasing as seen nestling on this blue cloud of starry blossoms. Even their glaucous leaves are lovely as contrasted with the cut foliage of the *Anemone*. Snowdrops mixed with this Windflower is another happy combination. They bloom before the *Anemones*, but the glaucous leaves and pearly flowers show most beautifully above the young *Anemone* leaves. The other day I saw in an old country house garden a bed of dwarf Daffodils (*N. nanus*). I was told that it had been undisturbed for over twenty years. It must have contained thousands of bulbs, and lay like a great golden shield on the tender young Grass of a velvety lawn. The flowers were actually crowded together, a solid mass of chrome, and around them was an edging of *Scilla sibirica*; not a narrow line of single bulbs, but a solid band a foot in width, blue as a meadow of mountain Gentian, or as a Flax field in bloom.

VERONICA.

Plant names.—There is a good practical ring about Mr. Elwes' remarks on plant names in *THE GARDEN* (p. 303), and I hope the council of the Royal Horticultural Society will recognise the vital importance of this matter, and convene a public meeting to ventilate the whole question of plant nomenclature. The botanist and the gardener have struggled on apart long enough to the great disadvantage of both, and if the society can afford them a common ground of meeting for the present settlement of this question, so much the better will it be for all concerned. In justice to its own position the Royal Horticultural Society should be the first to take up work of this kind, and after a general plan of action has been decided on things will work more smoothly and give far greater satisfaction than is at present the case. The keeping of a register of all the new plants exhibited will prove a great step in advance, and more especially ought the various committees to be composed of the very best men available. It has somehow got abroad that nurserymen have the power in their hands at these meetings. This I know to be untrue, but at the same time the Royal Horticultural Society should be above suspicion.—F. W. B.

—I agree with Mr. Elwes (p. 304) that the floral committee would be the better of a little more botanical knowledge, at least when Dr. Masters happens to be absent from the meeting. The

committee has lost members irreplaceable in Mr. Moore and Mr. Green. I do not think dividing the floral committee would answer the purpose required; it was lately tried, and failed utterly. Several questions must be borne in mind. It is sometimes said that we are too much a trade society and that there are preponderating influences. The best answer to this is, that with a large committee any attempt at favouritism is at once checked. Perhaps what Mr. Elwes desires could be best arrived at by the botanical section of the scientific committee, an addition, if necessary, being made to it, with, in some cases, a reference afterwards to Kew. What practically takes place is this: if a plant new to the floral committee is exhibited, for example, the *Chionodoxa Luciliae*, by Mr. George Maw, or *Primula obconica*, by Mr. Veitch, the committee give their opinion of the plant's horticultural value; then if it is of special interest, the gardening papers, or at least the more scientific of them, usually in the same week publish all that can be found out about it. If Mr. Elwes can find first-class men able and willing to devote the morning to the work of the committee, and who will attend pretty regularly, their names will be gladly considered when the time of election comes round again. The committee at present has strong representatives of the different branches of horticulture, and, I think, great thanks are due to them for giving their half days gratuitously, and judging as carefully as they do now.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

ROSE GARDEN.

WINTER TREATMENT OF TEA ROSES.

PROTECTION IN BEDS AND BORDERS.—The first and most perfect method of protecting these against all risks consists in thatching them over with dry leaves, Moss, straw stubble, or other litter impenetrable by frost, keeping the litter in position by a layer of tree boughs bent over the beds or borders or lines of straw or other bands. In wet weather wide beds of tender China or Tea Roses were often finished with a central ridge like a flat haystack. On drier sites and narrow borders, especially where the borders were backed by walls, the protecting material was mostly finished off so as to afford a sharp pitch from back to front. By these simple devices in regard to form a very large proportion of the cold rains of winter was shed off and all severe cold shut out from the beds and borders of tender Roses. Of course a certain amount of care was needed in applying such protectors and some practical skill required to steer a happy mean between deficiency and excess. Neither must it be assumed that any kind of tree leaves will answer for this purpose; on the contrary, there is only one sort of leaves really suitable, and that is the leaf that lays lightest together in a mass and has the greatest staying power, viz., the Oak. The drier, too, these can be employed and the lighter they can be left in the mass the better. Such perishable and soft leaves as Limes, Sycamores, &c., are totally useless for such a purpose, and would speedily cause the decomposition of the Roses instead of providing them with perfect protection. In the case of dwarf plants or those grown on the pegged-down method of culture and training no previous preparation of the plants is needful; but where they have run up to considerable heights, the Roses should be pegged down to within 2 feet or so of the ground before packing the interstices between the boughs and branches and covering over the highest ones with at least 6 inches or so of litter. It is by no means needful to pack the lower portions of the beds firmly full of leaves or litter of any sort; on the contrary, the looser the litter lies among or over the boughs the less danger from decomposition or fermentation. Properly and skilfully applied, the protecting

litter will remain through the winter very much as it is left without subsidence or any serious degree of consolidation. The surface of boughs or the thatch of straw on the surface secures the main protection from being blown away by winds and protects the garden and walks from being strewn with successive flights of unsightly *débris*.

UNCOVERING BEDS AND BORDERS OF TEAS.—In the average run of our seasons it will hardly be safe to remove the last rags of protection until the middle of May; neither, unless the Roses are over-protected, is there such danger of leaving considerable protection until that late period. What keeps out the cold also keeps out the heat; or, to put it more correctly, what shuts in terrestrial heat also shuts out solar heat. And either way the Roses are kept at rest by these impervious protectors. Early in April, however, an examination should be made and a portion of the protecting material be removed, the remainder being taken off piecemeal, until early in May little or nothing but the screen of boughs is left. This process of gradual exposure inures the Roses to the outer world, and even enables any partially blanched buds to become green before breaking fully into leaflets, flower-buds, or shoots.

TREATMENT AFTER UNCOVERING.—Prune at once, removing all weakly shoots, and as far as practicable cutting them right back to the ground line. This suggests a very important point: all Tea Roses treated thus should be grown on their own roots. Own-root Roses cut thus hard back seldom or never fail to send up vigorous shoots either from the base line or latent buds of the roots. These will not fail to provide a succession of flowering branches to the best ones left for immediate blooming, but if all goes well and future prunings are skilfully managed, these first and vigorous growths of the summer will probably furnish the chief bulk or framework of the Rose bush that will need protection next season. Leave a fair supply of the best shoots for blooming, shorten the shoots to different lengths, and of course remove any bruised or injured branches that may turn up during the processes of pruning, training, and top-dressing the Tea Roses. Provided the shoots are sufficiently numerous and vigorous, no top-dressing may be needful; but should they manifest signs of weakness or distress, a good dressing of well decomposed farmyard manure may be applied and pointed in, so as to have a couple of inches or so of sweet soil left on the surface of the beds or borders. This course is recommended for sanitary as well as strengthening purposes. On the former ground, and to enjoy to the full the feast of a bed or borderful of Tea Roses, the sight or smell of manure should be banished from the Rose garden. For the same reason all fresh and pungent manures should be removed far hence from the same garden. Walking or running exhibitors—rather, that is those who spend their days and nights on the rail during the time of Roses, and fix their staffs of cutters, setters-up, and packers to furnish their show boxes and time their departure so as to meet them at the different stations—may, if they will, convert their Rose beds or borders into muck heaps redolent of every manurial abomination found in or on the earth or under it; but the grower of Tea Roses as a cult, a thing of beauty, a joy for ever, should shun, loathe, and abhor all such rank abominations. Nor will his Roses suffer much in consequence, for it is an axiom now in the true sense of manuring that the more pungent the less feeding. Plant roots are endowed with elective and selective powers, and it seems probable that their tastes are as fastidious as the fairest patrons of Tea Roses. This much at least is certain: Roses cannot eat raw, gross manures, and all manure must be thoroughly decomposed before it can

contribute one iota to the enlargement of the size, the enriching of the colour, adding substance to the texture or sweetness to the fragrance of Roses. Hence, after all, what cultivators call the sweetest manures may prove the most potent, as they are assuredly the most pleasant, to apply to Rose beds and borders. But, whether manured or not, all these should be carefully forked up and the surface laid open to the sweetening and enriching and warming influences of the air. Pegs or stakes to regulate the shoots and branches as evenly as practicable over the entire surface is all the training that will be needful. It is astonishing how vigorously Roses treated thus—their root-stocks and main branches protected from the debilitating effects of frost-bites and their entire root force preserved intact—grow and bloom throughout the season.

PROTECTION OF TEAS IN POTS IN THE OPEN AIR.—There are several modes of doing this, such as growing them wholly in pots, growing them partially in pots and partially in the soil, and potting them up in the autumn for safe storage under glass throughout the winter and planting them out again, say, the succeeding April or May. Those who grow their Tea Roses wholly in pots throughout the summer months merely place them in groups or masses on the surfaces of gravel, grass or courtyard, or, better still, plunge the pots to the rims in ashes, cocoa fibre refuse, or the earth itself. This mode of plunging saves much labour of watering and conserves the roots in a more uniform state alike in regard to heat and moisture. It has also the advantage of making the plants look more natural; and if the Tea Roses in pots are nicely arranged and the pots plunged an inch or two under the rims, they may form as good or better and as natural looking masses in beds or borders or on Grass lawns as if they had been permanently planted out. As a rule, Roses thus grown in pots in the open air grow less freely and bloom more profusely than those planted out. When the pots are plunged overhead, they require much less water than when the surface soil of the pots or the pots themselves are exposed to sun and air. A caution, in fact, needs to be given against the overwatering of pot Roses plunged deeply in the earth or other plunging material. Should the plunging medium prove heavy or tenacious, or the drainage in the pot be insufficient, the soil is apt to get clogged with water and to become sodden. To render this almost impossible it is well to place a few pieces of stone or broken brick under the Rose pots, especially if the latter are large, so as to give a free exit to the water given. These breaks between the pots and the free earth beyond also check to some extent the free passage of the roots from the former into the latter, and this is important in this mode of growing Tea Roses wholly in pots in the open air.

SECONDARY ADVANTAGE OF POT CULTURE.—This is the facility with which they can be removed without any serious check or injury to their blooms from out of doors to indoors in October. Unless the roots have been permitted to pass through the bases or run over the tops of the pots, Tea Roses may be lifted and removed into the conservatory or window garden without injury and continue to unfold their beauty and diffuse their fragrance throughout a considerable portion of the winter. In fact, could a greenhouse or conservatory at a temperature of 55° to 60° be provided for them with a dryish atmosphere, the Teas would go on blooming more or less throughout the winter and spring, or indeed until the plants were again wanted for furnishing their old or new quarters throughout the ensuing summer. The possible change of site for Tea

Roses every year or oftener is another merit of the system of cultivating Tea Roses in pots for outdoor decoration. But some of these may be looked upon as the mere luxuries of the portable culture of Tea Roses; and where few or none of these can be enjoyed, it may yet be quite practicable to grow Tea Roses in pots in the open air during the summer and preserve them in safety in cellars, sheds, lofts, or any cool, yet frost-proof, quarters until wanted again for plunging or standing out the following season. If kept almost wholly dry as well as cool, they will need hardly any attention from November to April. Roses in pots wintered in this rough and ready fashion will need careful overhauling, pruning, top-dressing, watering, and, it may be, repotting before plunging out; but all their vital forces being intact, though in a partial state of suspended animation, they respond readily to stimulating influences that envelop them in the open air, and speedily grow into vigour and bud and bloom into beauty.

TEAS PARTIALLY IN POTS AND PARTIALLY IN THE OPEN GROUND.—This plan answers well in most cases. The pots used are small in proportion to the size of the plants; in fact, the chief use made of the pot is to render the Rose more easily and safely portable. It is essential under this system to plunge the pot into good soil, rich compost, or manure, and the pots are plunged deeper than under open-air pot culture pure and simple. The roots are also encouraged to run through and over the pots into the beds and borders, and are assumed to derive their chief supplies of food from such. Throughout the growing season the Roses are encouraged to be as independent as possible; but on the approach of winter the use of the pots becomes apparent. They form a nucleus of root life and power which is not destroyed nor greatly injured by lifting the Roses, and suffices often to keep the latter in fair health for many years in succession. Should the pots, however, be found overcrowded to excess with roots or broken by their extreme pressure, the lifting time furnishes the best occasion for a shift into larger pots; and in repotting the plants much care and skill should be exercised to place most of the best fibrous roots that were found in the bed or border within the interior of the larger pots. The opportunity should also be seized to make an exchange of roots when practicable, getting rid of the old woody roots and selecting more fibrous and better feeding ones in their places. This exchange is favourable to the retention of small pots, which are much to be preferred for this mode of culture. All strong straggling shoots may also be reduced at the same time, and where storing space is small, comparatively little of the Rose may be left but the roots, rootstock, and a few of the best shoots. Yet another mode of using pots for the protection of Tea Roses. This consists in potting them up, say, in October and either wintering them in greenhouses or any such frost-proof quarters as may be available. A better method still, where a warm greenhouse is available, is to pot up the Roses in as small pots as the roots can be conveniently got into, using a rather light sandy loam for the potting and plunging the pots in a bottom heat of 60° or 65°, keeping the tops in the open air should the weather be mild. The effect of this treatment on the roots is almost magical; huge masses of white fibrous feeders rapidly fill the pots, the buds swell up, fresh breaks show, and the buds and flowers about to open when the plants were lifted go on as if nothing had happened, only their growth is accelerated. Plants treated thus, placed in light, warm greenhouses or windows, will go on yielding most welcome Tea Roses till Christmas or even the new year.

OUR FINAL MODE OF PROTECTING TEAS THROUGHOUT THE WINTER.—This consists in taking them up bodily and either laying them in by the heels in a sheltered place where they may be easily protected, planting them closely in cold frames or on the floors of orchard houses or cool houses or storing places of any kind. The Roses may either be stored as lifted or the roots be pruned and the tops trimmed considerably before storing. This facilitates the process and enables more Roses to be stored in less space. By pruning the Roses, not only many more can be stored in a lesser area, but better roots will be formed closer to the rootstock, a point of great importance to the future planting out and successful culture of Roses in this rather rough-and-ready method of culture. Light loam, intermixed with a fourth of cocoa fibre refuse or sweet mellow leaf mould, forms an excellent compost for the inlaying of the roots of Roses in this way. The roots may also be loosely surrounded with damp Moss and tied together with matting before being covered with soil. Most of these ties will last till planting time and have the merit of keeping the roots together, protecting them from rupture and keeping them near to their work.

THE BEST STORING PLACES for Tea Roses treated thus are houses or pits with northern aspects, either covered with shutters or glass or thatched over with straw for the winter. In glazed structures the temperature should seldom rise above 40° nor sink much under 30°, though an excess of heat is apt to prove more injurious than a few degrees of frost. The more complete the rest of the Roses throughout the winter and the more nearly they can be returned to the open air in the same condition of dormancy in which they were lifted the better. This simple mode of compelling the Roses to sleep in safety throughout the colder months in any cool structure or outhouse brings the culture of Tea Roses within reach of all, while the more ambitious modes of protecting them in pots under glass or on walls, heated or unheated, here set forth go a long way towards ensuring a supply of Tea Roses throughout the year without any special culture or houses for that purpose: for in all the modes of culture and treatment here indicated or described the primary object has been to provide for every possessor of a garden that richest pleasure and sweetest luxury within the entire range of practical floriculture—a full feast of Tea Roses from the open air throughout the summer and late autumn months. D. T. F.

Pruning Banksian Roses.—In a short note on climbing Roses, with which I entirely agree, by "S. D." (p. 273), the following sentence occurs: "The way to treat Banksian Roses is to lay in the main branches and spur them in every winter or spring, just thinning out the breastwood by cutting out the strongest, as it is on shoots of short length and moderate strength the blossoms are formed." There must be some mistake here, and I trust "S. D." will excuse me for correcting it, as he may have overlooked it. First, as to the time of pruning Banksian Roses. The only safe time is immediately after the flowers fade, say in June or July, according to locality. The whole of the flowering branchlets and growing shoots, unless wanted for furnishing a wider area, should then be closely pruned in or cut off; and from that time till the following season at the same time no knife or shears should be permitted to touch these Bachelor's-button Roses. The whole of the breastwood made after the pruning, whether strong or weak, will form sprays of bloom of differing lengths the following season; and to have Banksian Roses in full grace and beauty these sprays should be piled over each other in a graceful manner from base to summit of the wall. They may vary in length from 6 inches to 6 feet without at all mili-

tating against either the health of the plants or their inimitable beauty, while the sprays of differing lengths convey a character and impart a grace altogether impossible to any other species or sort of Rose. These sprays, too, furnish admirable material for decoration, while the smaller bunches, set in their unique foliage, also furnish good material for bouquets and wreaths. The two smallest species or varieties, the common white and yellow, are by far the best, though the large white *Fortunei* and the larger variety of yellow thrive equally well under the same treatment that develops the grace and beauty of the common Banksian Roses to the uttermost. —D. T. F.

MARECHAL NIEL ROSE.

My experience with this Rose convinces me that it requires a thoroughly sheltered situation in order to get it to anything like perfection. A brick wall facing the south and well sheltered from high winds seems to suit it. I have on one occasion seen it do well as an ordinary standard. It was growing in good open loam, resting on gravel, and thoroughly sheltered. Its head was about 4 feet through, and always bore well-finished blooms. Another good plant of this Rose with which I have been acquainted was on the south side of a house in Kent, and thoroughly sheltered from high winds. It was growing in a deep open loam, and one morning I counted several hundreds of fine, highly-coloured blooms on it, a few of which were shown at the Canterbury Rose Show and gained a prize. Close to the stem of this plant was a pathway, consisting of flagstones, 4 feet wide; this was the only top-dressing this Rose tree had, and I believe a beneficial one. We had *Maréchal Niel* in other positions, but none produced such fine high-finished blooms as the old plant top-dressed with flagstones in the full sun. Our garden here lies high, on a cold clayey loam, in which *Maréchal Niel* did badly; in fact Roses generally did not succeed. I, therefore, drained the worst parts, burnt some hundreds of loads of the clay, and thoroughly intermixed the burned material with the soil. After that Roses did better. *Maréchal Niel* struck from cuttings and also budded on standard Briers I planted in various positions. Immediately in front of the house we have Grass terraces with steep slopes 6 feet high; the bottom one we bricked, herring-bone fashion. I then broke up the ground to a good depth and worked in plenty of burnt clay, charred rubbish, cow manure, well firming it and planting *Maréchal Niel* on its own roots. These plants next season made growths from 15 feet or 16 feet long, produced some grand blooms, and, even after this long winter, look promising for another season. On the top terrace I planted this Rose budded on the standard Brier close against the house, but it dwindled and died, the situation being much too bleak for it. Thus within some 30 feet of each other one set of this Rose fails from exposure, while another, thoroughly sheltered from winds, does splendidly. I planted more of it against the cottage and well sheltered, adding nothing to the existing border, and these in two years made but poor progress. I then worked away the old soil and introduced good soil to some depth, mixing with it some burnt clay, charred rubbish and cow manure, and next season one new growth which I measured was 25 feet and another 20 feet. I have, therefore, concluded that this Rose requires continual nourishment combined with shelter. Some complain that this Rose suddenly goes off at the collar, but for this I find wood ashes fresh from the fireplace a good preventive. When disease has attacked the plant 4 feet or 5 feet from the ground I have arrested its progress by lightly scraping the affected parts and rubbing into them some fresh wood ashes.

Fox Warren, Cobham.

R. HALL.

Maréchal Niel wants.—Permit me to thank Mr. Bolas (p. 273) for his valuable information on this point. It confirms the idea held more or less firmly by many that everything is useful if we could only interpret its meaning aright. Most of

us have looked upon these warts as intolerable evils, pregnant with disease and death, that have ruthlessly cut down our finest Maréchal Niels up and down the country, and as surely destroyed them as the rasp of the saw or the slash of the axe, and yet all the while they may have been friends in disguise, only entreating for a handful of earth to bury them out of our sight, in order that our grand Maréchals might recover their youth and go on growing and blooming, like the poet laureate's brook, for ever. All that is needful to ensure perpetual youth and an annual harvest of golden bloom is that the warts should be made to stoop to conquer. So soon as these appear on the tops bend them down slowly and surely towards the earth, and fresh roots and a new lease of life is the result. All this may sound like banter, but I assure your correspondent that it is joyful earnest,



Akebia quinata.

and having suffered very heavily from these horrid warts among our Maréchals out of doors and within, I cannot help singing this psalm over his discovery as I proceed to bury, not the hatchet of controversy, but these hideous warts that are bursting with anxiety to form roots. And yet Mr. Bolas' discovery is feasible on the face of it. Protuberances or swellings are often the precursors of roots, and one can but regret one's own stupidity to have been so long sat upon by these warts instead of reading their cry of earth hunger and long ago gratifying it while fortifying the strength and renewing the youth of the most glorious of all our golden Roses. Surely no rosarian can doubt or deny the truth of evolution after witnessing his Maréchal Niels springing from the ashes, shall we say, of dry, semi-dead warts.—D. T. F.

INDOOR GARDEN.

AKEBIA QUINATA.

A FEW words concerning this pretty climber may not be out of place at this season when it is, or soon will be, in bloom. It is a plant of quick growth, producing long, slender shoots clothed with pretty, bright green divided leaves. Its claret-coloured flowers are individually small, but they are borne in sufficient profusion to be attractive. It is a native of China, and survives our winters about London if afforded the protection of a wall, on which, should it face the south, the wood gets well ripened and ensures good displays of bloom in spring. Fortune states that in many parts of China it festoons the trees and hedges. Besides being treated as an outdoor plant it makes a useful climber for a greenhouse or conservatory. Wherever it is grown, plenty of space should be allowed for development, as if greatly curtailed no flowers need be expected. The Akebia associated with the white-flowered New Zealand Clematis indivisa, and allowed plenty of room, makes a pleasing combination; they both flower about the same time, and the white blooms of the Clematis contrast in a marked manner with the flowers of the Akebia. The latter can be readily increased by means of cuttings taken at any time during the growing season and kept close till rooted. The best cuttings are those made of the small side shoots that are often pushed out from various parts of the plant; they root more quickly and are less liable to decay than those made of stouter branches.

Watering plants with cold water.—"Cold" is only a relative term, and when cultivators speak of watering plants with "cold water," they mean water many degrees under the temperature of the medium in which the plants are growing. It is quite a common practice to water indoor plants with water perhaps 10° or 12° lower than the temperature of the house, but this is during summer when the coldest water procurable is not "cold" in the right sense of the word. If this be the watering with "cold" water about which "T. B." writes, why, then, he is only describing an old practice under a new name, and that this is the correct interpretation of his statements I feel convinced by the way in which he speaks of Messrs. Loddiges, Low, and others "using the hose." All cultivators, I fancy, use the hose—if they have a hose to use—for many kinds of indoor plants and borders, but not at any season of the year, only say from May or June till September, just according to the season. Water lying in pipes or in the reservoir during these months is warm enough for almost anything, seldom being much below 60°, and sometimes above 70°. If this be the extent of the hose application recorded by "T. B.," our wonder ceases; and if, on the other hand, Messrs. Loddiges and others whom he names have been using cold water on stove plants direct from the pipes and reservoirs all through the past winter, then we must know more about it, because the water has not been much above the freezing point all that time, and to apply it to East Indian Orchids, Gardenias,

Stephanotis, and the like, as "T. B." asserts, does make us wonder, and our wonder will be increased when convinced that the Vandas that went for 200 guineas owed their excellence to the cold water cure. Lindley says the "teachings of experience show that cold water applied to the roots of hothouse plants is in the highest degree injurious, if not fatal," and it will take a good deal of counter-teaching to dispel that impression, which is almost universal. I can myself conceive nothing so injurious to warm temperature plants as cold chills, which are inimical to all forms of life, and it must be remembered that it is not cool treatment generally—quite a different thing—but a system of periodical chills by means of cold showers applied daily to plants nursed in a purely artificial and high temperature that "T. B." recommends. Cool treatment by growing the plants in a temperature uniformly lower than they are popularly supposed to require has some rational features to recommend it in this country, but the alternate heats and chills theory is untenable on any sound principle as yet discovered. Look, for example, at the effects of cold showers on farm crops. They are sufficient to change the aspect of vegetation for the worse in a few days, as every farmer knows; but even in such a case the difference between the temperature of the rain and the soil is not so great as that between the hose water and "T. B.'s" Orchids, &c., except in the months named.—J. S. W.

SWEET-SCENTED BORONIAS.

FASHION in plants and flowers is apt to run in one direction, seemingly regardless of everything beyond the particular kind of flower that happens for the time being to be in favour. At another time a certain colour becomes fashionable, in which case, if only the correct shade is present, it does not matter what the flower is that produces it, be it a Rose, Daffodil, or a Sunflower. When the bedding style of flower gardening first came up, little except strong primary colours were cared for. After a time these were somewhat toned down by the use of softer shades; but colour had so far the ascendancy, that little else was thought of. If anything in the way of the old sweet-scented flowers, such as Wall-flowers, Mignonette, Clove Carnations, or the Night-scented Stocks were grown, they were usually consigned to some out-of-the-way corner, where their presence would not interfere with the glowing hues of the bedders. Later on, a like change seemed to pervade the indoor department; plant houses, wherein, up to then, the aim had been to combine as much variety as could be obtained in the forms and colours of the flowers grown, and in which the host of Cape Heaths and Australian plants gave all but endless numbers to choose from, were gradually stripped of these and filled with zonal Pelargoniums, tuberous Begonias, and a sprinkling of Cinerarias, Cyclamens, Primulas, and a few other plants of like character, with Chrysanthemums in autumn—all desirable in their way, but collectively only poor substitutes for the numbers of beautiful and interesting plants that they have all but elbowed out of cultivation. Even sweet-scented old favourites, like Myrtles, Daphnes, Aloysia citriodora, and Boronia serulata, have had so far to give place to the comparatively few things that now go to fill plant houses, that there are more gardens from which all the scented plants named are absent than present. Yet the Boronia mentioned and the newer B. megastigma are not only highly desirable for the decorative character of their flowers, but their perfume is such as to make them deserving of cultivation by all who have a greenhouse. As there is some difference in the treatment required by the two species, it will be better to treat them separately.

B. SERRULATA is an old plant, one of the first of the genus introduced to this country; it comes from New South Wales and was at one time much better known than at present. When the metropolitan exhibitions were first established, and the cultivation of hard-wooded plants was taken in hand in earnest, the naturally compact habit of growth which the plant possesses, its profuse disposition to bloom, coupled with the enduring character of its flowers, made it a favourite with exhibitors in those days. In addition to its other good properties it, in common with other species belonging to the genus, is not liable to get out of condition or die off in the way some hard-wooded plants do, provided it gets fair treatment. Still, it is well to say that this, like most of the best plants in cultivation, will not do with that careless, fitful kind of usage which consists in attending to their wants one week and leaving them to take their chance the next. Where such a course is followed the plants never look happy, although they may continue to go on in a lingering existence. This *Boronia* does not attain a large size, being one of the smallest of the genus; in fact, it is smaller than most of the hard-wooded section of greenhouse plants, and on that account suitable for those who have not much glass accommodation. Its natural disposition to produce flowers is such that little plants such as obtainable from the nurseries in 5-inch or 6-inch pots will bloom from the point of almost every shoot. So powerful, yet agreeable, is its perfume, that a small example like those just named will fill a large house with its scent so effectually, that its presence is felt the moment the door is opened. The flowers open in spring and last in good condition for many weeks. The small trade-sized plants usually require potting when obtained. Supposing them to be in 6-inch pots, they should, early in spring, have a 2-inch or 3-inch shift, according to the amount of roots they have. Similar to most things of a like nature they require to be grown in good fibrous peat; it may be a little heavier in texture than used for some plants, as, in common with the other species of *Boronia*, it is a free rooter. Enough sand must be added to the soil to enable it to retain porosity as long as the plants live, for there must be no attempt at shaking out in after years, a process that would be likely to kill the plants, or reduce them to a worthless condition. Pot moderately firm, and stand them for a few weeks where they can be kept a little close. Where there is a small house or pit that can be devoted to this and the number of other plants that require potting at the same season, it is of the greatest assistance, as then the limited quantity of air given to the newly potted stock for three or four weeks does not interfere with the requirements of other plants that need more in the way which occurs when such things as have been recently potted have to be located with the general stock. Where the accommodation in question does not exist and all have to be kept together, the newly potted plants should be placed at one corner of the house, giving air at the opposite end.

The flowers, bright pink in colour, are borne on the extremities of the shoots in compact bunches; if the plants show bloom in this early stage of their existence it is better to sacrifice it than allow it to go on, as flowering would interfere with the summer's growth, which for the first season it is well to make the chief consideration. If the plants are as strong as they should be, the shoots will be some 6 inches long; cut them evenly over, removing about one-third the length. This *Boronia* is naturally dense and compact in shape, requiring little support except a small stick to each of the principal branches, so as to keep them well out from the first in a horizontal position with a view to the base of

the plants being properly furnished. Young stock of this, and most other plants, should be stood during the growing season on some kind of material, such as sand or fine coal ashes (a mixture of each in equal parts answers well) that can be kept damp, the moisture arising from which amongst the foliage is vastly better than the dry, parched air that surrounds the plants when they are stood on dry shelves or stages. By keeping the material moist they do not require water so soon after potting, a matter of much importance with newly-potted plants of many kinds, large and small, as it gives any roots that may have got broken in the operation time to heal over before water comes in contact with them, which, in the case of tender-rooted subjects, sometimes causes the newly-broken fibres to decay.

As to WATER, it must never be given until the soil is in a condition to require it, neither must it be withheld until the roots are so dry as to cause the plants to flag in the least; if this occurs, they will not be likely to get over it. Syringe overhead during the growing season each afternoon, and always keep the plants near the glass in a light house; this is important with the species under notice, as, unlike the other kinds of *Boronia*, which should be stood out of doors for a few weeks towards the end of summer to ripen the wood, it is better kept indoors altogether, as its leaves are apt to get browned if put outside; consequently, unless it has all the light that can be given it, the young wood does not get sufficiently matured to enable it to flower well. By giving the plants a shift each season until they attain their full size they will keep on in good condition for several years. This species sometimes attains a size of 3 feet in diameter, but younger examples are more satisfactory for general use. A night temperature during winter of about 45° suits *Boronias* better than lower, as if kept much cooler than this they are liable to suffer from mildew; should this attack them, dust with flowers of sulphur.

B. MEGASTIGMA is so different in appearance and habit of growth and flowering from *B. serrulata*, that it might easily be taken as belonging to another genus. When the plant is in good order the season's growth often attains a length of 15 inches or 18 inches; the thin, wiry, drooping shoots are clothed with narrow leaves, from the axils of which the flowers are produced nearly the entire length of the shoots, in which condition the plant has an elegant appearance, such as is equalled by few. The flowers are chocolate-brown outside, bright yellow within; they open in spring and are of a most enduring nature, lasting in good condition for two months or more. Their perfume is as powerful as it is agreeable, in addition to which the profusely flower-laden shoots look beautiful when cut and associated with other things less elegant in form. The details of cultivation that have been given for *B. serrulata* will be found to answer for this species, stopping all shoots that are taking an undue lead. The plants should be stood out of doors for about three or four weeks at the end of summer, say from the middle of August until the second week in September, regulating the time of housing them according to the part of the kingdom they are grown in, as they must not be left out so as to get at all frozen. T. B.

SHORT NOTES.—INDOOR.

Marie Louise Violet.—I send you some blooms of this Violet grown in a cold frame. It has been in bloom some months, and we have had some large enough to cover an old-fashioned 6s. piece.—W. PAYN, *Earl's Court, Turnbridge Wells.*
. Finer blooms of this Violet than those sent by Mr. Payn we had never before seen, and they were as sweet as they were beautiful, their size individually and richness of colour being quite unusual.—En.

PLANTS FOR GREENHOUSE DECORATION.

MARCH, April, and May are the months during which greenhouse plants are at their best, and their gaiety may be maintained without much artificial heat, provided there is sunshine by day and the temperature, by night keeps above the freezing point; from the end of March the valves in the hot-water pipes may generally be kept closed altogether with advantage. Under such an arrangement greenhouse plants proper retain their beauty for a longer period than when more heat is given; others that are hardy may then be properly introduced; and, further, many that are brought to the flowering stage in stoves may safely be trusted in the greenhouse for a time, if it is desirable, to embellish that structure with a combination of stove, greenhouse, and hardy plants. Amongst plants flowering in the greenhouse at the present time we have the bulk, or at least a great many, of the hard-wooded section. Azaleas are exceedingly showy, and their flowers have now much more substance than those on plants subjected to early forcing. If forwarded in heat, it is best to transfer them to a cool house a few days before the flowers expand; this causes them to last much longer than they otherwise would do. Amongst Acacias for pot culture and stage decoration none surpasses *A. Drummondii*. It is compact in growth and, just now, exceedingly attractive. *A. longifolia*, similarly treated, has been fine, but now past its best; the same remark applies to *A. lineata*, a plant of slender growth. *A. armata* is just coming on; so the species named form, therefore, a good succession. Eriostemons flower profusely each year if they receive fair treatment and their wood is well ripened in autumn. These plants are more easily managed than many others of a hard-wooded character. *E. scaber* is of slender growth, and very distinct from any of the others. All the early varieties of *Epacris* are over, but the beautiful *E. Eclipse* and *E. miniata splendens* are still specially attractive. These resemble each other very closely; their flowers are pendent, crimson, and tipped with white. *Grevilleas* are represented by the elegant *G. Thelemanniana*, which is almost continuously in flower, and *G. rosmarinifolia*. *Hibbertia dentata*, trained to a rafter, has been attractive for two or three months, and *H. stricta*, a compact dwarf plant for pot culture, is literally covered with tiny pale yellow blossoms. The highly fragrant flowers of *Boronia megastigma* have nearly all dropped, while those of *B. elatior*, *B. polygalifolia*, and *B. heterophylla* have yet to expand. *Tetradlea hirsuta* requires careful management; when in good health it flowers profusely early in April and is very pretty. The *Aphelexis* are all handsome, and their flowers, which are brightly coloured, last a long time in perfection—everlasting, in fact. In addition to the foregoing there are many others of the hard-wooded section equally worthy of special mention, amongst them being *Bauera rubioides*, *Chorozemas*, *Rhododendron jasminiflorum*, *R. ciliatum*, and others of the same genus, *Coronillas*, *Agathosmas*, *Polygalas*, *Cytisus racemosus* and *C. canariensis*.

BULBS are represented by *Lachenalias*, which flower most profusely and are specially attractive when arranged in a mass. *Polyanthus Narcissi* of the later flowering kinds are sufficiently vigorous to cultivate singly in 5-inch pots; they are best grown on from the first without artificial heat. A few potfuls of *Chionodoxa Lucilia* grown in a cold frame are useful when in flower, but, unfortunately, in a greenhouse they do not last very long. Home-grown bulbs are by far the best, though more expensive than those that are imported. Most effective and pretty are potfuls of *Poet's Narciss* and its variety, *ornatus*. Bulbs of them should be potted in autumn; about five should be put in a 5-inch pot and kept in a cold frame until they come into flower, which happens about the middle of March, and few things are then more valuable for greenhouse decoration; they keep in good condition for about a fortnight. Many Tulips are exceedingly showy; scarlet *Van Thol* and *Vermilion Brilliant*, amongst singles, and *Tournesol*,

amongst doubles, are specially noteworthy in this respect. The flowers of Yellow Prince are delicately perfumed, more so than those of any others. Hyacinths are so generally regarded as sweet-smelling flowers, that one is surprised to note how extremely disagreeable some of them are. Generally this is more noticeable among blue and red varieties that have large individual flowers than amongst others that have small flowers closely packed together. The latter are invariably sweetly scented, such as many of the white and yellow varieties, and the red and blue ones that are adapted for culture in outside beds. Roman Hyacinths, though usually cultivated only for winter flowering, are none the less beautiful in March or April, their flowers being so chaste and sweet-scented. By potting some of the bulbs about the middle of December, the flowering season may be prolonged until the dates given.

FORCED PLANTS should include a quantity of *Dicentra spectabilis*, one of the most beautiful subjects for the purpose. It is easily grown and brought into flower in successional batches without much heat. When past, the roots may be planted again in the open ground, and, unlike many other things similarly treated, they will flower again equally, or, at least, nearly as well the following year. *Astilbe* (*Spiræa*) *japonica* is an indispensable and well-known forcing plant. It should not be forced oftener than every alternate year, and should be grown meanwhile in the open ground. Lilies of the Valley with plenty of leaves as well as flowers are readily brought on at this advanced season by placing them in a little warmth. *Richardia* (*Calla*) *æthiopica* has been flowering beautifully for a long time; plants of it in the open ground all last summer apparently made but little growth, although kept well supplied with water. Possibly the growth was concentrated below ground instead; at any rate, it has developed since autumn beyond expectations. Some prefer keeping *Richardias* in pots all summer; both this system and that of planting out may be made to answer well, so that it is only a matter of detail and management. When the flower-spikes appear, some artificial or other manure materially helps them, and plenty of water is quite an essential. *Cinerarias* with large flowers of the florists' standard seem to lack altogether the compact floriferous habit of strains that are more showy, yet which have smaller flowers and colours not so well defined. For decorative purposes the size of flower is not of so much importance in comparison with other general good qualities, and if the two points cannot be combined, the latter should be taken most into account. *Gardenias*, though essentially stove plants, may safely be trusted in the greenhouse when their flower-buds are somewhat advanced. There will be sufficient solar heat at this season to enable them to expand their blossoms. The past winter has proved rather trying for *Mignonette*, as it was necessary to apply more heat than it prefers in order to exclude frost. Lately, however, plants of it in pots have much improved in strength. Lastly, allow me to advert to that much neglected plant *Mackaya bella*. Its special requirements to insure flowering in April are thorough ripening of the wood the previous autumn, and the withholding of water at the root throughout the winter.

J. G. K.

Utilisation of back walls.—In THE GARDEN of January 30 (p. 89) appears an interesting and instructive article on this subject. We also have been utilising our back walls, but our mode of fixing the materials, and also the materials themselves, differ a little from those employed by "W. I. M." In fixing our netting, which is common galvanised large mesh, we fix upright strips of wood 2½ inches in diameter, at equal distances apart, along the wall, perhaps every 4 feet. To this we fix the netting by means of small staples, running one course of netting at a time the length of the wall. We then pack our material—which is only Sphagnum—in very firmly, and in this way proceed to the top of the wall. I will confine my remarks chiefly to a wall utilised for plant growing in

the manner above described which was planted last spring in our stove here, and which has proved a perfect success. After all was filled with the Sphagnum, the green points of which were turned to the front, we began by first planting our permanent plants, which consisted chiefly of Ferns, *Adiantum cuneatum* forming the greater part, but even the long graceful *Pteris tremula* has been introduced with good effect. Begonias of the Rex class, and also flowering Begonias, such as *weltonensis*, *Ingrami*, *fuchsoides* and *metallica*, are used freely and seem at home. *Caladiums*, *Dieffenbachias*, and *Gesneras*, &c., intermixed with *Panicums* and various *Tradescantias*, make a fine variety of colour, and form an effective mass at once natural and pleasing. The Sphagnum itself has a very good effect, protruding as it does at intervals from among the dense mass of exotic growth. It may be thought to be a difficult matter to keep the Sphagnum moist, but in this we have no difficulty. We merely turn the jet of the engine on it twice or thrice a week, and direct it to strike near the top of the wall; the Sphagnum, from its open spongy character, admits of the water percolating freely through it, and it soon finds its way to the bottom of the wall. When the plants have exhausted the Sphagnum it is quite a simple matter feeding them in the same way as they are watered. Where dead walls exist this is one way of utilising them, and one which deserves wider practice at the hands of both gardeners and amateurs than it now has.—J. PROCTOR, *Glenfinart*.

FLOWER GARDEN.

ANNUALS IN LARGE BEDS.

"A. D.'s" remarks (p. 66) on a garden of annuals remind me of the use which is made of annual flowers for garden decoration at an old-fashioned baronial residence on the borders of Dorsetshire. At this place there are many large beds and borders to fill every summer with flowering plants, and the space under glass is wholly inadequate for keeping through the winter a sufficient number of *Pelargoniums*, &c., with which to fill the whole. The gardener, therefore, resorts to the use of annuals to fill a portion of the beds. Two very large, nearly square, spaces—they are too large to be designated beds—are set apart for the annuals and a few other summer-flowering plants. The centres of these two spaces are chiefly occupied with Dahlias, Sweet Peas, Sun-flowers, and other tall-growing plants; these are mixed up without any respect to order. Next to them follow wide bands of annuals, but not so tall in growth as the plants in the centre; these include tall branching Larkspurs, Prince's Feather, annual Chrysanthemums, and others of similar height. Between these and the walks is another band about 4 feet wide; this consists of such flowers as Zinnias, *Salpiglossis*, Candytufts, Clarkias, *Godetias*, and Sweet Sultan. Both of the spaces have lines of *Mignonette* next the Grass, and I must confess that although the whole at first sight strikes one as rather a medley, there being but little order in the arrangement except in the matter of heights, still on closer inspection there is such a diversity of form and colour, and in certain places such a happy blending of the latter, that we have to stop and gaze before we can thoroughly realise the effect. Such a diversity of growth and colour would not be likely to please the eye of an advocate for formality in garden arrangement, but to anyone with an opposite taste it cannot fail to give satisfaction, as in this case the arrangement is quite in conformity with the surroundings. The lesson to be learned from it is, moreover, not without its importance. It demonstrates in the most positive manner how much may be done with annual flowers, and how large spaces that could not otherwise be filled can be made bright and cheerful for three or four months with a very little outlay of either time or money.

J. C. C.

Wild Daffodils.—These are now blooming, and I would caution the happy possessors of natural plantations of them against the depredations

of travelling plant collectors, to whom but little in the way of a showy flower comes amiss. Daffodils are extremely popular just now, and their popularity is likely to last long enough to cause the destruction of the wild species if the owners thereof do not look sharply after them. A friend of mine asked one of these collectors, whom he saw several times a week at the local railway station with baskets loaded with Daffodil blooms, which he readily disposed of in a neighbouring town, whether he could procure him a few roots. The following week he brought about fifty, for which he charged a shilling; and I have no doubt that this individual executed many similar orders in the course of the season. I afterwards learned that he had obtained permission of the owner to gather some of the flowers, and showed his sense of the kindness by digging up the bulbs which furnished them. I would ask your readers not, through mistaken generosity, to allow such wolves to enter the fold, as the destruction they effect can never be remedied, and will be regretted when too late.—JOHN CORNHILL, *Byfleet*.

Select hardy flowers.—A suggestion.—Although growers of hardy plants might be as little inclined to limit their collection to the hundred best kinds (even could they be decided on) as readers would be to limit their reading to the hundred best books, still there would be great interest in a few such lists if some of the more experienced hardy plant growers could be induced to give them. A comparison of such lists might give many useful hints to those who wish to make good selections of hardy plants. I think there is a certain danger, as far as general effectiveness goes, in making collections rather than selections of such plants. But if in every garden a good collection were made of every available variety of one or more species, or every species of one or more genera, would it not be a most valuable help in the general culture of hardy plants? The collection might be large, such as one of *Primulas*, or small, as one of *Snowflakes*; but every such collection, large or small, would be of interest. As no garden, however large, can have a good collection of every hardy genus, the need and value of careful selection in hardy plant culture is clear. In limiting the list to one hundred, the difficulty would be to give a fair relative value to such large groups as *Roses*, *Daffodils*, &c., where so many varieties of about equal value exist. In such cases, perhaps, the species might count as one of the hundred, with not more than a dozen names given under the one species. *Michaelmas Daisies* of sorts might be grouped as one, as distinction of species would in that case be most difficult. Perhaps an arrangement of the hundred plants, more or less, according to the seasons, would be the simplest. There is much practical vagueness as to the limits of herbaceous and alpine plants, but hardy flowering plants would give a wide scope for choice, from a Horse Chestnut to a Duckweed, and would include shrubs, climbers, annuals, water plants, &c.—C. M. OWEN, *Knockmullon, Gorey*.

SHORT NOTES.—FLOWER.

Sweet Peas.—These are so valuable for cutting from that they should be grown largely. When they are required for cutting they should be sown in rows and staked like ordinary garden Peas. In borders, the right place to sow them is at or near the back where they may be put in clumps, and have a few twiggy sticks stuck in around them to keep them up, which they will clothe with flowers and leaves.—D. S.

Nemophilas.—There are several kinds of *Nemophila*, but the most desirable is *N. insignis grandiflora*, the flowers of which are large and of a lovely blue, and the habit of the plants low and spreading. For edgings to beds or purposes of that kind, this *Nemophila* is quite unsurpassed. It also does well in pots to stand in the greenhouse. Being hardy, seeds of it may be sown any time now in smoothly raked soil and just covered. When up the plants should be thinned out to about 6 inches apart.—D.

Phlox Drummondii.—Of this there are now many varieties, but the most desirable is *grandiflora*, which yields flowers considerably larger and of more substance than those of the others, and the blooms are also bright in colour. Seeds of it should be sown in gentle heat, and this should be done at once, so as to get the plants strong and ready for turning out at the proper time. The soil in which they are planted should be made rich and deeply stirred to enable the plants to stand dry weather.—S. D.

Hardy fine-foliaged plants.—The alternation of fine plants of *Papaver bracteatum*, with their handsome *Acanthus*-like foliage, and large clumps of the golden *Valerian* forms a pleasing combination at this time of the year. This *Valerian* has not only handsome foliage of a rich yellow colour in spring, but it is very hardy, and even after passing through a long and turbulent winter it is not injured in the least, whilst so many apparently hardy plants have suffered. If the *Poppy* forms a back line and the *Valerian* is thrown somewhat forward, the effect will be all the better. Even such foliage as is found in the *Japan Anemone* is not at all to be despised in spring; it is large and handsome, especially when it breaks up afresh; whilst for border fronts there is much beauty in the leafage of *Anemone coronaria* before the richly coloured flowers push up to dim the green of the leaves by their superior lustre. We have many plants which possess handsome foliage, and either, as in the case of the *Poppy*, brilliant, but late, flowers, or, as in that of the *Valerian*, bloom of an unattractive character. Even if neither plant produced bloom they would still merit a place in gardens for the beauty of their foliage. It is undoubtedly a fact that both in our conservatories and greenhouses, and also in bedding displays, we have given much greater encouragement to foliage plants than we have in our hardy plant border, but in the latter case we are, perhaps, more happy in having many, as in the case of *Poppies* and *Anemones*, which produce handsome leafage and beautiful flowers. Also, no doubt, fine foliage, both in houses and summer beds, has been grievously overdone, and a revulsion from that taste which has produced this abundance is rapidly taking place. We have been heavily dosed with *Dracenas*, *Palms*, *Ferns*, *Crotons*, *Coleuses*, and similar things, none of which yield a flower that is worthy of attention, and there can be no desire to convert hardy plant borders into mere leafage banks. Happily, we can get jointly much beautiful leafage and also beautiful flowers, as seen both in herbaceous plants and amongst hardy shrubs. In spring, however, when bloom is rather scarce, even some pleasing foliage effects are valuable, and to these few plants contribute more largely than the golden *Valerian*. It is, when in its best form, a striking plant even at a distance. It can also be rapidly propagated.—A. D.

NOTES FROM THE CONTINENT.

NEW TYPE OF CALADIUM.—A curious hybrid has been obtained by M. Bleu, the well-known raiser of new *Caladiums*, by crossing *C. albo-luteum* with *C. luteo-auratum*, and which curiously enough has none of the characteristic features of its parents. It is a vigorous growing plant, the leaves often measuring nearly 2 feet across, but it is the way in which they extend from the footstalk that renders the plant so interesting and distinct. The footstalk attains a length of over a yard, the leaves spreading out horizontally like a parasol, which has induced the raiser to name it popularly the *Parisian Sunshade*. The centre of the leaf is dark red, bordered with deep green, striped with rose, and the flower is white, long, and tolerably large. This appears likely to one day become a popular decorative plant, and is probably the forerunner of a new race of the family.

LESSONS IN ARBORICULTURE. I am reminded by the announcement in a French gardening paper that M. Chevallier has commenced his annual course of lessons in arboriculture, of the advantages which young French gardeners possess over their English brethren in the matter of acquiring a good knowledge of training, pruning, and other necessary work connected with hardy fruit culture. If a young man happens to reside in the neighbourhood of any large town, he will be enabled to obtain gratuitous instruction without loss of time. In most populous centres there is a public school of arboriculture open to the public generally, and where at certain stated times the "garçon jardinier" (journeyman gardener) may have the theory and practice of arboriculture expounded to him by a qualified professor of the art. The *École d'Arboriculture* contains examples of trained trees which serve to illustrate these open-air *viva voce* instructions, so that the learner may follow the growth and formation of a tree through the season, each operation connected

with the training being clearly explained. In this way more practical knowledge can be acquired in the course of a single season than could be obtained by any amount of the best written instructions. Some of the largest and best trade growers have their own arboricultural schools, wherein lessons are given as above mentioned. M. Lepère, the well known Peach grower, used to teach in this way every Sunday in his renowned Peach garden at Montreuil, and the Messrs. Crowe have, I believe (I know they had), a model garden of hardy fruits where all the most useful forms of Pears and Apples are open to inspection. As the Frenchman, in a general way, gets his religious duties over early in the day, and considers that he is entitled to employ the remainder of the Sabbath for his amusement or instruction, the garçon jardinier need lose no time in the pursuit of arboricultural knowledge, these cours d'arboriculture being invariably held on the Sunday. It is owing to the facilities thus offered that the ability to train fruit trees into symmetrical forms so generally characterises the French gardener. If you go into a French provincial garden you are sure to see some well trained fruit trees, if there is nothing else noteworthy. Trees that would reflect credit on the best of English gardeners are often seen growing on the old clay, straw-thatched, wooden-latticed walls in the garden of a Norman chateau, trained into form and retained in fruitful vigour by a man who oftentimes combines in his own person the offices of cowkeeper and gardener. To be able to train a fruit tree well is considered to be an indispensable qualification in whoever aspires to the charge of a private garden, and not to be able to do so will disqualify, no matter how varied and good the experience may be in other ways. Until young English gardeners are afforded greater facilities for acquiring the useful knowledge we shall never see fruit tree training develop into an art in this country, and I am sure that the greatest advocate of extension trained trees will agree with me in desiring that beauty of form and fertility should accompany each other. The fertile tree receives added charms from perfect symmetry. It is, however, not solely training trees into form that is taught in these cours d'arboriculture, but everything of practical value in connection with the growth of hardy fruits, and this is one reason why the planting and after care of fruit plantations is so much better understood on the Continent than with us. I think it was Mr. Fish who lately remarked in *THE GARDEN* that an examination of the old orchards in this country could not fail to exercise a most depressing effect on anyone interested in hardy fruit culture, and the appearance of the greater portion of old fruit tree plantations that I have had the opportunity of seeing justifies the observation. In France and Germany one sees no such worn-out trees smothered with Moss and Lichen, and presenting so miserable and neglected an aspect as to suggest the thought that Apple culture must be a lost art in this country. On the contrary, every tree gets the yearly attention it needs; no worn-out ones are allowed to cumber the ground, and a French or a German Apple orchard invariably bears the mark of thrifty care, indicating that the lessons given over a period of years have not been lost. In Wurtemberg the roads are as remarkable for their good keeping as the fruit trees which border them are for their excellent condition. The way wardens there have to serve a certain time in the Pomological Institute at Reutlingen, so that they are as capable of planting and tending a fruit tree as of making or repairing a road. One passes there for miles over capital roads lined with thrifty fruit trees, a sight as cheering as that of our own old neglected plantations is depressing.

DOUBLE-FLOWERED EUPHARIS.—The *Gartenflora* last year figured a double-flowered sport of *Eupharis amazonica*. It came accidentally in the nursery of M. J. C. Schmidt, of Erfurt. It does not appear to be double in the sense that the word is applied to flowers generally, but it is the greatest advance towards duplicature which the *Eupharis* has yet exhibited. From the description it appears that the flowers possess two extra rows of petals, arranged alternately. We should be inclined to think that the doubling of the *Eupharis* can scarcely be an improvement, but more likely to spoil its elegant simplicity

of form; variety is, however, always welcome, and the double *Eupharis* will in all probability find admirers.

MELON MONSTREUX DE MARON.—A fruit of this Melon, exhibited at a provincial flower show last autumn measured considerably over a yard round, and weighed about 40 lbs. M. Maron, who has placed the stock in the hands of M. G. Lebeuf, of Argenteuil, for distribution, asserts that this Melon has been grown in his family for upwards of fifty years, his grandfather having received the seed from Mongolia, and that no seed of it has been distributed during the whole of that period. It seems to be something in the way of the Cantaloup, which is so much grown by market gardeners in the neighbourhood of Paris and elsewhere in France.

CORYANTHES MACULATA PUNCTATA.—A very strange statement is made respecting this genus of Orchids in the *Moniteur d'Horticulture*. Referring to the flowering of the above species for the first time in Europe with M. Finet, an amateur at Argenteuil, and to the difficulty which the successful culture of the *Coryanthes* offers, the writer of the note in question observes, "The *Coryanthes*, which are of excessively difficult culture and flower very rarely in Europe, require for their well-being a kind of aut, which, making its home among the roots, either disengages formic acid or in helping in the assimilation of a certain kind of nourishment, thus contributes to its successful growth." *C. macrantha* is a curiosity among Orchids, the flowers bearing some resemblance in form to a Turkish pipe, and *maculata* has smaller flowers darker than those of *macrantha* and spotted. If any of your readers have experience of plants belonging to this curious genus, perhaps they would state if they have succeeded in blooming them.

Byfleet.

J. CORNHILL.

GARDEN FLORA.

PLATE 539.

THE VANILLA-SCENTED ONCIDIUM.

(*ONCIDIUM LANCEANUM*.)

THIS plant is most beautiful when well grown, but, like some other choice Orchids, it is so capricious as to become a "fearful joy" even to those cultivators who best succeed with it in our hothouses at home. It is over fifty years ago since Mr. Lance brought the first plants to England from Surinam, where he found it growing on a Tamarind tree near to the Government House, and afterwards met with it in different parts of the colony, epiphytal on Sapodilla or Calabash trees. Mr. Lance, who appears to have resided in Surinam for some time, failed to grow the plant in vessels of rotten wood and light earth, the compost generally prescribed for the Air plants fifty years ago, but some plants he placed on the Orange trees in his garden, as also others placed on the Soursoop, the Mammee, and on the stems of *Brugmansia arborea*, grew and blossomed most luxuriantly. Mr. Lance brought living plants to England in 1834, and Dr. Lindley draws attention to this species in the "Transactions of the Horticultural Society of London," vol. ii. (second series, p. 100, t. 5), from which we gather, as stated above, that the plant is a true epiphyte, and resents any attempt to grow it after the manner recommended for other sub-terrestrial species of the genus. The best way to grow this plant is on a block or raft or in a teak wood basket, partly filled with charcoal and crocks to which very little fibrous peat may be added. Its roots like to escape into the air and to hang down unfettered in any way, and it also enjoys a warm temperature especially when making its growth. It seems singular that the plant is now so rarely seen in a healthy thriving state, as it was formerly well grown, and has made its appearance at flower shows time after time in a healthy and

* Drawn in Mr. Scase-Dickins' garden, Coolhurst, Hordsham, in August last.



floriferous condition. Certainly when seen at its best it is a most attractive plant, its flowers being scented like vanilla, or, as some say, like the fragrant white Pink so popular in cottagers' gardens. The especial point necessary to be observed in its culture seems to be a strict avoidance of extremes both in temperature and moisture. The plant grows best suspended about 2 feet from the glass at the cool end of the East Indian, or at the warmest and closest end of the Cattleya house. This plant, with *O. luridum*, *O. Cavendishianum*, *O. pachyphyllum*, *O. bicallosum*, and other kinds now but rarely met with since the importation of the more showy pseudobulbous kinds, belongs to the planifolia or thick, flat-leaved and bulbless section of the genus. Our coloured illustration gives an excellent idea of the typical plant, but there are other forms, one having the lip of a much darker purple colour, and there is another variety, *O. Lanceanum* var. *Louvrexianum* (see "Orchid Album," t. 129), which has the apical half of the lip of a pure white colour. When well grown this fine old species is really so distinct and sweet smelling, that no trouble spent upon its culture is thrown away.

One point in Mr. Lance's observations deserves especial notice. He mentions its luxuriating in the gardens or enclosures in its native country when planted on Orange trees. I have also observed repeatedly that nearly all Orchids—epiphytes of course—luxuriate on the cultivated Orange trees in the Eastern Tropics, and in every garden or compound it is the rule to find *Dendrobes* and *Phalænopsids* growing and flowering most profusely in the collars of these trees. It may do no harm if I here suggest such a trial in our hothouse gardens here at home. The Orange tree acquires a respectable size, and fruits freely in our hothouses, as at Sawbridge-worth, or at Margam, in South Wales, and I need not point out to the readers of THE GARDEN what a delightful combination would result if we could grow a few even out of the numerous epiphytal Orchids on our Orange trees. In all my experience amongst Orchids I never remember to have met with any attempt to grow epiphytal Orchids on any living trees in our hothouses, although the experiment has again and again been made upon dead trees and blocks or logs of various kinds. Of course I know that these plants may be cultivated quite as well, perhaps better, by the methods now generally employed. Still, as an experiment, the growth of epiphytes on living growing trees in our hothouses is worth an intelligent trial. A good mass of *Ansellia*, for example, would be quite at home on the trunk of a Date Palm; so also would a mass of *Zygopetalum maxillare* clasping the fibrous stem of a Tree Fern from the Tropics, and other examples among the *Dendrobes* and *Epidendrums* will readily suggest themselves to the cultivator. If the experiment here suggested be made, it should be carried out with duplicate plants of little value until its success or failure be proved beyond a doubt. F. W. B.

"The Plants of the Alps," by M. Correvon, director of the Alpine Garden of Acclimatisation, Geneva. This work I determined to translate on account of the interest which it has excited, and because of the well-known experience of its author. It is not, however, a work that publishers regard with favour, and unless I undertake it myself, the publication of the translation which I have ready cannot be effected. I could not, however, make the venture except I knew whether or not there would be a sufficient number of purchasers to cover the expense. I shall therefore be obliged if those who would buy this translation will kindly forward me a post card to that effect.

The price will be less than five shillings. Readers of THE GARDEN may remember the review which appeared in the issue of Dec. 6, 1884 (p. 479), and by turning to it a good idea of the original work may be obtained. The author has sent me notes and corrections and an additional chapter on botanising in the Alps.—R. IRWIN LYNCH, *Botanic Gardens, Cambridge*.

KITCHEN GARDEN.

SPRING AND SUMMER LETTUCES.

Good Lettuces will be scarce this spring except where glass protectors have been employed. The Brown Cos is the only kind that has survived the severe winter, and in many places only the small late-sown plants of that kind are left alive; those sown as late as September are now valuable for transplanting, but no one, where winter and spring salads are valued, should be without glass. We can grow in this country as good Lettuces as the French, i.e., if we had the means. Lettuces planted now in the open air will scarcely be fit for the salad bowl before the 1st of June, even under the most favourable conditions. Those who have a mild hotbed or two to spare for early Lettuces will find the advantage of it this season; they would do so indeed every season, as Lettuces grown exposed cannot compete with those grown under glass, and if a mild hotbed can be added to the glazed frame the growth will be rapid and consequently succulent, for quick growth is essential to crispness and delicacy of flavour. The best forcing Lettuce is the Paris Market, a small white Cabbage variety, which, as regards earliness, beats our old friend Tom Thumb, which for open air culture is so excellent.

A good Lettuce for sowing now is a rather small Green Cos called Little Queen. It grows very close and firm, is fine in the grain, and does not run to seed so soon as the larger and less compact Lettuces do. Carter's Giant White Cos is also an excellent summer Lettuce. Where precaution is taken to sow in boxes or in a frame. On a genial hotbed plants so raised are better for present planting than those which have weathered the frosts and snows of winter, and I should rather trust to them.

IN PLANTING OUT LETTUCES now from seed beds or frames, if planted in different aspects and situations, a successional character will be given to plants of the same sowing. Some, for instance, should be planted on a south border, and a part in an open situation, and another part in a cool border. This obviates the necessity for sowing so often. As the season advances south borders will be too hot, as usually after May such plants betray a tendency to bolt; and if the weather should be hot and dry, which it is sometimes at that season, aphides will appear and bring on premature decay. For summer Lettuces depth of soil is very important. Some of the best Lettuces grown are obtained in July often during the hottest weather from plants set out on the ridges between the rows of Celery in May and June. Lettuces are deep-rooting plants, and where depth of soil can be given, watering and mulching are less a necessity. In hot soils increased depth has a very special value, and mulching, together with an occasional soaking of liquid manure, makes success a positive certainty. In June and July sometimes the seeds are sown thinly and not transplanted, as though in some instances and at some seasons transplanting, by increasing the root-fibres, may be an advantage, the snapping of the tap-root in its downward course in a dry time increases the tendency to premature seeding which it should be the object to counteract.

To provide a year's succession sow twice in April, May, June and July, once in August, and once the beginning of September; the last sowings are useful for planting in frames to come early in spring. Sow Paris Market in January for forcing, and sow the same kind again, with other varieties, early in March for planting out on borders or growing under glass, according to requirements

and circumstances. It may not be necessary to sow large quantities of seed at any particular time. The July sowings are the most important for autumn and winter supply, but all the sowings I have named are important in their particular seasons. The black-seeded variety of the Brown or Bath Cos is the best Lettuce for standing the winter in the open air. E. HOBDAY.

BRUSSELS SPROUTS.

SEED of these are not sown by many persons until May, but this is too late, as a general rule. Market gardeners, who grow this vegetable largely for market, sow in March and get their plants out as early as possible, taking advantage of the first dripping weather in July, and earlier if ground can be cleared and the weather is suitable. The Scotch gardeners used to sow seed of Brussels Sprouts in August, and probably do so still. Some of the finest sprouts, I think, I ever saw at the middle of August were at Heckfield; the seed had been sown early, and the plants got out as soon as possible, and by the second week in August they were nearly 3 feet high, covered from top to bottom with sprouts. I think the Brussels Sprout the most delicious vegetable grown. It will require a good sprout to beat it, and I am of opinion it is not yet raised. And yet there are many of the middle classes and the poor who rarely, if ever, taste them; and the cultivation is simple; all that is required is to sow the seeds in a bed, and transplant when they are 5 inches or 6 inches high, taking advantage of showery weather to do this. A good holding rich loam suits this vegetable best, and when planted out, it should have ample space in which to develop. The London market gardeners who grow for market put their plants from 18 inches to 2 feet apart and at least 2 feet from row to row; and the surface is kept well loosened by the free use of the hoe. Earthing up is not so frequently practised as in private gardens; and when the plants have reached their height, which is shown by the tops beginning to cabbage, it used to be the practice to cut out the head, for the purpose of assisting the development of the sprouts. This method is not so much followed as it used to be, because growers have come to recognise the fact that though it may be advantageous to head down a row or two of the plants that are late in developing their sprouts, yet it is scarcely necessary in the case of early sown and well-grown plants. Then in the case of a severe winter the head and spreading leaves which surround it are found of advantage as a protection. During the past winter plants could be seen that, headless and unprotected, were greatly injured if not killed outright by reason of the frost. But this is a matter about which there is no doubt there always will be differences of opinion. It merely remains to be stated that the Brussels Sprout is one of the hardiest vegetables grown. It requires something akin to courage to recommend any particular form of the Brussels Sprout. I admit one type and that is all. There are many so-called varieties, but they are simply selections, and so much depends upon the way they are grown. I once saw in a market garden near Acton a really wonderful piece of Brussels Sprouts large in size and grandly developed by August, and I asked the owner what sort it was. His reply was, the Imported. But then he cultivated with a view to get the very best return he could, and it was not surprising that such a good yield resulted. The following are all what may be termed fancy varieties: Reading Exhibition, May's Northaw Prize, Dalkeith, Aigburth, Wroxton, Scrymger's, Carter's Perfection, Rosebery, &c. Who will venture to say which is the best? R. D.

Turnip-rooted Beet.—Our soil being rather rich and heavy, we have to be careful not to grow our Beet too coarse, and with us this variety is apt to approach both the size and quality of Mangolds, but on light, poor soils it is good alike for early and main crops. Quite recently we tasted a sample of it grown on a light, sandy soil that was equal to Dell's Crimson, and in several

gardens in this district it was the only sort that did not fail during the very dry summer experienced last year. In any case, it is the best for an early supply, and seedlings raised under glass and gradually hardened off transplant readily, the result being a gain of two or three weeks. It also bulbs quickly in a frame or in boxes of good soil placed under glass, or in a warm, sheltered position. Our supply of old roots of Dell's Crimson being nearly exhausted, we are raising plants under glass for transplanting to a warm border, and have also sown a few short rows on a warm border. To succeed these and for storing I find Dell's Crimson the best, this, if sown any time in April, rarely becoming too coarse. In colour and quality it invariably proves satisfactory, but such strong growing sorts as Pragnell's Exhibition we should not sow till the first week in May.—W. I.

HERBS AND THEIR CULTURE.

FOR the successful cultivation of herbs a light sandy soil is necessary, as it is acknowledged by all good authorities that the drier the soil (if it retains sufficient moisture to promote satisfactory growth) the more highly concentrated are the properties of the herbs—a consideration in high class cookery. As to position, I find a border facing the west and sheltered by a wall or fence to be the best, as there are many sorts of herbs that cannot endure sudden changes of temperature during a hard winter, and which must be the case when the sun is able to reach them early in the morning. Actual frost may not perhaps injure them, but I know to my cost in the case of our cold staple that frost and sudden thaw combined do much harm. A rich soil for herbs is not desirable, rank growth not being necessary. On the contrary, short-jointed shoots thickly beset with leaves is what is required, and the best way to promote such growth is to make the soil firm before planting, and to give each plant plenty of room in which to grow in order that sun and air may have direct influence on all parts of the plants.

ANISE.—This is an annual and rather tender, as it does not like to be transplanted. Seed of it should be sown early in May where it is to stand. This herb is used both for garnishing and flavouring.

BALM.—This is herbaceous in character and quite hardy. It possesses a Lemon-like odour; as it is not often called for, one or two plants will suffice for a large garden. We divide our plants of it in spring, putting them 2 feet apart.

BASIL.—Most gardeners find it necessary to provide a regular supply of Sweet Basil, as it is used for flavouring soups, and also in salads. It is a tender plant, and, therefore, if an early supply of green leaves is required, seeds of it should be sown in heat in February, and the young plants treated as other tender plants would be. Where there is no objection to use it in a dried state one sowing will suffice, as a sufficient number of plants can be raised to last throughout the year. If, as soon as the plants come into flower, they are pulled up by the roots, tied in small bundles, and hung up in a dry loft, the leaves will retain their flavour for a considerable time. In this case seed of it may be sown about the middle of April. I like to sow about one dozen seeds in a 7-inch pot in any ordinary sandy soil, and grow the plants on in a cool house until large enough for drying.

BORAGE.—This is chiefly used for flavouring summer drinks, and therefore should not be excluded from the herb border. Bees are also fond of it, and although rather coarse in appearance, it is not devoid of beauty, both the form and colour of the flowers being good. If an early supply is wanted, the first sowing should be made under glass early in March. For use during August and September, seed of it may be sown in the open early in April; a very few plants will suffice for ordinary use, *i.e.*, if allowed plenty of room in which to grow.

CHERVIL.—This is a plant not unlike Parsley in its appearance. It is an important herb in many establishments, and in order to keep up a succes-

sion, two sowings are necessary. The first should be made in April and another early in August. If sown thinly a space 3 feet square will yield a good supply. If required during winter some hand-lights should be placed over it to protect it from frost.

CHIVES.—These are valuable either as a substitute for Onions or for flavouring salads. They are quite hardy and will grow in almost any kind of soil. The best time to plant them is March and April, and the best position is close to a warm wall. The green tops are the only parts used.

FENNEL.—There is generally a constant demand for Fennel from early spring until late in the summer, but being hardy there is no difficulty in keeping up the supply. Plants of it are easily raised from seed sown in spring; as it is required early, a warm position near a wall should be provided for a plant or two to furnish a few early gatherings.

MARJORAM.—There are annual and perennial varieties of Marjoram, but most gardeners find the winter or perennial sort sufficient for all purposes. Both may be raised from seed sown in spring, but the usual way of keeping up winter Marjoram is to slip off some side pieces to which are attached a few roots in spring and form fresh plantations with them. Such plants require one season's growth before they are of much use.

SPEARMINT is needed both in a green and dried state. For the earliest supplies it is necessary to take up some old roots and put them into deep pans in which they can be forced, and the slower the forcing the stouter the growth will be. This Mint is quite hardy and will grow in almost any kind of soil. When making fresh plantations select the youngest roots, and these will be found near the outside of the old stools. Cut them into lengths of about 9 inches; then form drills 1 inch deep and 1 foot apart; in these lay the pieces of roots and cover them with fine soil. A fresh plantation made once in two years will be often enough for most gardens.

SAGE.—Though apparently hardy, Sage suffers a good deal in hard winters; in fact, as a rule, severe winters kill all the old stools where the soil is of a retentive character; therefore it is not safe practice to depend on old plantations. We make a fresh bed every year, selecting the driest soil and the most sheltered corner for it. Early in summer we slip off some of the young side pieces and dibble them in as we would other cuttings, allowing them to remain there until the following April. They are then taken out and planted 18 inches apart each way. Sage may also be raised from seed, and if sown early in April on a warm, sunny border the young plants acquire a good size before winter.

THYME.—This and the Lemon-scented are all the sorts that it is necessary to grow in ordinary gardens. The first is required almost daily. It is, therefore, necessary to keep up a good stock of it. We keep up our supplies by striking cuttings early every spring, and plant them out as soon as rooted. These plants are never cropped until they have had one summer's growth; they are then in condition to furnish a constant supply, and large enough to stand unharmed through the severest winter. The Lemon Thyme also strikes freely from cuttings, but we keep up our stock of it by dividing a few old plants every spring. We select young side pieces and dibble them in 9 inches apart each way. A well-drained soil is necessary for both of these Thymes.

TARRAGON.—This does not take kindly to all kinds of soil, especially where inclined to clay. A moderately deep sandy staple is what suits it best. In our cold medium we have to make the soil for it close to a warm wall, and then it succeeds admirably. In some places this herb is much used in salads. In that case it must be in a green state, and it will be necessary to take up every autumn a sufficient quantity of roots to be forced during the winter. They may be put into pans or pots, as may be most convenient. A few plants introduced into the forcing house every

six weeks will keep up a supply. It is necessary to make a new plantation once in two years, and April is the best time to do it. If dried Tarragon is wanted it should be cut just as it begins to show its flowers; in fact, that is the condition in which all herbs should be when cut for drying. In most cases it is necessary to have a supply always at hand of such herbs as Thyme, Mint, Sage, winter Savory, and Marjoram. As soon as cut they should be tied in bundles and hung up in a cool shed where the sun cannot reach them.

PARSLEY.—Of all herbs this is the most important, and, taken altogether, it is perhaps the most indifferently managed. It is a common practice to sow seeds of it in any odd corner without any thought as to soil or position, and then wonder why a regular supply is not forthcoming. Having to meet a large demand for Parsley, I always make two sowings each year, the first towards the end of March, and the other early in August. The first sowing runs to seed early the following summer, but the majority of the plants raised in August will stand two winters before they run to seed. The late sown crop, therefore, affords a supply through the early summer, while the newly sown spring plants are growing on to a useful size. Fine Parsley cannot be had if the plants are crowded. If the seed is sown in lines, the drills should be 15 inches apart and the plants thinned out so that they stand 6 inches asunder in the lines. J. C. C.

Succession Broccoli.—Sow Veitch's Self-protecting and Snow's Winter White early in March and again towards the end of April, and plant all two or three times—say early in June and the middle of July. Sow midseason kinds such as Cooling's Matchless, Dilcock's Bride and Leamington about the 20th of April, and Carter's Champion, Sutton's Late Queen, and Cattell's Eclipse in the first week in May. Plant the early sorts in good deep rich land, but the midseason and late kinds which are expected to stand the winter can scarcely have the ground too firm if in good heart and cultivation. Planting in firm ground produces sturdy growth that will bear cold weather. The rows should stand 3 feet apart, and the plants 2 feet asunder in the rows. Very often the plants are taken straight from the seed beds and planted in their permanent quarters, a plan which answers well if the seeds were sown thinly in drills, and the latter not less than 10 inches apart. Birds, especially linnets, are very fond of the seeds of the Cabbage tribe, and the seed beds should be protected with netting, or else the seeds should be dressed with red lead.—E. HOBDAY.

SHORT NOTES.—KITCHEN.

Certificated Potatoes.—First-class certificates have just been awarded by the fruit and vegetable committee of the Royal Horticultural Society to the following varieties of Potatoes, as especially useful for late work:—Chiswick Favourite (Veitch), white round, rough skin, heavy cropper, white flesh of good flavour; Bennett's Surprise (Bennett), white kidney, white flesh, good cropper, and of fine quality; King of Russets (Lye), large round, pink, with a somewhat deep eye, white flesh, rough skin, good cropper, and good quality.

Diseased Cucumber plants (*J. G. D.*).—Yours is a case of the best known of the diseases of Cucumbers. It is caused by minute worms termed Nematodes, which traverse the entire plant, but are mostly found in the roots and stem. In your case the Nematodes are possibly in the water supplied. The minute worms are easily destroyed, but we know of no thorough experiments in that direction.—W. G. S.

Peas.—I have grown Duke of Albany for several seasons, and find it to be a good kind. I grew Telegraph for two seasons, and although it proved nearly all that could be desired as far as appearance went, I was compelled reluctantly to discard it on account of its deficiency in flavour, a point in which the Duke excels. Telephone, which I consider superior in flavour to Telegraph, has in the Duke a formidable rival.—J. R.

Seakale.—In view of the immediate scarcity of vegetables, I would urge any who have Seakale roots undisturbed to at once cover them up to the depth of 1 foot or 15 inches with soil, sand, or any rubbish that will exclude light. In the course of a month or less the growth will be pushing up the soil, and may then be cut. Grown and blanched in this way, Seakale is not only larger, but superior in flavour to that which is forced. Our practice here is to plant a brake in the usual way, and after a season's growth to dig up every alternate two rows for forcing, leaving the others to be dealt with as just stated.—J. R.

THE OLD ASHLEAF POTATO.

ACCORDING to my experience, the best early, yet least known, Potato is the true old Ashleaf. I have worked in about nine different gardens in various parts of the country, but in no instance was the old Ashleaf to be seen, nor have I met with it except rarely elsewhere. Not one catalogue in my possession makes any mention of it, and only once have I seen it in a seed shop, and even then the stock was much mixed. Mr. Taylor, late gardener at Longleat, first drew my attention to the merits of this variety, and when I found that he cultivated it extensively, I felt that I too would act wisely in following his example. For the past four years we have gradually increased our stock of seed of it, and this season our warmest border, which is about 60 yards long and 3 yards wide, is entirely planted with it. In addition, several good rows will be planted solely for seed. At one time Veitch's Improved Ashleaf was principally relied upon for the earliest supplies, but although we shall plant about six bushels of that sort, they will be planted in the open ground simply because they are later and require more room than the old Ashleaf. The latter we store in flat trays, each tuber being allowed to form one sprout, and these sprouts are nearly green and stouter than any formed upon any other Potato with which, am acquainted. This distinctive feature alone renders it next to impossible for any but the most careless to have a mixed stock of it. We usually plant as early in February as the state of the ground will permit, but this season the early border was not planted till March 15. If we planted later, or say about the middle of April, we might escape frosts and a heavier crop would be the result; but if those planted early do get a nipping, they quickly shoot up again, unless indeed the haulm be killed down to the tuber, which rarely happens, and a moderately heavy and early crop is of more value than a heavier one later on. The old Ashleaf forms shorter haulm than any other Ashleaf I have grown; our rows are only 20 inches apart and the sets 9 inches asunder in the rows. Moreover, the young tubers are fit for the table when little more than half grown, and when we have wanted an early dish badly we have carefully removed a few of the largest and allowed the remainder to grow to a useful size. It is almost needless to add that the old Ashleaf is one of the best for frame work or forcing in pots or boxes. About the middle of January we planted a quantity in long narrow boxes, using a light, loamy compost, and placing them in a row near the hot-water pipes of an early Peach house, and, with very little trouble in the shape of waterings as required, we were in a position to supply a dish or dishes of Potatoes by the middle of March. Sooner or later this good old sort will find its way into commerce again, and the first to make an attempt to distribute it will confer a favour on all who grow Potatoes early.

W. I. M.

PLANTING POTATOES.

APRIL is without doubt the best month for planting Potatoes. Planted earlier, except where facilities are afforded for protecting the tops, no special good results accrue, and planted later, the heat of summer is upon us ere the crops have become well established. This statement, I need scarcely say, refers to the south as distinct from the north, as in Scotland planting may be done, and with good results, even in May. Whether the crops shall be affected henceforth by disease or not, it is certain that nothing is to be gained by very early planting, for, on the whole, if well stored the tubers are best out of the soil if cold and wet; and if otherwise, there is danger that growth may be forced so early as to endanger the tops being destroyed by late frosts in April or May. In some of the best parts of the kingdom where Potato culture is an important feature the soil is well prepared beforehand by manuring in the autumn and high ridging for the winter. So far the work of planting is facilitated, that if a cultivator be set narrow and run deeply up and down the furrows, the sets can be planted behind this, and the ridges being split on

either side the work of covering is soon accomplished. Too often elsewhere no such preparation is made and the process of planting is bad, because the sets are laid into every third furrow following the plough and upon the hard bottom left by the plough, unless, as sometimes is the case, a subsoiler follows that implement, and thus breaks up the bottom some 2 inches or 3 inches deeper. Still, in such case the soil is usually firm and lumpy, and not at all favourable to the production of clean handsome samples. It is all very well to ridicule the plan of exhibiting Potatoes, as some thoughtlessly do, but it is a fact that a clean handsome sample of Potatoes will always obtain a better price in the market than ungainly ones will; hence the stimulus to grow pretty clean samples found in exhibitions of Potatoes is far from being useless. But the most common method of planting large areas of Potatoes is by the use of the dibber, and although some find fault with it, yet it is hard to find in what way Potato sets are worse dibbled into loose light soil than are the roots of Cabbage and similar plants when so planted. In any case the plan facilitates the planting of large quantities of tubers rapidly, as the soil may be prepared by deep ploughing twice, and if skilfully done the planters have but to follow the line made by the plough at intervals of three furrows to make the holes. It should be understood also that ploughed soil usually lies lighter and more hollow than does dug soil; hence some little pressure in dibbling and treading is not at all harmful, but is rather beneficial. Certainly, plant Potatoes in what fashion we may, the chief elements of success will be found in good soil, well prepared and good sound seed. Given these two items, and it is doubtful whether method of planting will make any appreciable difference to the crop. It is important to the planter, however, to be able to run in a large breadth quickly; hence dibbling has its value apart from other considerations. In gardens where there is ample labour and the soil is nearly always rich enough for Potatoes without the addition of manure, it is too frequently the case that too much growth is obtained in the way of top and by no means commensurate results at bottom. In such soils very strong growing kinds should not be planted, but only sorts that ripen fairly early. Really an open field, or some non-sheltered position is best for Potatoes, and especially where phosphates, artificially applied or otherwise, are employed as dressing. Without an ample supply of these constituents really good eating Potatoes can hardly be looked for. It is certain that some soils contain these elements naturally much more largely than others; hence we find certain districts have good reputations for the production of high class Potatoes. Thus it happens that some kinds good in one district fail to please in another. Plant what we will and how we will, however, the sooner all our Potato seed is beneath the soil now the better, and it is hoped that a clean healthy crop may in time be the result.

A. D.

WORK DONE IN WEEK ENDING APRIL 6.

MARCH 31.

STORMS of wind and hail are by no means the kind of weather that we gardeners wish for after the long spell of winter we have had, yet such have prevailed to-day, and open-air work has once more been all but at a standstill, and the usual kind of inside jobs for labourers has once again been to the fore—label-making, pot-washing, soil-sifting, peg-cutting, box-making for bedding plants, and other odd jobs. Work in the houses has been Grape thinning, emptied rain-water tank on to inside borders of late vinery—Lady Downes—and afterwards watered with warm water, and covered the border immediately with long litter. The house will now be closed up to start the Vines into growth, the night temperature being 55° and the day 65°, and syringing will be done twice a day. Tied up rods of late Hamburgh vinery and disbudded the Vines; no heat other than a sufficiency to keep out frost has as yet been applied, and none will be turned on till the shoots have grown to about half their usual length, as then I fancy a little additional heat has a tendency to run out the bunches. Boxing off Pelargoniums, the smallest plants; the strongest are being planted out in cold pits.

APRIL 1.

The weather to-day has been a perfect contrast to that of yesterday, and a drying wind made the ground work as well as if there had been no rain for weeks. Planting Potatoes and transferring winter bedding shrubs from the flower beds to nursery ground, where they are planted in rows and in distance apart according to their various sizes; an annual dressing of coarse vegetable soil is applied to the ground, and in this light material the roots quickly take hold; and lift again in October, with masses of root scarcely second to plants that are moved but once a year. All the Retinosporas, the dense upright-growing Cupressus, the various kinds of Yews, Portugal Laurels, Aucubas, Heaths, and Cotoneasters bear this twice-a-year transplanting year after year with but few losses. The smaller plants that are made to do duty in winter are, for the most part, permanent plants; that is, they are left in the beds all the year round, or, at most, are only transplanted once a year, and that in the spring time when the beds have a general overhaul in the way of manuring, digging, or trenching, which work we shall commence soon as the pressure of other work permits. Sedums, Saxifrages, Spergulas, Herniarias, and tuft-growing Veronicas and Thymes are amongst the more important of what I term permanent plants, as they are of equal merit for summer as for winter. Planted a few Roses to fill up vacancies in Rose beds. A few of the Tea section look rather seedy, and so we have planted as near to them as the freedom from injury to their roots would allow, for we can have no gaps amongst Roses; and now if they do die, a peg down of a branch of those newly planted will furnish the space at once. When occasion requires this gap-filling-up mode of planting we give each plant entirely new soil, the old being carefully removed that no danger be done to the adjoining plants. Having a surplus, those not required for planting out have been potted in good, stiff loam, with a little charcoal and bone dust added, and by deferring the pruning of them till end of May, we shall hope to have them in flower for room decoration after Roses outside are over. This is no new plan, as we have tested it repeatedly and with great success. Continued Grape thinning and again stopped back shoots; cut off surplus bunches of Muscats; these we are never in a hurry to thin, for the reason that oft-times imperfectly fertilised, stoneless berries cannot be distinguished from others; hence it is better to wait till these can be discerned without difficulty. Propagating of bedding plants, potting off Capsicums, Cucumbers, Melons, and Tomatoes.

APRIL 2.

Fine drying weather. Planting small shrubs in reserve garden and finished the renovation and planting of herbaceous borders, a number of Phloxes, Pyrethrums, auratum Lilies, Tigridias, and Gladioli being put out to-day. Planted out Cauliflowers on a south border; we always plant in deep drills, which at this early season afford some amount of protection to the plants from cutting winds, and earthing up is seldom required, but simply the filling in of drills when the plants are large enough to require it. In our dry soil it is very desirable to avoid ridging up as much as possible, and drill planting, to a great extent, obviates this. Sowed succession lots of Peas and Spinach and a first lot of Runner Beans. Broccoli now turn in too quickly, and part of them we have lifted and heeled in thickly on a spare plot of ground to lengthen out the supply. Indoors work has been much the same as it was yesterday, Grape thinning and preparation of bedding plants now taking up the bulk of our time. Potted on Ricinus and Grevilleas, and put in our first batch of Alternanthera cuttings in a manure frame; the frame being movable, it will, soon as the plants are well established, be utilised for a like purpose on another hotbed.

APRIL 3.

Windy, but otherwise fine and sunny. Completed the transplanting of winter bedding shrubs, mowed lawn, cut turf edgings of beds, and lifted hardy plants preparatory to digging the beds for the summer arrangement. Spring flowers now abound, and for the time being the mixed flower borders and the beds filled with bulbs and spring flowering plants come

in for a large share of admiration, and well repay the little labour we have bestowed on them. Staked the second succession lot of Peas; sowed Leeks, Salsafy, and Scorzonera; surface-forked old plot of Horseradish, having previously given it a sprinkling of guano mixed with wood ashes; swept up all walks and worst parts of lawn. Did more Grape thinning and pinched shoots in early Muscat vinery and Figs, and watered the border of the latter with tepid water and all Pines; weak manure water is now given to all these, except the smallest or recently rooted plants. Potted off singly into 2½ inch pots seedling Cyclamen, and pricked off into pans seedling Gloxinias and tuberous Begonias. Gave the last shift, 10-inch pots, to pyramidal Campanulas that are wanted to flower in August next, and which were sown in May last; for the present they are growing in cold frames, but will, soon as safe, be grown on in the open air, where, plunged in ashes and in full sunshine, they develop flower-spikes as stout as ordinary broom handles, and, as a matter of course, flowers of proportionate size. Other indoors work has been a thorough clean and brush-up—rearrangement and shifting about of forced plants to retard the flowering periods, and picking off the surplus fruit from Strawberries and introducing other relays of them into warmth. Grapes still keep plump, and as yet are as fine in quality as they were when first cut.

APRIL 5.

Dull, but dry, and work proceeds at a rapid rate. Pruned, nailed, and tied in Tea and Noisette Roses on walls and trellises; none of the plants seem injured. A good thick mulching of cow manure has been put on the border, and a week or two hence, when the rain has washed down the goodness of the manure to the plants, the mulching will be lightly smoothed down with a spade, and over it will be spread a layer of cocoa fibre, which will make all neat for the rest of the season. The remainder of our time has been occupied in forking, levelling, and picking off stones in new part of grounds that is to be laid down as lawn, the seeds of which we are anxious to get in as soon as possible. Put in cuttings of Iresine, double Petunias for pot cultivation, also cuttings of Poinsettias, Gardenias, more Bouvardias, and Plumbago rosea. Earthed up Potatoes in frames, and pricked out in frames Brussels Sprouts and Cauliflowers that were sown in heat. Tied out Melons and pinched out the points of side laterals on which fruit was showing, and to prevent watering, the surface of the bed has been covered with droppings. Sowed Primulas and *Celosia aurea*. Did the first thinning out of fruit in second Peach house, and at the same time rubbed off a few more shoots and tied some of the longer ones down. The Vines of Gros Maroc, Alnwick, and Alicante have been at length finally tied in position, but the shoots will not yet bear the strain of bending down the trellis. Renewed heat in recess of new Vine border. The bottom-heat thermometer in soil of border now indicates 92°, and the Vines are breaking more than satisfactorily.

APRIL 6.

Splendid weather; still preparing ground for lawn Grass seeds, planting Potatoes, staking Peas, and edging flower beds. Planted out some Violas, Mrs. Grey, our best white, and Archie Grant, our best blue or dark purple. Peaches and Apricots being now in full blossom, the coverings are let down every night, and also for an hour or two in the daytime when the sun is hottest. Apricots are thin of flower, and it is therefore all the more necessary to take pains about protecting the trees in order to save what few there are. Pear blossoms are also thin, but Apples abundant; the latter we never attempt to protect, but Pears on walls, always thick netting being the handiest material for the purpose. Indoors work much the same as yesterday. More propagating of bedding plants, and planting out of some Lobelias, Verbenas, and hardiest Pelargoniums in turf pits, and covered with asphalt shunters. Potted for forcing Lily of Valley from open border and the last lot of *Spiraea japonica*, and put in more pot Roses to force. Prepared frames in which to sow Asters, Stocks, Zinnias, Phlox Drummondii, ornamental Grasses, and Everlastings. The position we select is one well open to the south, and on gravel or very firm ground that

the seedlings cannot penetrate; about 4 inches of light and finely sifted soil is put in the frames, and the seeds are sown thinly in drills about 4 inches apart. The lights are kept on till the seeds have germinated, after which time air is freely given. Thinning Grapes, potting Chrysanthemums.

HANTS.

FRUITS UNDER GLASS.

EARLY ORCHARD HOUSE.

THE fruit in this compartment has made amazing progress during the past fortnight, and many of the most forward trees have reached the stoning stage. For several weeks there will be no appreciable increase in the size of the fruit, but the trees will, nevertheless, be doing good work, which will tell by-and-by, and in order to assist them through the trying ordeal of supplying calcareous matter to each individual fruit, food of a generous nature must be given with a liberal hand. Their solid food, or top-dressing, may consist of rich calcareous loam, a little well-rotted animal manure, and a liberal sprinkling of bone dust as often as the old is reduced or washed down with plain warm water or diluted liquid. In addition to artificials, as highly concentrated preparations are called, there are numerous home-made animal manures, consisting of cows', sheep, and deers' excrement, which can be reduced and used in a clarified form, and it is questionable if the latter, when prepared with boiling water and cleared with soot and lime, are not the best of all stimulating liquids for pot fruit trees whose root space is extremely limited. Artificial manures, with good Peruvian guano at their head, are invaluable aids when applied alternately by experienced persons who know what they are about, but so numerous are the preparations now sent out, often gratis, for trial, that one has to exercise the greatest caution on their first application, and the plants operated upon should possess little value. Only the other day a bag of manure reached me from an unknown agent; half a dessertspoonful was applied to a forced *Spiraea* in a 9 inch pot and watered in. The foliage twelve hours afterwards looked as if it had spent the night in front of a large fire. This manure may be invaluable for vegetables capable of carrying off nitrate of soda, but its general application in the mildest form would most likely have ruined every tree in the orchard house for the season. This example is not given to deter cultivators from using artificial manures, as many, most likely all of them, are excellent when judiciously applied to the crops for which they are best suited, but to warn the inexperienced against trying their first experiments upon valuable trees which they can ill afford to lose. Good syringing with soft water, as well as constant feeding, will tell upon the wood and foliage, and as the secret of success depends upon the maintenance of an even balanced growth as strong at the base as the summit, each robust tree must be regularly pinched and thinned to divert the sap into the weakest channels or horizontal shoots near the rims of the pots. Delicate or heavily loaded trees will require more freedom, at least for a time, but when the strongest shoots near the apex show signs of becoming vigorous they also must be stopped to throw size into the fruit and strengthen the weaker growths, which frequently do not require pinching at all, as they only contain two wood buds, one at the base, the other at the point, and the removal of the latter by pinching would prove fatal not only to the fruit, but the shoot also. As soon as the fruit is fairly stoned, the superfluous and least promising portion of the crop must be removed with a liberal hand, as quantity in these days is a poor and unremunerative apology if purchased at the expense of quality. Large old trees in tubs or planted out in borders will well repay a little extra attention to feeding and concentration of the liquid in a position which will oblige it to pass through the centres of the balls to the drainage. Many crops of fruit are damaged, if not ruined, by the false security which a constantly moist surface begets when perhaps the centres of the hard balls are as dry as powder. Planted-out trees that are root-pruned annually most frequently suffer, and the injury is not discovered until starvation has done its work, but by building good solid rims of strong turf,

grass side downwards, or rotten manure round the extremity of each ball, and so forming a basin for the reception of the water, mishaps from drought are easily prevented. The temperature in the early house may now range about 60° at night with a chink of air which must be shut off for the morning syringing, and the day ventilation may be commenced at 68° with the prospect of a rise with sun heat to 75° or 80°.

Late or mixed houses containing Peaches, Figs, Plums, and Cherries, and perhaps a few choice Pears, will now require liberal back and front ventilation throughout the day whenever front air can be admitted without creating a cutting draught, which may prove injurious to the young fruit recently set or in course of fertilisation. Peaches and Figs will stand a brisk heat with plenty of moderately moist air, but Plums and Cherries are rather impatient, and for this reason the different varieties should be arranged in sections. If cold, damp weather prevails, favour fertilisation by keeping the pipes warm, and run over the flowers every day with the camel's-hair pencil. Should the weather be bright and dry, admit air and insect assistants, damp the floors, the pots, and stems frequently, and dew the flowers over with the syringe occasionally. In all other respects the management of this house will be precisely the same as that recommended for earlier structures. Water both to the roots and foliage will of course be required in greater quantity, and a sharp look out must be directed to insects. It may be assumed that the advice to smoke before the trees came into flower has not been neglected; no man neglects this important matter more than once in a lifetime, as an attack of green fly when the trees are in flower is followed by results which cannot be forgotten. Fumigating will not, however, destroy the small grubs which attack Plums and Cherries as soon as the fruit is set and the young leaves begin to open. Their whereabouts, fortunately, by the curled or gummed-together appearance of the leaves, is easily detected, and the only remedy which I have yet discovered is handpicking or crushing from day to day until they are obliterated.

STRAWBERRIES.

If Strawberries occupy this structure, keep them near the glass and not far from the ventilators; water and syringe well, as they are the culprits which invariably introduce red spider. Thin the flowers before they open, be guided by the weather in the use of the brush or syringe when they are setting, and tie the scapes up to small sticks to secure colour and flavour. Keep unheated houses as backward as possible until the trees are in full flower, then shut up in good time without moisture; a little dry frost does no harm, but frost with moisture is often injurious.

PEACHES.

If the fruit from the earliest trees is to be judged by quality and colour, patience must be the watchword until the stoning process is complete and the last swelling has fairly commenced. Then, if time be an object, sharper forcing may be indulged in by day, but not by night. It is not, however, a discreet plan to hurry Peaches through any of the stages of their growth, even after they have passed the stoning, as fruit so grown and ripened, say in May, possibly earlier, has only the name to recommend it. Next to the allowance of plenty of time comes light or moderate cropping; otherwise, no matter how we force, a tree burdened with the formation of one-fourth more stones than it is able to clothe with pulp and carry to maturity is sure to finish off badly, if it does not cast many of its finest fruit when it ought to be changing for ripening. Mulching, root-watering with good liquid and daily syringing will now be found important, if not imperative, factors in swelling up the fruit and keeping the foliage clean, and if colour on the right side is to be taken as a point in good culture, all pendent fruits must be turned up and supported on pieces of lath placed on the trellis with their points facing the sun. Many people think a pale Peach is as good as a coloured one, and clinch their arguments by the introduction of the grand old Noblesse; as well might they introduce the Muscat of Alexandria Grape to prove that red Hamburgs are as highly flavoured as black ones. To me the Noblesse is imperfectly finished if it does not show

the faint streaks and blotches of red which sun and air will impart, and varieties capable of laying on high colour are in worse plight when they resent Nature's gift and persist in remaining pale up to the finish. But, even admitting the argument that a pale Royal George or Bellegarde eats as well as a coloured one, we know which commands the best price, and is preferred by consumers generally and competent judges. If, then, perfect Peaches are wanted, the point, not the stalks, must be coloured, and size must be secured by pinching the points out of shoots, which will not be wanted after the fruit is gathered. Air as well as sunlight, of course, plays a very important part in the production of flavour; hence the valuable advice to disbud well, and avoid laying in a single shoot that will not be wanted to produce an even spread of foliage, the reverse of crowded, to shelter old branches from the paralysing effect of intense sun-heat, or to furnish the tree with bearing wood in the succeeding year.

Succession houses.—I observed some time ago that good sets in early houses were this year the rule, and it is highly gratifying to be able to say that trees in succession, and, I believe, late houses, are equally satisfactory. When the preceding season has favoured perfect maturation of the wood, it is a good plan to secure a good set on the upper side of the trellis by rubbing off all pendent flowers before they open; but where this has not been done timely thinning should follow quickly upon the fall of the petals. Wisdom always dictates leaving a fair percentage in early houses to allow for dropping, but healthy trees which do not set before the middle of March rarely cast their fruit to any appreciable extent if properly managed. These, then, may now be thinned down to within a very small percentage of the number they are intended to carry to the finish. Disbudding may also be carried on with a more liberal hand, and where all the young shoots have been neatly heeled down to give them the proper position, freedom of growth will favour rapid development of fruit and foliage. Old trees, as I have before advised, may now derive great benefit from good mulching, and young ones which do not require gross food will be the better for a liberal littering down with fresh, but well-worked stable litter. By well-worked, I wish it to be understood that it should be frequently turned in the open air to free it from rank ammonia. Good stable litter in suitable condition is an excellent stimulant and insecticide, and it gives the houses a neat and growing appearance, but, like edge-tools in the hands of a novice, its use may do much mischief. Thorough watering and syringing backwards and forwards with warm soft water until every branch and leaf is well moistened form very important factors in detailed management, while puny supplies or dribblets pave the way to attacks of mildew, aphid, and red spider, three pests which should never be met with in well-managed Peach houses.

CHERRIES.

These, like Peaches, have set more freely than usual, and thinning this year has been a very important operation. When May Duke, Empress Eugénie, and other favourite varieties have passed the flowering stage, the fruit rapidly arrives at maturity, and although they are only Cherries, which many people do not think worth thinning, if they would have them fine and as good as Cherries can be grown, the thinning-scissors must be at work as soon as the petals fall. When thinned, the trees may be syringed twice on fine days until the fruit begins to colour, when atmospheric moisture given off by the cool damp floor will be quite sufficient for early thinned-skinned varieties during the time they are ripening. Old trained trees, confined to small borders, do not make a great number of shoots, but throw out a strong one here and there. These should be pinched at the fourth or fifth leaf, unless they are wanted for filling up vacant spaces on the trellis, when, like leaders, they may be laid in full length. Cleanliness must not be overlooked, as grubs make short work of the crop, and black fly is sometimes troublesome. The first gives way to hand-picking; the second is rather persistent, but if taken before it gets deeply imbedded in the curled leaves, dipping in tobacco water three times in the course of ten days will clear the house. Ventilation plays an important

part, not only in ripening the fruit, but also in preventing cracking when it is ripe. The ventilators should therefore be opened on all favourable occasions for the ingress of fresh air and the egress of moisture, care being observed that the cunning blackbird does not take tithe before strong nets are thought of. The temperature from this time forward will depend greatly upon external conditions. On cold nights it may descend to 40°, with a current of warmth on the pipes. On mild nights it will often range from 50° to 55° with a chink of air and without fire. Air should always be given at 55°, and gradually increased up to 70° on bright days, when back and front ventilators must be open. Where pot Cherries are grown for forcing there are, perhaps, none more delicious and more fruitful than the May Duke tribe. All of them do well and make most beautiful growth on the Mahaleb stock, which seems to adapt itself to pot work. In course of time every bit of wood becomes thickly studded with blossom-buds, and the trees make very little growth, but form complete pyramids of flowers, for which they are well worth growing independently of the crops of fruit which follow. One great advantage attending Cherry culture is the ease with which perfect trees can be manufactured in the open air, where, potted and plunged in a sheltered place they may remain until furnished with flowers and fit for forcing. Black Cherries, also very valuable and worthy of glass, do not submit so readily as the May Dukes to open-air preparation, unless the situation is very warm and extra favourable. Neither are they so well adapted for forcing; but for culture in a light airy house, corridor or the like planted out, or in pots, trained as cordons or pinched into bushes, they produce magnificent fruit, which can be kept safe from birds and wet until it is thoroughly ripe, a rare occurrence in the open air in this part of the country. Fire heat for these Cherries is not absolutely necessary, as the blooming period can be retarded until frost has passed away, but the command over a flow and return pipe may be found highly advantageous should the trees open their flowers in cold, damp, or foggy weather.

Eastnor Castle, Ledbury.

W. COLEMAN.

FRUIT GARDEN.

THE WILD GRAPE VINE.

THE origin of the cultivated Grape Vine has always been a matter of doubt. It is generally considered to be a native of Persia, whence it migrated to the adjacent countries. For ages it has been found purely in a wild state in the woods and hedges in various parts of Central and Southern Europe, particularly in Provence, Languedoc, and Guienne, in France. It differs from the cultivated Grape Vine in having smaller and more cottony leaves and very small berries. "The wild form of the common Vine," according to M. H. Vilmorin, "is pretty common in the central parts of France and very plentiful in the south. It grows in hedges or on the outskirts of woods, the plants being mostly from seed disseminated by birds. It is called Embrunche, Lambruche, both from the



Leaf of the Parsley-leaved Grape (*Vitis vinifera apiifolia*).

Latin *Labrusca* (a wild Vine). The bunches of fruit are generally small and the berries sour, and with little flesh. Each plant cannot be said to

have any fixed character in point of shape or colour, as it retains to some extent the characteristics of the particular variety of which it is an accidental seedling. The most vigorous plants are those in spots where they grow singly and have plenty of room, for if crowded they soon die from disease or exhaustion."

It would appear that Miller's Black Cluster Grape is not far removed from the wild Vine, the leaves being very downy and the berries small, but sweet and juicy. It ripens in September, and is commonly grown in this country against walls. The Claret Grape (*foliis rubescentibus*) is likewise a near relative of the wild Grape, and is one of the most ornamental of all Vines,



Miller's Black Cluster or Burgundy Grape.

as the leaves die off in autumn to a deep claret-red.

A distinct variety is the Parsley-leaved Vine (*apiifolia*), with deeply cut leaves, which give it an elegant appearance; hence it is a valuable ornamental climber. Loudon states that it has been cultivated for upwards of three centuries.

THEORY OF PRODUCTIVENESS.

THE subject of productiveness is many-sided, and fertility may be reached or augmented in various ways. For example, we may grow our way to it, and also cut our way to it, and if "J. S. W." chooses to reach it through growth and lose a good deal of time and space on the journey, why should he also feel called upon to deny that others reach the same goal in a tithe of the time or area through root and top pruning or their equivalents, such as fertile stocks, multiple grafting, &c.? To do so is like affirming that there is but one road to London. No one, so far as I am aware, has denied that fertility may be reached by the round-about way of growth, and the irresistible logic of facts is equally conclusive that a short way may be taken to it through pruning. The two methods, though so different, can hardly be said to be antagonistic, for they only reach the same end by different routes, or rather roads of different lengths, the knife on the roots or tops being as it were but the telephone that overleaps the deep miry ruts of slow maturity and enforces baby productiveness. If time is money in the production of animal food—and it is—it will need strong reasons to convince the readers of *THE GARDEN* that it is not equally valuable in the culture of fruit.

But it seems that not only our prunings, but our theories of growth and of fertility are at fault, and hence we are called to book for stating the axiomatic truth that growth and fertility seldom run in parallel lines, but in diametrically opposite directions, growth and sterility linking their forces together, while fertility represents a lack of vigour, a suppression of growth. "J. S. W.," on the contrary, asserts that they do run in parallel lines without any doubt. Indeed, in what sense? Assuredly not in that of being abreast or in the same place at the same time. The growth of most fruit trees must first be made

and matured before it becomes fertile or productive; hence, as an absolute necessity mere vigour of growth must precede fertility. "J. S. W.'s" 16-foot run of Nectarine branch (Vol. XVII., p. 510) and his 12-foot branches on his Royal George Peaches (p. 511) were made the year before, and so the fruit shown on these branches cannot be said to have run in parallel lines with their growth. No, nor was their mere growth the cause of their fertility, but rather the wide diffusion of vital force or semi-exhaustion incidental to the maturation of such long branches and the formation and filling of so many flower-buds. Lindley's theory

extension, and various transformations of the sap under the influence of light and air. But these checks and changes are widely different from the mere weakness that ends in exhaustion with which "J. S. W." appears to confound productiveness.

There is also a vigour of fertility as well as of growth, and no one has, so far as I am aware, contended that, given two plants equally well matured, the stronger of the two would not carry a finer crop than the weaker. This disposes at once of "J. S. W.'s" arguments drawn from his Victoria Nectarine, unpruned Peach, Apples, Vines,

least sure signs of the vigour that results in fertility, and more frequently lands it in sterility. It is difficult to conceive where "J. S. W." could have gathered that it was my plan to grow whip shanks and then condemn and remove them as gross shoots; on the contrary, my chief object has been to distribute vigour of growth so wisely and well and control it by such sure and certain methods, as to mature it into fertility. Nor does the fact that overcropping will wreck and ruin plants or deprive them of a crop for one or more seasons disprove the statement that the weaker a plant grows the more fertile it may become. "J. S. W." states that he never knew a Vine that was unfruitful because it was vigorous, *provided the wood was ripe*. The italics are mine, and this is tantamount to affirming that he never knew a vigorous Vine that was fertile refuse to fruit, for maturity is simply Grapes in plenty already in embryo, and the embryo Grapes are suppressed branches or transformed tendrils. Nor is barrenness the usual penalty paid for the overcropping of Vines, but rather such excessive fertility as to overwhelm the vital forces of the plant. Notwithstanding this, however, fertility reproduces itself as day follows night. Cultivators are, as a rule, too wise to overburden the carrying powers of their plants through reckless overloading.

But the main question is how to make and keep plants productive in the least space and in the shortest time. In determining this question the character of our climate and the length of our growing and ripening seasons must have serious consideration. Could we command perpetual summer or autumnal weather till all our growths were matured, it would matter less whether the latter were few or many, long or short; but in our climate these details are vital. Take the Victoria Nectarine, for example; its vigour of growth and the time occupied in maturing it are fatal to its successful cultivation in the open air, unless in a few specially favoured localities. The problem thus becomes narrowed in practice to the question of how much growth can we make fertile within the limit of our season; and it is here that root-pruning especially comes to the aid of the fruit grower in the open air by enabling him to cut short the period of growth and to hasten and lengthen that of maturation. Thus the pruner economises space. "J. S. W." points triumphantly to his extension trees laden with their dozens; but no practical man can run his eyes over his samples in Vol. XVII. without a feeling of anxiety for the future furnishing of those model trees. Most of us have either had such trees of our own, or seen them in the gardens of others, and found or noted that they became speedily skeletonised. I do not affirm that "J. S. W.'s" trees have become so; probably not, as most of us who ride a hobby can keep our seats, while many others would fall. It is a well-known law among trees that by throwing the reins of growth over their heads at first the strength of the trees gets into their heads and continues there to the weakening of their bases and centres, and one of the greatest practical difficulties is to recover and readjust this balance of growing vigour and furnishing material afterwards. Skilful pruning enables us to develop fertility in less time, to distribute it with greater regularity, to concentrate more of it in less space, and to render its products less fitful and more certain. It is based, as I have endeavoured to show, on sound theories supported by almost universal practice, and is not likely to be greatly modified, far less abolished, by any number of strong asseverations of non-pruners.—D. T. F.



Will Vine of the Cher, in France.

of increasing fertility through the use of fertile stocks has been already referred to, and it has been stated that the increase of fertility arose from a change in the character rather than through any augmentation of the amount of food. Were this not so, it is difficult to see how any mere accession to the food supplies could result in the production of flowers or fruits. Nor must anyone confound fertility with mere weakness, barrenness, or poverty; it is probably very largely the creation of a wider diffusion of vital force, superior diet, natural or artificial checks to further

Raspberries, Strawberries, Figs, &c. The latter example, however, is rather unfortunate. The Castle Kennedy Fig continues notorious for its vigour of growth and its relatively—to other Figs—shy bearing. For example, no one conversant with Fig culture would contend that it was or is as productive or fertile as the Brown Turkey or White Marseilles. At the same time no one denies that there is a vigour of fertility as well as of growth, though not a few would challenge the assertion that thickness of branch and fertility run in parallel lines. Mere thickness is one of the

— Notwithstanding the possible benefits derivable from the proper and timely pruning of fruit trees, it is still sadly true that outside the walls of private gardens, nurseries, and market grounds but little good and profitable pruning is done, while a large amount of injudicious pruning, judged by results, is perpetrated by nearly every one who possesses or has charge of a few fruit trees. People seem to think that if they go through the regular routine of annually cutting hard back all, or nearly all, growth made dur-

ing summer, they have done all that can be done to ensure fertility and keep the trees within proper limits. In this, however, they make a mistake, the outcome, first, of imperfectly understanding the laws that control growth and fertility, and, secondly, an idea that they can assist Nature by pruning young fruit trees so as to improve and balance their tops. I am, however, convinced that they would be gainers were they to desist almost entirely from pruning and allow their fruit trees to run their own natural course. Much less of the knife on the tops of trees and a little more of it on their strongest roots would go far to correct the effects of past malpractice and ensure fertility. I have lately had excellent opportunities of observing the behaviour of many of the fruit trees in the gardens about Beckenham, and without prejudice I must state that by far the best crops of flower-buds are there borne by unpruned trees, particularly pyramids and standards. An observant friend remarked to-day in connection with this subject that "the best show of blossoms occurs on fruit trees not specially cultivated for their fruit; as, for instance, on the Almond, which is grown for ornament, and seldom if ever pruned." Given strong maiden or two-year-old fruit trees, well furnished with branches, plant in good well-manured soil in moderately sheltered positions, and if allowed to grow on unpruned, my observations lead me to believe that the plants will, in general, assume a handsomer shape and acquire a greater degree of fertility in a given time than if they were ruthlessly pruned annually in the way usually practised. When the trees have attained the required dimensions all that need be done to them is simply to prune, and keep pruned, periodically, the larger roots, the object being to check exuberance of growth in the tops.

There is one very objectionable feature in connection with the winter close pruning of fruit trees—the cutting back of all growth on the branches that form the framework of the trees—and that is, that it has the effect of prematurely forcing the flower buds into blossom. By thus curtailing the main sap currents an unnatural flood is diverted to the flower buds, with the result just named. It has besides the effect of unnaturally exposing the blossom buds to occasional frosts and cutting winds. The flower buds of unpruned trees are usually much better protected than those of pruned trees because of the extra number and better disposition, protectively, of the branches and twigs.—GEO. SYME.

The Pear crop.—Judging from my own trees, those that gave us a heavy crop of Pears last year will not do so this season. I have two standard trees of Jargonelle Pear that produced very heavy crops last year, one of them especially, and on this tree there is not a single blossom bud, and on the other but very few. Both were over-cropped, and they had to bear the additional burden of the drought and suffered considerably. Another bush tree of an unnamed variety that gave me a heavy crop last year is almost entirely wanting in blossom. In a neighbour's garden a standard tree of Chaumontel which bore a heavy crop last year is destitute of blossom. At Gunnersbury Park there are some Pear trees that were root-pruned in the autumn of 1884; they are without blossom, though it was expected they would bear a good crop this season. Others of strong growth and not root-pruned are full of blossom. Perhaps the dry summer following the root-pruning proved too great a strain upon the trees that were root-pruned, and hence their barrenness. As far as I can see, the promise of a good Apple crop is very great, and Pear trees that bore sparingly in 1885 are also promising well for the coming summer.—R. D.

SHORT NOTES.—FRUIT.

Thinning Grapes.—This should not be done by unskilled workmen, who either rub the bunches with their hair or prick them with the point of the scissors. I have tried by way of experiment rubbing or rather touching a bunch with my hair, and the consequence was that in from three to four days' time rust appeared on the berries, disfiguring the bunch and making it useless for table purposes.—H. GADD.

WHO ARE THE EXTENSIONISTS?

"T. B.'s" appeal to Mr. Coleman (p. 299) will not, I think, elicit any favourable response; in fact, "T. B." is quite alone in his unqualified opposition to extension training, if we except "D. T. F." Mr. Coleman has described an extension-trained Peach tree of his own growing as "of two years' training and now carrying eight dozen Peaches evenly distributed, some of them on the tips of last year's wood." This he did in *THE GARDEN* a few years back. Not only that, but so favourably impressed was Mr. Coleman by the extension system in its fullest sense, that in an account by him of Peach trees at Floors Castle published in *THE GARDEN* (Vol. XVI., p. 329) he thus writes in praise of it:—

The progress of the trees trained upon the extension principle has been rapid and satisfactory, the vigorous short stems presenting the appearance of twenty years' growth, and the trellis in each house, 45 feet by 12 feet, being evenly and entirely filled with bright short-jointed shoots bristling with blossom-buds of the most promising character. I did not ascertain from Mr. Knight the number of fruit he took from each of these young giants; but, judging from the way in which he taxes the trees in his late houses, I conclude that he takes at least one fruit from every square foot of trellis. Advocates of the extension principle of training know that roots increase as rapidly as leaves and wood, particularly when they are placed in comfortable internal beds, in which, as in this case, thousands of healthy feeders rise to the surface ready to devour the good things provided for them through the growing season. Clean healthy trees must be formed before they require feeding, and here Mr. Knight has displayed his skill by selecting maiden trees that *have never been shortened back, by keeping his knife in the sheath, and by the timely removal of all surplus shoots with the finger and thumb.*

So much for "T. B.'s" "stretch of imagination" required to include Mr. Coleman amongst us! These trees, I may mention, are to be seen now, for anything I know, and are among the first in the country trained on the extension principle to its fullest extent. Quite probably Mr. Coleman has, or has had, trees such as "T. B." describes, and he may have practised restrictive methods of pruning at one time, like myself and others, but he is open to conviction, and knows a better system when he sees it. Singularly enough, the best testimony to the value of the system is that given by "T. B." himself in the *Gardeners' Chronicle* (vol. xiv., p. 276), where he is lavish of his compliments on a Victoria Nectarine at Lambton. "An ordinary small plant from the nursery," he says, "five years since now completely fills an extent of trellis 36 feet in length by 14 feet in height." This is still, I suppose, to the fore to show the *bona-fide* character of "T. B.'s" opposition to extension now and the genuine nature of his convictions. "T. B.'s" promise of a prize for extension-trained and cropped Peach trees is to the point, and I shall not let him forget it. If the tree is to be a maiden planted next autumn, notice ought to be given at once, as the maiden must be trained from the graft accordingly. I have observed lately that "T. B." has only one shape of "maiden tree" in his mind, but I have more than one, and will give the hint to intending competitors when the prize is offered. "T. B." states that "his own practice has nothing to do with the subject under discussion." By what right, then, does he constantly criticise the practice of others, and on what foundation does his teachings rest? The extensionists have done their best to make their views clear to have kept nothing back, but "T. B.'s" past pruning practices will not bear revealing, for the probable reason that they would show he was not, when in practice, even one of the moderate pruners with whom he likes to associate himself now, but a hard pruner. It cannot be said that his practice has "nothing to do with" the subject; it has as much to do with it as mine or the practice of anyone else, but it is a case in which present precept and past practice are in conflict, and therefore best concealed.

J. S. W.

Cherry Plum for stocks.—Mr. G. F. Wilson is quite right about *Prunus Myrobalana* being a good stock for Plums. I wrote my notice of the Cherry Plum in answer to its use as a covert plant, but have long known it to be the best stock for

choice Plums, Apricots, and ornamental varieties of double Peach, &c. Had I been writing all I knew about it, I should have mentioned that at a house near here many years ago, in a warm sheltered corner, a double-flowered Peach was planted grafted on the Cherry Plum. The house was uninhabited for some time, during which time the head of the double Peach was blown off and the stock left standing; the result was a free growth of the stock at its own sweet will, and now a charming tree some 35 feet high, beautiful to see in flower, but more so from the pendulous form it has assumed. Being placed in the angle of two high buildings, the branches weep to the ground, and in favourable seasons I have seen good crops of fruit on it the size of a good Green Gage, with a beautiful amber-pink cheek and most excellent flavour. It is well worth a corner, say at the end of a stable or barn where it can get a south-west aspect, for the sake even of its fresh green foliage as a screen. Being a very early flowerer, it needs a warm sheltered spot and plenty of sun to set its fruit, which is very good to eat, preserve, or putting into tarts.—H. D. PALMER, *Nayland, Colchester.*

Treading among Strawberries.—I cannot remember a season when this has been more needed than at the present time, the long-continued frost, with occasional variation in the shape of snow and partial thaw, having so loosened the hold of young autumn-planted Strawberries as to expose in many instances a portion of their roots to the air. As young plants set out solely for the purpose of fruiting in a year's time are not, as a rule, mulched, the first period of dry weather must inflict permanent injury if they are not pressed into place. If not already done, advantage should be taken of a day when the surface soil is fairly dry to firmly tread not only round the crowns, but, in the case of light soils at least, over the whole of the ground between the plants. Treading the surface on porous soils materially helps to ward off drought and protects the surface fibres against the effects of hot sun. The harder the surface soil is made the greater chance is there of the plants remaining in a healthy fruitful state.—J. C. B.

ORCHIDS.

ORCHIDS AT THE WOODLANDS, STREATHAM.

AMONG the largest and most important Orchid collections now about London is that which Mr. R. H. Measures has formed during the past few years in his garden at Streatham, a neighbourhood wherein one may find perhaps more fine Orchids in private gardens than in any other suburb. The Woodlands is a well known spot and of historic interest, for here is still the famous Russell House, once the residence of Lord William Russell prior to his trial and execution some 200 years ago. Until recently The Woodlands was joined on the south by the old common of Tooting Bec. The house was built some 150 years ago, but since Mr. Measures has possessed it, he has considerably modified it. Like most old places, it contains some grand old trees, among them being a decrepit, yet picturesque, old Mulberry now supported by crutches like the celebrated Mulberry at Syon. There is also a magnificent Turkey Oak on the lawn with a huge spreading head and a bole fully 10 feet in girth. There are numerous old Pear and Apple trees which apparently formed part of an old orchard. Now the place is quite a village of glass houses, there being no fewer than twenty-seven houses or compartments, most of them being devoted to a particular class of Orchids, while others are taken up with plants of a less common character. There is besides the conservatories adjoining the house a most charming fernery containing rocks, miniature caverns, and dripping pools—a delightfully refreshing house to enter after making the rounds of the labyrinth of Orchid houses.

Unlike a good many other Orchid collections of recent formation, that at The Woodlands is so rich in specimen plants, that one would think its owner had begun Orchid culture twenty or thirty years ago. In some new collections one sees little beyond small imported plants, but Mr. Measures has purchased largely of established plants and grown them on to the massive specimens which one sees there at the present time.

In the construction of his Orchid houses Mr. Measures has brought his long engineering experience to bear upon the work; hence the houses embody numerous contrivances quite out of the ordinary run of hothouse buildings. First he set about overcoming the difficulty arising from drip from the roof—a defect in most hothouses. It is generally remedied by fixing small zinc gutters along each rafter, but Mr. Measures has designed a rafter having unseen parallel grooves cut in the wood itself, and this effectually carries off every particle of water arising from condensation. A diagram showing a section of one of these rafters we will give at some future time, as we think that other Orchid growers might take a hint from it. Another out-of-the-way feature in these houses is the stages, which are as imperishable as could be made. They consist wholly of iron and concrete. The necessity of some material more durable than wood for plant stages occurred to Mr. Measures long before he took up with Orchids, so he devised a plan, the principle of which is carried out in the stages here. Bars of angle iron resting on ornamental supports form the sides, and at right angles with these are placed bars of T iron the width of the stage. These are placed about 8 inches apart, and the intervening spaces are filled with concrete, which in this particular case is composed of burnt ballast and cement. This forms

an imperishable stage proof against vermin, fungi, and all other defects which accrue from wood. This is such an important innovation in Orchid-house building, that we intend shortly to give diagrams also of these stages. That they are perfectly adapted for Orchid culture is exemplified by the health and vigour of the Orchids here of all classes. Beneath the stages there are watertight troughs, and above these are the rows of pipes, while the bottom ventilation of the houses is effected by ventilators opening directly opposite the pipes, so that the incoming currents of air take up warmth and moisture in their ingress. On the outside of each ventilator there is a sheet of perforated zinc which breaks the draught before it reaches the interior of the house. The houses are mostly all low spans, a form considered the best for Orchid culture, and at the present there is one in course of completion which embodies every improvement which has occurred to Mr. Measures. The houses being so numerous, the gardener is enabled to devote one or more compartments to particular genera or classes. The

Odontoglossums are by themselves; so are Cattleyas and Lælias, Cypripediums, Phalenopsis, Dendrobies, Vandas, and Aerides. One house in the centre of a long range is set apart as a show-house; that is, flowering Orchids are taken there to show themselves and prolong their flowering season. When we saw this house the other day it was beautiful beyond description, there being all kinds of Orchids interspersed in a tasteful way with other flowers and foliage. There were long rows of *Cattleya citrina* (a favourite Orchid grown here by the hundred) which gave out a delightful perfume from their big golden flowers; Dendrobies, with stems wreathed with bloom, depended from the roof or peeped out from amidst the foliage. Huge specimens of *Cœlogyne cristata*, like mounds of snow, were just in perfection; and so was a gigantic specimen of *Dendrochilum glumaceum*, the largest plant we have seen. It was carrying nearly a hundred of its drooping slender spikes, rendering it a lovely object.

The Odontoglossum houses are crammed with

flowers on seventeen branchlets. Eleven months have elapsed since this spike first developed. The *Masdevallias* are grown with the Odontoglossums, and so are the large growing Cymbidiums, than which it would be difficult to find finer specimens. Along the centre of one house there is a row of gigantic specimens, each in bushel pots placed in elevated vases, over the sides of which the long recurving foliage of the plants fall gracefully. The species are *C. Lowianum*, *Hookerianum*, *giganteum*, *eburneum*, and *Mastersi*. The Lowianums are the finest plants, and one of them has produced four long spikes, bearing fifteen, nineteen, eighteen, and twenty flowers respectively. Last year the same plant produced seven spikes, carrying 158 flowers. The plants are grown in loam, for being strong feeders they require a deal of sustenance, and much attention is paid to watering.

The Cymbidium house roof is hung with long rows of *Sophranitis coccinea* in shallow pans, *Cattleya citrina* and the Chimæroid *Masdevallias*, all of which seem to thrive admirably in company. Cattleyas and Lælias are a great feature here, and one may see from the labels that the collection of them is extremely rich. We need only mention that one may see here such choice things as the white *C. Skinneri*, *C. Wageri*, *Reineckiana*, *C. labiata*, *Pescatorei*, *calumnata*, *L. Perrini alba*, and a complete series of *Lælia anceps* varieties, including the true pure white and some grand specimens of *Dawsoni*. Of *L. purpurata* there is probably a finer series of varieties than in most collections. It contains all the best, from huge plants of the true *Williamsi* to the new *Measuresiana*, which is midway between *purpurata* and *elegans*. The Odontoglossum vexillarium collection is grown with the Cattleyas, and very happy they look under the treatment, and in the same house the new



Rubus deliciosus (p. 337).

plants, but just at the time of our visit there were not many in bloom, but crowds of spikes were developing which foretold a delightful show of bloom from the Alexandras and Pescatoreis shortly. One can tell by the labels that the owner of this collection is fastidious as regards varieties, for they indicate the choicest kinds. Two very distinct and handsome species were in bloom; these were *O. facetum* and *sceptrum*. These are generally considered to be either identical or very similar, but the plants being side by side one can see how widely they differ. *O. sceptrum* is by far the finest, the flowers being larger and the colours richer. In both the ground colour is white and the blotches a coffee brown, but pale in *facetum*, which is also distinguished by being more spotted at the base of the sepals. The plant of *O. sceptrum* was carrying two spikes, each with fourteen flowers. Another remarkable Odontoglossum in bloom was a superb variety of *O. maculatum*, darker and finer even than *Donniamum*. A specimen of *O. Edwardi*, with a long branched spike, was carrying no fewer than 168

Angræcum Leonis is grown. Several plants were in flower, and, judging by what one saw, it seems to greatly improve and becoming nearer to the description and drawings of it that were issued at the time it was introduced. It will no doubt turn out to be a first class Orchid. Mr. Measures, who grows numbers of it, finds that it wants to be kept comparatively wet and must be potted in Sphagnum and crocks only.

The chief feature of the place at the time was the collection of *Cœlogyne*s. All the forms of *C. cristata* were to be seen, but none was so fascinating as a large panful, about 18 inches across, of the rare white variety (*alba* or *hololeuca*).

The plant of the white *Cœlogyne* is the largest we have seen. It has no fewer than twenty-one heads, and it has been divided also.

The Phalenopsis house has been built with a view to the requirements of this particular class. The collection of species and varieties is, we should say, complete, and some of the plants of *P. Schilleriana* are really fine, but most of the

plants are only just recovering from a check they received some time since, caused, Mr. Measures believes, by being watered from a new galvanised zinc cistern, the water in which no doubt contained something injurious to the plants. As soon as the plants were watered from a different source the plants began to recover, so that the supposition that the evil was due to the new cistern was correct. In the same house we saw plants of that little gem *Saccolabium Hendersoni*, and a long row of plants of *Angraecum citratum* were bristling with graceful flower-spikes, wreathed with ivory-white flowers. Such things as *Bolles* and *Pescatoreas*, perhaps the most difficult of all Orchids to grow successfully, find a congenial home in the *Phalænopsis* house at the back part where the light is somewhat diffused. The next house is devoted to *Dendrobiums*, which have representatives of all the finest kinds, and further on is a house occupied by *Vandas*, which are one of the chief features of the garden. There are grand specimens of such as *V. suavis*, *tricolor*, *Batemanii* and *Lowi* all in the rudest health. There is also in the *Vanda* house a fine specimen of that handsome variety, *Ansellia africana nilotica*, which is still so rare. It exists in very few collections, and those are fortunate who possess a plant of it. Another house which impressed us much was that devoted entirely to *Cypripediums*, of which there is a large quantity of plants of all sections, from the commonest to the rarest. There was a specimen of *C. villosum* bearing forty flowers of a yellowish tinge almost identical with the variety known as *aureum*. There were also in flower *C. Dominii*, *C. Hartwegi*, one of the noblest of the *Selenipedia*; and *C. politum*, one of Mr. Warner's crosses, we believe, obtained by intercrossing *C. venustum* and *barbatum*. These are a few of the more salient features of this grand Orchid collection, which every day of the year contains something to admire.

Cattleya Lawrenciana.—A spike of a grand variety of this new Orchid has been sent to us by Mr. Hill from Lord Rothschild's garden at Tring Park. It is the finest coloured form we have yet seen. The flowers measure 6 inches across; the sepals and petals are of a deep rose-purple, while the lip, which has a lobe of circular outline and beautifully frilled, is of an intense amethyst, merging into a pale lemon-yellow in the tube. Mr. Hill says: "This *Cattleya* appears to be of easy cultivation, but our experience is that an ordinary *Cattleya* house is not the place in which we grow it. We have tried plants in our *Trianae* house, and also in a very light house in which we grow *Calanthes*, and from the latter treatment the best results have been obtained, and we intend to place all our plants in future in the *Calanthe* house."

The Orchid houses at the Royal Exotic Nursery, Chelsea, were never perhaps so gay with bloom at the beginning of April as this year. The long spell of wintry weather was not after all an unmixed evil, for it retarded the incipient flower-spikes a good deal, so that instead of the flowers opening in fog time they have the benefit of the bright weather under which one can see and enjoy them so much better. The London fogs have a deal to answer for as regards Orchid culture, and never was it more apparent than this season. In the great *Cattleya* house at Messrs. Veitch's one may see hundreds of spikes of *Cattleya Trianae* which were nipped in the bud, and many other Orchids were similarly damaged. Now, however, all is brightness, and in passing through house after house one may see representatives of every important Orchid whose flowering time is the present. Intermixed with crowds of sorts that one sees in every collection, there are to be found here many of unusual interest. Among the hybrids which may be said to have their headquarters here we were fortunate in finding a new one that had just opened its flowers. This was *Cypripedium leucorrhodum*, a most beautiful variety obtained by intercrossing *C. Roezli* and *C. Schlumi album*. We get in this cross

exact intermediate characters, the large flowers with long attenuated sepals, big pouch, and very broad under sepal. The whole flower is the colour of *Schlumi album*, a sort of waxy white flushed with rose, the pinky tinge being most conspicuous on the pouch and margins of the sepals. The growth is as noble as that of *Roezli* itself. We look upon this as one of Mr. Seden's best efforts. Another acquisition in the way of *Cypripeds*, and one which may not be inaptly called the sister of *leucorrhodum*, is *Sedeni candidulum*. Of all *Lady's Slippers* this comes nearest to that beautiful hardy North American kind *C. spectabile*, which hybridists have for years tried their utmost to cross, so as to get its lovely colour into some of the tropical kinds, and, singularly enough, they have got the colour in a roundabout way, so that they do not now need to bother about hybridising *C. spectabile*, except perhaps to infuse its hardy character into its tender relatives. The *Sedeni candidulum* flower is so much like that of *C. spectabile*, that were it not for the different foliage we should have been deceived in supposing it to be *spectabile*. There is a great future for both *leucorrhodum* and *candidulum*, and we predict that in a few years hence they will oust the other hybrids of a similar stamp. A good many other *Lady's Slipper* Orchids beyond those of the common type may be seen in flower, but a visit to see these two only will repay any Orchid lover, who will at the same time be able to compare the merits of the original *Sedeni* with its offspring and too near relatives, such as *cardinale*, *porphyreum*, and others.

THE *ODONTOGLOSSUM* houses contain much that is noteworthy; besides the best forms of *O. crispum* and great branching spikes of *O. Pescatorei*, one may see grand varieties of such kinds as *O. Halli* with long arching spikes, and less common species, as *O. ramosissimum*, *Edwardi*, and *Cervantesi decorum*. Then those in search for the curious may perhaps be gratified in seeing that microscopic *Masdevallia* (*M. simula*) and several others of similar stamp. The same house contains, moreover, the golden-flowered *Oncidium concolor*, a most beautiful Orchid not half plentiful enough.

DENDROBIUMS of all kinds abound; as soon as we get in the house a powerful odour of medicinal rhubarb from the long stems of *D. macrophyllum* meets us, and on either side hang in graceful profusion drooping wreaths of such delightful plants as *D. Wardianum*, *Devonianum*, *luteolum*, *crystallinum*, *Pierardi*, *crassinode*, *Findleyanum*, and that exquisite sort, *primulinum giganteum*. There are also *Cambridgeanum*, *aggregatum*—quite lumps of golden bloom—the rarely seen *albo-sanguineum*, and its bigger neighbour with similar flowers, *D. Dalhousianum*.

CATTLEYAS are likewise in profusion, but not so plentiful as they would have been had not the fogs levelled the spikes. The new *C. Lawrenciana* has established its reputation here already as a good introduction; several forms of it may be seen, dark and light, but all beautiful. One spike carries nine flowers. Those who thought it too near *Skinneri* may see here the two side by side. The differences need not be pointed out, as they only resemble each other in colour. One has a long spike, the other, *Skinneri*, has a crowded cluster. There are a few stragglers of *C. Trianae*, and these will hold out until the *Mendeli* varieties, which are just beginning to bloom, come in full force. Oddly enough, there is a big plant of *Lælia anceps* in full bloom now, not a weakly, out-of-season plant, but strong and a fine variety. Some would give it the name *serotina*.

Orchids at Woodbank, Dumfries.—The following are among the many good Orchids now flowering in Mr. Scott's collection at the above named place, viz., *Cymbidium Dayanum*, with seven flowers, fine specimen; *Dendrochilum glumaceum*, fifteen spikes; *Odontoglossum Rossi majus*, of the *rubescens* type, sixteen flowers, a grand plant; *Dendrobium thyrsiflorum*, with eight spikes; *Dendrobium Wardianum*, fine specimen, with over one hundred flowers, and two other special varieties with flowers $4\frac{1}{2}$ inches across, lip deep purple and broadly tipped sepals and petals; *Cymbidium eburneum*, with twelve flowers; and a fine variety of *Cypripedium Harrisianum*, with thirty flowers; *Lælia superbiens*, a grand specimen with seven growths, has had a spike with twenty

flowers; *Cypripedium villosum* (Rollisson's variety), with thirty flowers. The *Vandas* are specially fine; among them may be seen the finest lot of the *Dalkeith* variety in the country; also *Veitch's* variety of *suavis*, as well as Rollisson's *Vanda suavis*; there is likewise a grand plant of *V. Lowi*. Mention must be made, too, of some half-dozen huge specimen *Cypripedium Dominianum*, measuring some 4 feet or 5 feet in diameter, grand specimen; *C. caudatum roseum*, with twenty growths. The locality suits *Odontoglossums*, judging by the collection here, which is in rude health, the plants having large bulbs fast pushing their strong, sturdy spikes.

TREES AND SHRUBS.

A ROCKY MOUNTAIN BRAMBLE.

(*RUBUS DELICIOSUS*.)

THE most ornamental Brambles are those found in the western part of North America, on the Rocky Mountains. Amongst these there are three really first-rate garden shrubs. Their names are *R. deliciosus*, *nutkanus*, and *odoratus*, and to these might be added a fourth, *R. spectabilis*, an elegant shrub with dark rosy red flowers. The queen of the group, and, indeed, of all Brambles, is unquestionably *R. deliciosus*, of which the woodcut on the preceding page is a good illustration. It is one of the most delightful Brambles imaginable, and it was a fortunate thing for lovers of hardy shrubs when Mr. Thompson, of Ipswich, managed to import seeds of it and raise seedlings from them about five-and-twenty years ago. It was known so long ago as 1822 by botanists, and Torrey, when describing it, furnished such a glowing account of it and gave it the name *deliciosus*, that we were impatient to get it on this side of the Atlantic. Speaking from our experience of it, in the neighbourhood of London it is a perfectly hardy shrub. At Kew, in light soil, it is grown as a standard as well as against a wall. It makes a gracefully spreading open bush when planted in the open; and when against a wall, the branchlets hang gracefully away from it as if they resented restriction. It flowers about the middle of May against a wall, and a little later as a standard bush. When in bloom there is no shrub that excels it in elegance and beauty, the flowers being snow-white, exquisite in form, and borne on slender sprays. Against a wall it will grow as much as 8 feet high, but it keeps dwarf as a standard, seldom rising above 4 feet or so. Now that it is a stock plant in most good nurseries, it should become more common than it is. Those who get plants of it and give them a fair start would be hard to please indeed if they disappointed them.

W. G.

Cornus florida.—The Dogwood is considered to be the handsomest species of the genus, while Mr. Barry, of Rochester, N Y speaks of it as one of the most valuable trees for ornamental planting, ranking next to the *Magnolia* among flowering trees, and only second to the scarlet Oak (which it almost equals) in brilliant foliage in autumn. The flowers of this kind are small and gathered in a compact cluster, but each bunch is subtended by four pure white leafy bracts, which give it the appearance of a blossom more than a couple of inches in diameter. As it flowers freely, a tree of this species when thickly studded with blossoms well deserves the eulogiums passed upon it. This *Cornus* is a native of North America, and forms a small tree about 20 feet high, flowering during April or May. It is very seldom met with in this country, probably owing to the fact that it is rather particular as to soil and situation, succeeding best in a somewhat moist spot. Though a comparatively rare plant, it was introduced as long ago as 1731.—H P.

Fitzroya patagonica.—Mr. Webster mentions a specimen of a *Fitzroya patagonica* growing at Cole Orton some years ago. He will be pleased to know that it is still alive. When I found the tree in an

unfrequented part of the grounds it was smothered by tall Laurels, and partly under the shade of a large Lime tree. I have had the Laurels gradually cut away from it, but the bottom branches have been killed by being crowded. It has stood the recent severe weather well, although shortly before it was opened up still more to allow it more room. The top part is studded with the old cones, and I see the tips of the branches have a drooping tendency, as remarked by Mr. Webster. The plant is well sheltered, but is growing in very poor soil; it has made four leaders; the height is about 15 feet. I find the branches have been cut back at some time, but have broken well. I have no doubt that if this plant had been planted in a better position it would have been a good specimen by this time.—G. C. MAYNARD, *Cole Orton*.

PYRAMIDAL CONIFERS.

The following list comprises a selection of the best conical-shaped Conifers which may be useful to those who desire to plant such things during the present planting season. They have a use in the garden, and an important one, where care is taken to arrange them well. This, however, is an art which cannot be described, and it need only be said that many pleasing combinations can be made with them in association with shrubs and small trees of spreading growth.

BIOTA ORIENTALIS ELEGANTISSIMA.—This variety of the Chinese Arbor-vitæ forms a small fastigate-habited specimen, with short stiff branches, and foliage deep golden during the summer months, but of a bronzy tint during winter. It is a very pretty golden Conifer, and can be struck from cuttings with more freedom than any of the other varieties of the Chinese Arbor-vitæ.

CUPRESSUS LAWSONIANA ERECTA VIRIDIS.—This is one of the most valuable of fastigate Conifers, being a variety of Lawson's Cypress, in which, besides the tapering habit of growth, its foliage is of a brighter green at all seasons than the ordinary form. This variety originated in Mr. Waterer's nursery at Bagshot, and owing to its distinct and handsome appearance it rapidly became popular. It is the easiest of all the varieties of Cupressus Lawsoniana to strike from cuttings, for in this respect there is a great difference among them.

CUPRESSUS LAWSONIANA STRICTA.—Instead of the unusually bright green foliage of the preceding this is of the same tint of the common form, and is apt during the winter to acquire a brownish tinge. It is of a stiff, erect habit of growth, and in no way so ornamental as the last.

CUPRESSUS SEMPERVIRENS.—The winters are frequently too severe for this South European Cypress, which in a young state forms a fastigate growing specimen, with the branches densely arranged. It is of quick growth till it reaches a height of a dozen feet or so, and unless injured during exceptional winters forms a distinct and handsome plant.

JUNIPERUS COMMUNIS HIBERNICA.—The well-known Irish Juniper is a variety of the common kind, in which the branches all take a direct upward course, so as to form a living column. It is a pretty and distinct Juniper and does well under most conditions, unless in too hot and dry a spot. A sub-variety of the above, known as *compressa*, is of rather more conical shape, and at most attains a height of 1 foot or 2 feet—in fact, forming a pretty miniature shrub.

JUNIPERUS EXCELSA STRICTA. The Crimean Juniper is distinguished by the peculiar greyish green tint of the whole plant, and in the variety *stricta* this character is still more prominent, added to which its growth is more spire-like, and it does not attain the same dimensions as the normal type. Being of such a light tint, it affords a direct contrast to the deepest hues of many of its allies. It does not strike at all well from cuttings, and is usually grafted on young seedling plants of the common form.

RETINOSPORA LEPTOCALADA.—Regarding the origin of this plant there has been a good deal of confusion, but it seems now definitely settled that it was raised in France from seeds of Cupressus thyoides, and certainly its appearance would tend

to confirm this. It forms a pretty little shrub, closely pyramidal in habit and of a pleasing shade of dark bluish grey, very effective at all seasons. Like most of the Retinosporas, it strikes readily enough from cuttings.

TAXUS BACCATA FASTIGIATA.—The Irish Yew is too well known to say anything further regarding it, being the most frequently planted of all erect growing Conifers, and largely employed as a memorial tree in cemeteries. There are some three different variegated forms, viz., *argenteo-variegata* and *aureo-variegata*, in which the leaves are striped with white and yellow respectively. In *aurea* the young growth is suffused with gold.

TAXUS BACCATA ERECTA.—This is but an upright form of the common kind, as the leaves are two-rowed, and not scattered on the branches, as in the case of the Irish Yew. It is a distinct plant, but with the fastigate character much less developed than in the preceding.

TAXUS ADPRESSA STRICTA.—The small-leaved *Taxus adpressa* is a low, dense growing bush somewhat squatly in habit, but in this variety the whole of the branches take an upward direction, and form a plant of narrow outline. It is rather slow in growth, which will perhaps account for its being seldom seen. The *adpressa* Yew is quite as hardy as the common kind. ALPHA.

EDINBURGH SPRING SHOW.

THIS took place in the Waverley Market on Wednesday and Thursday last. It showed a slight falling off from that of last year, but the exhibition of last year was exceptional, and the past season has been a most disastrous one for both outdoor and indoor plants. The latter have been slow to bloom, there having been so little sun. As usual, the space round the band-stand was occupied by Rhododendrons, in the competition for which Laird & Sons had it all their own way. The Azaleas were good, and the formal-looking cone-shaped methods of training seemed to be giving way to freer and better growth, while numbers of new colours were introduced. A large collection of Cinerarias and *Dielytras* produced a pleasing amount of variety, while of course the commoner spring flowers were present in great force. Of the different kinds of Narcissus there was not a large show, but Tulips were in comparatively good condition. The Hyacinth display was a good average one. Among nurserymen the Messrs. Laird took the first place with a large table of plants arranged for effect. To a large extent the flowers consisted of Azaleas fringed and interspersed with Ferns, Heaths, and Lilies. Beside it was an amateurs' table, much smaller, but very pretty. Mr. Grossart, Oswald Road, always carries off the awards in this department. Messrs. Methven and Son had a very attractive table, of which a distinctive feature was the display of Japanese Maples and Ivy; Ireland and Thomson exhibited a selection of Conifers, and Dicksons and Company had an attractively arranged table of plants at the eastern end of the Market. A very pretty little table of hardy and half-hardy plants was that shown by Mr. Sinclair, East Linton. Messrs. James Dicksons and Co. had a good show of spring flowers, and Messrs. Seth had an attractive table of hothouse plants very tastefully arranged. Of recent years several nurserymen have given considerable attention to the cultivation of small hardy indigenous plants, or such as will easily grow in protected places. Of these there was a capital display, the best being from Mr. Robertson Munro, who showed a good assortment of Primulas, Auriculas, and Polyanthus. Among Orchids, Messrs. Thomson and Sons, Clovenfords, had *Cattleya Lawrenceana*, a charming species, and there was a small, but attractive, collection of cut Roses and Rhododendron trusses, some fine bouquets, and a little fruit.

Severe hailstorm in Cornwall.—On Wednesday, 31st ult., West Cornwall was visited with the most severe storm of hail, accompanied by terrific thunder and lightning, I ever experienced. Many of the hailstones measured from 2 inches to 3 inches in diameter. The storm appeared to travel from west to east, and to have been very local in its effects,

making fearful havoc with the glass in many gardens, while others but half a mile off escaped almost unscathed. The Scilly Isles were the first to experience the destructive character of the storm, large quantities of glass being destroyed in Mr. Dorrien-Smith's gardens at Tresco, and all kinds of vegetation, both indoors and out, suffered greatly. The most complete wreck, however, was experienced at Porthgidden, the beautiful seat of Canon Philpott on the banks of the Fal; here most of the glass in the west side of the mansion was demolished, while the glass structures, including vineries, Orchids, and orchard houses, Melon pits, frames, conservatory, and plant houses, are shattered to pieces, the plants and crops inside being much injured, especially Melons, Cucumbers, and early Vines. Spring bedding plants on the terraces were beaten into the ground, the soil being pitted all over as if myriads of rifle balls had been shot into it from above. Many evergreen shrubs are cut to pieces, and some of the leaves, especially those of *Aucubas*, pierced as if riddled by shot. It will take many weeks to repair the damage to the glass, while the effects upon fruit trees, plants, &c., will be felt for years. Much of the glass smashed was Hartley's patent, some of which I measured being three-sixteenths of an inch thick, and a great part of the rest twenty-one ounce of good quality. Men upon the spot at the time say that the whole destruction was wrought in from five to six minutes.—SANGUINEA.

NOTES OF THE WEEK.

Narcissus calathinus.—A flower of this rare species has been sent to us by M. D. Guiheneuf, of Nantes. It is very different from the form of *N. triandrus* which passes under the name of *calathinus*. The flower is twice as large as a *triandrus*, and the cup is particularly broad and deep and crenulated at the edges. The colour is ivory-white. We do not remember having seen this lovely *Narcissus* in bloom before. Mr. Wolley Dod, to whom we have sent it, may be able to enlighten us upon it.

Double crimson Primrose.—Mr. Hartland sends us blooms of this beautiful variety, which is admired by all, but grown by few, on account of its capricious character in gardens. Our experience is that in a collection of Primroses it is the first to vanish, and that without much warning. It does not seem to like our hot summers. Its flowers are very double and exceedingly rich in colour, which is a deep velvety crimson.

Rudgea macrophylla.—This handsome stove shrub is in bloom in Mr. B. S. Williams' nursery at Upper Holloway, the only place in which we have seen it except at Kew. It belongs to the same family as the *Ixora*. It is a dwarf plant with large leaves borne on stout erect stems, which are terminated by a dense cluster of pure white flowers so thick in texture as to resemble being cut out of cardboard. It lasts a long time in bloom, and is altogether a first-rate plant.

Alpine Primulas in flower.—The following list comprises most of the species of *Primula* now in flower in the rich collection in Messrs. Backhouse's nursery at York: *P. Allioni* (new), *amena*, *Auricula marginata*, *Balbisi*, *biflora*, *cashmerensis*, *ciliata* *purpurea*, *c. coccinea*, *Clusiana*, *crenata*, *floribunda*, *glaucescens*, *marginata*, *pubescens*, *pulcherrima*, *purpurea*, *spectabilis*, *Venzoi*, *viscosa*, *v. minor*, *v. nivalis*, and *Wulfeniana*.

Myosotidium nobile.—We hear from Mr. Loder, of Floore, Weedon, that he has several specimens of this rare New Zealand plant in flower. It has always been considered a most difficult plant to grow, but Mr. Loder says that he has no secret to tell concerning its treatment, and he has never seen such a large healthy plant of it as that which he has in bloom. He finds that it is not quite hardy; on the contrary, it requires a cold frame and protection from frost. It is called *Myosotidium* because its flowers resemble those of the *Myosotis* (*Forget-me-not*), but are larger and produced in a tall dense cluster. The colour is blue. The leaves are broad and of a shining deep green.

Crocuses in the Grass in St. James's Park.—It is with pleasure we call attention to the fine

show of Crocuses in the Grass in St. James's Park at the present time, and their beauty, notwithstanding the severity of the winter, is greater than can be imagined. The principle adopted is that of dotting them about in natural-looking groups in the Grass, pretty much as they occur in a wild state, and the effect is very good. This is indeed, we think, the most distinct advance that has been made in our parks of recent years, and the only matter for regret is that such a contrast should be afforded by the bare black look of the borders and beds, which might themselves be as full of life as the Grass is now with Crocuses.

Primula Allioni.—This is one of those exquisite little alpine plants which everybody admires because of the smallness of the plant and the relatively large size and brightness of its flowers; but as sent to us from Messrs. Backhouse, of York, the flowers had not the same brilliancy as we have seen on the Alps. This, of course, may be due to difference of climate. It is one of the loveliest of the Primroses, and Messrs. Backhouse would do good if they could tell our readers how to grow it, and other species, as well as they do themselves.

Crystal Palace, Sydenham.—It will be seen by an announcement in our advertising columns that an addition has just been made to the departments of the Crystal Palace School of Art, Science, and Literature, in the form of a division, embracing the tuition of pupils in the improvement of estates both artistically and economically. This will include landscape gardening and works incidental thereto, such as architecture and engineering. In this department Mr. Milner will, as heretofore, be the principal.

Saxifraga oppositifolia pyrenaica subsp. —This is a long name for what is the finest variety of the Pyrenean Saxifrage that has yet been found. It originated some years ago in Messrs. Backhouse's nursery at York, whence we have received a plant. When we say that it surpasses the maxima variety of *S. oppositifolia*, one may suppose what this new sort is like. It has larger flowers, and the colour is a very deep rose-pink. It grows in cushion-like tufts, which, when studded with flowers, as at this season, form a charming sight. Large glowing masses of it may now be seen in the rock garden at the York Nurseries; indeed, to see these rosy Saxifrages to perfection they must be planted in masses sufficiently large to give a glow of colour that is conspicuous at a distance.

Essex Daffodils.—I send you a gathering of Daffodils from my garden here at Colchester. I consider them the most glorious flowers of spring, and I have never known them finer than this year, nor in such great variety. *A. pseudo-Narcissus plenus* is a glorious flower and stately looking growing amongst *Pæony* shoots and *Delphiniums*, with here and there a Primrose, producing such a harmony of colour as to be not easily forgotten. But *pseudo-Narcissus plenus* must not be confounded with the close trumpeted form of *Telamonius plenus*, being quite different in growth, taller, and with broader foliage. Rip Van Winkle with me is a very fine yellow and a great favourite. My friends always choose it for a button-hole. I am surprised to hear of it turning green in some gardens. This must arise from being badly treated, kept out of the ground too long, or not properly ripened. *N. Telamonius* and others come up green sometimes if under adverse circumstances. *N. cernuus flore-elegantissima plena* is, to my mind, the most beautiful of all double Daffodils; it is so chaste, much more so than *cernuus bicinctus*, which has the divisions of the perianth in duplicate. What a pity it is so rare! I wish I had more of it.—TAYLOR SHIERS, *St. Martin's House, Colchester*.

Scilly Island Daffodils.—An exhibition of these was held the other day under the auspices of the Scilly Island Bulb and Flower Association, and to the islanders it was an occasion of unusual interest. The prize lots, which were distinguished by first, blue, second, pink, and third, yellow ribbons, were easily picked out from among the crowd of flowers exhibited. It is expected that the exhibition of 1887 will be double or triple the size of that of this year, which is the first that has taken place in these islands.

Mr. Dorrien-Smith, the president of the society, had upwards of 160 varieties of *Narcissus* tastefully arranged on a groundwork of green Moss. The prize of the day consisted of £5, offered by the Earl of Mount-Edgumbe, for the best exhibit of marketable flowers and was awarded to an assortment of fifty varieties of Daffodils. In August next there will be an exhibition of dry *Narcissus* bulbs grown on the Scilly Islands of the most marketable sorts, and on this occasion a prize of £10 is offered by Mr. Dorrien-Smith, and again in 1887 a prize of £25. Amongst the Daffodils shown were fine examples of Emperor and Empress, Princeps, obvallaris, *Telamonius plenus*, Sir Watkin, Stella, Orange Phoenix, ochroleucus, Grand Monarque, poeticus ornatus, Statten General, Bazelman major, and many other equally good sorts.

Royal Gardens, Kew.—We have received a copy of a new seed list of hardy herbaceous, annual, and perennial plants grown in the Royal Gardens, Kew. The catalogue is admirably compiled. It is, of course, arranged according to the botanical sequence of the Natural Orders, and the authority and principal synonyms are given to each name, together with the native country of the plant. It is, we believe, some thirty years since a catalogue of a similar character was published at Kew. At that time the late Mr. Niven, of Hull, had charge of the hardy plant department, and the plan of his list has been followed in the present instance. It is a useful catalogue to any grower of hardy plants, and the only fault we have to find with it is the omission of a list of genera, which should always accompany a list arranged in this way. As it is, one has to wade through the whole list to find any given genus, and the task is more difficult if the Natural Order is not known. The list is issued from the Stationery Office, at the price of sixpence; and we understand that it can be had from the Royal Gardens at Kew.

Narcissus committee.—The second meeting of the committee for this season will be held on Tuesday next, April 13, in the conservatory, South Kensington, when the committee will be glad to receive and report upon any specimens of interest which may be submitted to them. Attention is called to the following: The flowers sent should have been grown in the open air, except in the case of such sorts as are not hardy in this country. A specimen of the foliage should accompany each variety. Full information should be given as to the history, habitat, or peculiarities of each specimen, together with the name of the sender, and the question asked of the committee, or the point on which they are to decide. (Printed forms for this purpose may be obtained from the secretary, or will be filled up by him on receipt of the flowers at South Kensington.) It is requested that the flowers may be sent so as to arrive in good time, addressed to the Hon. Sec. Narcissus Committee, South Kensington, and attention is called to the fact that boxes, &c., sent by parcel post usually take a somewhat longer time in transit than those sent by letter post; and, therefore, due allowance should be made in their dispatch. If received before the day of the meeting the flowers will be taken care of and put in water.—C. R. SCRASE-DICKINS, *Hon. Sec. Narcissus Committee*.

The Primula conference.—Now that the weather has changed the promise of a successful exhibition of Primulas has very greatly increased; amateurs as well as professional growers are anxious to make it a great success. This, I have no doubt, it will be if all interested in Primulas will do what they can. It is not given to everyone to make an exhibition of scores of distinct species, but many could exhibit one, two, or half-a-dozen, and any interesting or curious forms of the common Primrose might be both interesting and instructive. Notice of intention to exhibit, and also the nature of the exhibit, should be sent to Mr. Barron, Royal Horticultural Society's Gardens, South Kensington, S.W., at least a week before the exhibition takes place; the dates are April 20 and 21. The National Auricula exhibition is to be held at the same time—the 20th only; but the Primula conference committee would be glad if exhibitors would kindly leave their plants for the two days. It may remove some misunderstanding if I may be permitted to say that the prizes offered for Auriculas are freely open to anyone who will come

forward and win them. The society is supported by the voluntary contributions of admirers of Auriculas, and the subscribers think it best to leave the classes open. There are, however, classes for large and small growers, and therefore exhibitors must choose one or the other. Entries must be sent to Mr. Barron, at the address just given. I shall be pleased to send schedules to intending exhibitors. And I may further add that the treasurer, Mr. H. A. Roit, 170, Hartfield Road, New Wimbledon, informs me that the subscription list for the year is not yet complete; he will therefore be greatly obliged if members will kindly forward their subscriptions before the 20th.—J. DOUGLAS, *Hon. Sec.*

The weather at Bowness.—The difference in temperature for the two halves of the month of March has been so remarkable, that I venture to send you a short statement for THE GARDEN as follows:—

SUMMARY OF WEATHER AT BOWNESS, WINDERMERE, FOR THE FIRST AND THE LAST HALF OF THE MONTH OF MARCH.

From the 1st to the 16th, inclusive.
Average maximum temperature, 41° 68'.
Average minimum temperature, 22° 25'.
Mean temperature of 16 days, 31° 96'.

From the 17th to the 31st, inclusive.
Average maximum temperature, 50° 53'.
Average minimum temperature, 37° 66'.
Mean of 15 days, 49° 00'.

Difference in the mean temperature of the first half and last half of the month, 17° 13'.

Difference in maximum temperature, 8° 85'.

Difference in minimum temperature, 15° 41'.

Frosts, first half, 16°; second half, 2°.

Rain, or melted snow: first half, .54 inches.

Rain, second half, 6° 08 inches.

—A. RAWSON.

QUESTIONS.

5478.—**Orange trees.**—Are Orange trees grafted? I have some which I raised from pips three years ago. How can I induce them to flower?—L. W. B.

5479.—**Eucharis mite.**—Will "P. W.," who replied to "J. S. W." (p. 178), giving details of a solution of Fir-tree oil and Tobacco water which he had then successfully used, kindly say how his Eucharises are now, and if he has entirely eradicated the mite?—D. M. R.

5480.—**White Violets.**—I should be very much obliged to Mr. Allan, of Gunton Park, if he would tell me if Comte de Bruzza could be grown successfully in an old pinery, under Rose trees, trained thinly under the glass. The Roses are planted out about 2 feet from the glass; therefore the Violets would get plenty of light. The temperature of the house is kept between 40° and 50°.—L. S. C.

5481.—**Lamoroxyia and Gerardia.**—These beautiful American genera are generally supposed to be root-parasites, i.e., to grow wholly or in part on the roots of a host plant. Can anyone tell us what these host plants are for the respective genera or species? If they really are parasitical, we can never hope to grow them unless we know on what other plants' roots they are found to thrive.—F. W. B.

5482.—**Twin-flowered Snowdrops.**—I send you two rather curious Snowdrops with two perfect flowers on each stem. I do not remember ever seeing before a case of the kind. They were brought to me the other day from a plantation of single Snowdrops near one of our woodland walks. There are immense quantities of single Snowdrops in various parts of the grounds here, but, as I have just remarked, I have never observed anything in this way before. Have any of your correspondents observed a similar case?—D. MELVILLE, *Dunrobin Castle, N.B.*

5483.—**Bulb beds.**—I wish to know how to fill vacancies in permanent beds of bulbs and Anemones. I had last year a lovely bed of Snowdrops and Chionodoxas, and another of Anemones, which in the summer were covered by Nasturtiums. Would it answer to fill the gaps in these beds now? It is, of course, only at this season it could be properly done. I may mention that, though the Snowdrops were flowering through the snow, the Chionodoxas did not show signs of life till the frost broke, and in a week were in full bloom.—BEGINNER.

LATE NOTES.

5477.—The dimensions of the fernery described in THE GARDEN of August 29, 1885 (p. 229), are as follows: Length, 38 feet; width, 12 feet; front wall, 8 feet; back wall, 10 feet. The roof is half-span, and measures at the highest point 12 feet.—S.

Names of plants.—C. E. F.—1, *Lomaria blechnoides*; 2, *Phlebodium aureum*; 3, cannot identify (shrivelled up); 4, *Pteris quadraurita*.—C. Smith and Sons.—Agrees with Barr's *Narcissus cernuus pulcher* (a very fine sort).—Mrs. Leach.—*Lachenalia tricolor luteola*, *Primula verticillata*, *Acacia pulchella*, *Gnidia* sp.—M. P. Forster.—1, *Crocus versicolor*; 2, *C. biflorus*; 3, not recognised, but it is not *pyrenaeus*.—Anon.—1, *Oncidium japonicum*; 2, *Polypodium vulgare cambricum*; 3, *Asarum canadense*; 4, apparently *Graphophyllum pictum*.—W. R. and D. B.—Next week.

WOODS & FORESTS.

THE TIMBER TRADE.

THERE is much discussion at the present time about planting for profit, and it would be exceedingly useful to know what the real prospects of returns are. I daresay many of your readers could furnish information on that head. It is manifestly no use planting for profit in the "dim and distant future" if that profit cannot be reasonably assured. At one time owners of land derived considerable incomes from their woods, but at that time home-grown timber was principally used; whereas foreign timber now replaces it in the market. I do not know what the value of home-grown timber sold every year in this country is on the average, but I believe the sum spent on foreign timber is something between twenty and thirty millions of pounds, and for years back the foreign timber has practically cut the English timber out of the market wherever the latter is unfavourably situated as regards transit. At the best of times, on an average, only a moderately brisk trade can be expected, and in that case I doubt if it be worth while landlords planting for profit, unless it be near the centres of consumption. I do not know whether Lord Idlesleigh's Trade Enquiry Commission has taken evidence on the subject or not, but if it has it will, I doubt not, reveal a somewhat dismal condition of things in the home timber trade. Of the advantages or disadvantages of free trade in this industry I am not going to say more than that everywhere the English timber dealer is met by the foreign article both in the raw and manufactured state. For years back prices have been low, but not low enough to compete with the foreigner, whose Oak, Ash or Hickory, Sycamore, Fir and Birch, &c., glut the market. It is sometimes a wonder to me what Irish timber growers get for their timber of various descriptions that is constantly being delivered in Yorkshire at prices which we who are on the spot think extremely low. After the carriage is defrayed from Ireland, I wonder what the producer receives; perhaps Mr. J. B. Webster can tell us. Irish Birch, Beech, Sycamore, Larch, &c., is delivered in many parts of England at prices which, it seems to me, cannot leave anything for the producers. Not only does prolonged low prices and bad trade discourage landlords, but the loss to the working classes is great, because just as few men are now employed in our British woods as possible, there being but little for them to do except on the estates of the wealthy where the woods are kept up for ornament, and these are now the exception.

YORKSHIREMAN.

P.S.—By a curious coincidence the following on the Irish home timber trade has appeared in the *Timber Trades' Journal* since the above was penned and corroborative thereof:—

IRELAND.

"The severity of the winter has very much interfered with the working of native timber, adding very much to the cost of production, thereby curtailing the already very small profits realisable off the very poor prices available for almost all kinds of timber. . . . The returns, so far as we can get reports, have been very unsatisfactory, the prices obtainable having gradually receded, until recently they have been such as to leave the merest trifle for the raw material in the woods. A number of shippers, in order to save a second profit, endeavour, where practicable, to sell direct to English collieries, and give counter orders for coals, thereby securing the highest possible price; but even then, so great is the competition to be contended with, that merchants complain that the trade in Larch timber

is not worth the trouble entailed, and when cartage and railway carriage, as is too often the case, have to be incurred, there is little or nothing left to reimburse the original purchase money.

"We have noticed a considerable quantity of hardwoods shipped—Sycamore, Beech, and Ash. In the case of Beech, the remarks we have made as to Larch apply to even a greater extent, as, being such a heavy timber, the expenses in taking it to a shipping port are very much heavier for the same measurement, and for common timber sold for bobbinwood the prices returned have during the last year been so small, that, when expenses were deducted, nothing whatever was left, not only for profit, but for the standing timber, especially when the timber had to be conveyed any distance by rail."

TREE-GUARDS.

Now that the price of iron is low, many have been encouraged to use it in place of wood. There are, of course, places where the lightness of its appearance will recommend it. Where, however, plenty of wood is to be had, it is questionable if an extensive use of iron will be economical. Probably the commonest kind of wooden tree-guard is the triangular one. This is formed by the fixing of three posts at equal distances round the tree to be protected, and of sufficient height to keep off cattle. If possible Oak should be used for the posts. In most cases it will be unnecessary to expend much labour in the shape of sawing on these. In cutting up wood it sometimes happens that the off-cuts come off with two sawn surfaces at right angles. When this is so and there is enough heartwood left in its substance, a post is available at once. If these off-cuts are not cut up on the place in this form, they may often be purchased from the neighbouring merchant's yard at a small cost. We have seen some capital Apple and other tree-guards made of this material for posts. The right angle, where only three posts are used, is not, of course, quite the form for nailing on the rails, but for work of this nature, which is not very exact, it will be found to be near enough to make good work. The rails when formed of split Larch or Scotch answer for several years; in fact, with a little repairing occasionally, as long as protection is needed.

Another form of tree-guard, but one which only admits of the tree within it growing to a comparatively small size, is when only two unsawn posts are used and rails attached to the outsides of them. With this form the space for the young tree is, of course, equal only to the thickness of the posts. A more elaborate kind of guard is when four posts sawn to bend outwards towards their upper ends are used. The rails are nailed to this in a similar way to the other kinds, but there is generally more care bestowed on the finish of these. For field use and for fencing against cattle, guards will require to be some 7 feet high. The posts must not be less than 9 feet or 10 feet in length to allow of a sufficient hold in the soil. The distance in the soil will, however, be something less than would be necessary for a straight fence of this height, as the positions of the posts and their being braced by the rails will render the whole structure more stable. For most soils 2 feet in the ground would probably be enough for a triangular or square guard. In fixing the rails it is a good plan to fix the bottom ones sufficiently close together to prevent a foothold being obtained, or of the hand being readily inserted between them, or they are likely to get torn off.

Cleft wood may sometimes be used for rails for the guards, but generally this may be turned to

better account, as of course the best wood must be used for cleaving. When tree guards have to be used in quantity, cheapness consistent with effectiveness must be the first object. Generally, form will be a secondary consideration. In ten or a dozen years the guard will have done its work, or in some cases less. As a rule the life of a tree-guard will not require to be much greater than that of a fence fixed to protect the growth of young hedges. Oak posts then and what rails may be available is the proper material for tree guards. When they are required to be picturesque as well as useful more care must of course be taken in selecting the wood. It is hardly ever that it can be obtained, or, if at hand, would be used, otherwise Yew is a capital wood for posts for such guards. Hoop iron is occasionally seen used on wood posts in place of wooden rails, but this possesses very few advantages either in appearance or usefulness. One great drawback is that on very slight pressure the iron gets out of shape and soon looks as though it had been bombarded from every point of the compass.

D. J. Y.

FOREST ROADS.

"D. T. F.'s" latest explanations regarding his sledge for removing timber do not mend his case, but the reverse. A tree must have room to fall, and one cannot conceive of a case where a sledge could get to and a two-wheeled carriage could not. But small trees are easily dragged out by the chains, and only large ones would need a sledge, and a heavy sledge, which would simply increase the weight of the load and the friction. It is far easier to drag the tree away as it lies, and in difficult positions this is done, not with the carriage, but by means of blocking tackle. We have recently moved 100 large Oaks, from 1 ton to 3 tons weight each, from a steep ravine by this means to level ground, where the two-wheeled carriage takes them away. To drag a tree, perhaps 2 feet quarter girth and 50 feet long, how long would the sledge need to be, and how broad the skids underneath it, and how is the tree to be got on to the sledge? An attempt to solve these problems will show "D. T. F." himself the absurdity of his proposals. It is news to me that timber carriers prefer light loads, for I never found one yet that did not put on as much as his horses could drag without distress. Manifestly he cannot make it pay any other way. For long journeys—sometimes from three to six miles—our timber leaders employ six horses and two four-wheeled carriages. They can seldom load and deliver, even on shorter journeys, more than once a day, and as they charge by the foot it stands to reason that the more feet they can carry at one time the more money for them (the horses and men have to be paid all the same). Hence they load both carriages to the full and start them together, three horses being sufficient for one carriage on a level road, the six being attached at inclines till both wagons are got to the top, and so on. Snigging, loading, and leading are all included in the charge per foot. "D. T. F.'s" Elm at 6d. per foot two miles from a town has no bearing on the subject. I presume that is the price in the wood, the purchaser carrying it in his own wagons. We get a higher price than 6d., and it costs 5d. to take it to the mill I spoke of. The lowest price we have ever paid for carriage one mile was 2d. per foot—snigging and loading. Sometimes the teamster will snig timber out of the wood one day and load the next. If "D. T. F." is "in company" with timber carriers and foresters, as he states, who conduct their business on other principles than those I have described on estates where the best results have to be shown in the ledger, then I am not in the same company. I never yet knew a forester who used a sledge to drag heavy timber, nor do I think "D. T. F." ever did, unless it was himself.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE GARDEN.

ROSES WITH SCENTED LEAVES.

THE suggestion in reference to crossing our ordinary garden Roses with the Sweet Brier, with the view of obtaining varieties having the scented leaves of the Brier as well as fragrant flowers, is highly interesting. It is well known that some of the best Roses which we possess have been the result of accident, or of departing from the ordinary track. Therefore I would recommend those engaged in this pursuit to cross all kinds, likely as well as unlikely; and I think there can be little doubt that the direction which keeps farthest clear of the ordinary exhibition form is most likely to produce varieties that will satisfy the majority of people who grow Roses, but who would prefer some of a more generally decorative character to repetitions of the now all but endless kinds of show Roses, many of which are so nearly alike, that none but those who give particular attention to them can detect any differences amongst them. When Rose raisers have produced a *Maréchal Niel* that can be relied on to keep in a healthy growing state, in place of the provoking propensity which the one we have has for dying off—when they have got a *Cloth of Gold* that will flower freely under conditions such as answer for ordinary Roses, a yellow *Provence* that will bloom anywhere under ordinary treatment, and a *Gloire de Dijon* as regards general character and habit in each of the leading colours—then they will be nearer reaching what people wish for who think more of good garden Roses than of exhibition flowers, beautiful as they are. One of the merits possessed by Roses of the *Gloire de Dijon* and *Souvenir de la Malmaison* shape is the ability which the flowers have to last. Not the least of the pleasures which many who grow Roses enjoy is giving them to others who are not in a position to grow them; and when they will hold together for a reasonable time the pleasure of both the giver and the receiver is enhanced; whereas if the flowers are of the approved exhibition shape, they drop in about as many hours as the non-fashionable kinds named will last days.

As to raising varieties of Roses with fragrant flowers and Sweet Brier scented leaves, even if it should turn out that this can be done, the question arises, Is it desirable to have such? For my own part, I say, decidedly not. The Sweet Brier scent partakes more of an aromatic character than of delicate perfumes which are sweeter the nearer you get to them. The scent of the Brier is never so enjoyable as when passing by the plant in an evening after a shower of rain. Like *Mignonette*, it is better a little distance off than very near. It often happens that when several kinds of fragrant flowers are placed together, the result is a heavy objectionable, smell. I have frequently seen a bouquet, or a vase, made up of different sorts of flowers, several of which were fragrant, that was so objectionable, that it could not be kept in a room; whereas, if any one of the scented kinds had been present alone, it would have been agreeable. A handful of the old *Cabbage Rose* is the reverse of being improved by any other variety being present with it. The same may be said of *La France* and many other

Roses that could be named. Even the delicate-scented *Teas* are much the best when by themselves. The hardy *Daphne Cneorum*, to many the most exquisite of sweet flowers, and *D. odora*, if placed in the same bouquet, seem mutually to spoil one another. The flowers of *Clerodendron fragrans*, another of the finest of all scents, are much the best if used in combination with others that are scentless. The same applies to *Jasminum Sambac*, another scented gem that is not surpassed. The old *Clove Carnation* is hard to beat alone, but does not go well with many other scented flowers. I could name others that are agreeable when alone, but less so when together, like a Rose and its leaves. Needless to say, there can be no hard-and-fast line drawn in the matter of scents; like the taste of the palate, those which are pleasing to some are not liked by others. Yet there are some flowers that all agree in liking, and I rather think that if anyone could be found who did not like the smell of Roses, they would scarcely care to admit it.

The foliage of Roses, though differing much in individual varieties, yet plays no inconsiderable part in any arrangement of the flowers, and, so far as appearance goes, anything in the way of Sweet Brier leaves would be a step backwards. The foliage of most of our favourite Roses is so beautiful in the fresh green state when associated with the flowers, that any attempt to alter it is likely to be something akin to painting the Lily.

T. B.

Pruning Roses.—Those of your readers who are interested in the subject of pruning Roses, as lately discussed, may, if they possess the necessary patience, begin the following experiment: Select two strong common Brier or wild Rose bushes of nearly equal strength. Cut one bush down to the ground and leave the other as it is, except removing obstructions to its free growth, and especially to the growth of the annual suckers that push from the base of the older branches, and which should have room to push up. Let this process be repeated for two, three, or four years, and the following facts will, in all probability, be noted. The first year the cut-down bush will push numerous strong and tall shoots—stronger than those in the unpruned bush, because they appropriate the vigour, organisable matter, or whatever you may call it, deposited in the roots and tissues by the large top of branches recently removed, but continue to cut the whole of the shoots down annually, and this reserve becoming exhausted, they will become weaker and weaker until they dwindle down to the thickness of good Wheat straws or little more. The bush that is not cut down will, on the other hand, continue to increase the length and strength of its young annual shoots until the maximum vigour and size are reached, after which they will continue to grow at about the same rate till the bush grows old and feeble and begins to decline, by which time probably the cut-down bush will have succumbed altogether. There is no better method of testing the effects of severe pruning on Roses than this.—J. S. W.

Roses for forcing.—Perpetual Roses vary very much in their adaptability for forcing, for which purpose the two best with us have been Dupuy Jamain and John Hopper, both of which are valuable, and should be largely grown in pots where fine early blooms are required. Those who happen to have these with young wood now on them, or any others which they wish to propagate, will find this a good time for putting in cuttings, which are best taken off with a heel, but either with or without a heel the half-ripened shoots strike freely if inserted in sharp, sandy soil and kept close under bell-glasses or handlights in any warm house. The way to treat the old plants after they have done blooming is to place them in a cold pit or frame where they can have plenty of air to harden the growth and foliage, after which the shoots may be thinned

out and shortened back, when the plants should be turned out of their pots and have their balls reduced and repotted. The most suitable soil in which to do this is rather strong turfy loam, chopped up roughly and mixed with about one-sixth part of rotten cow manure and a slight sprinkling of soot, which will make the plants strong. The best place for these after potting is a sheltered spot in the open, where they should be set on pieces of slate or tile to keep out worms, and to prevent the soil from drying it is necessary to surround the pots with half-decayed litter, which will ward off the sun and air from their sides. If greenfly or other aphides assail the young shoots or mildew the leaves, both must be stopped at once, which may be done in the case of the first named by syringing with tobacco water or diluted nicotine soap, and the latter by dusting with sulphur when the foliage is damp from night dew.—S. D.

ORCHIDS.

ORCHIDS ON ORANGE TREES.

I LIKE "F. W. B.'s" suggestion (p. 328) to try to grow a few epiphytic Orchids on Orange trees in our hothouses. Large *Camellia* plants would also suit well for such a purpose. The few *Camellia* plants of which I had charge in the Tropics were infested with Orchids and other epiphytes, but they were, of course, not allowed to attain large size. I mention this because it is really remarkable how very few species of trees there are in a wild state on which Orchids will grow freely. But trees of the Orange family are remarkable exceptions, especially when not in the best of health and vigour. "F. W. B." says, "A good mass of *Ansellia*, for example, would be quite at home on the trunk of a *Date Palm*; so also would a mass of *Zygopetalum maxillare* clasping the fibrous stem of a *Tree Fern* from the Tropics." He may be right with regard to the *Date Palm*, but I much doubt the propriety of even attempting to grow Orchids of any kind on *Tree Fern* trunks. In all my plant-collecting experience I never saw an Orchid growing on a *Tree Fern*, and, indeed, the only plants of any size that seemed to enjoy life on them were cognate *Filices* with scandent or creeping rhizomes and a few species of *Polypodium*. I have also tried somewhat extensively to cultivate epiphytic Orchids on blocks of *Tree Fern* stems, but with unsatisfactory results. I have since thought that had the blocks been well charred on the surface they might have proved less objectionable. GEO. SYME.

A high-priced Orchid.—The yellow-flowered variety of *Odontoglossum Pescatorei*, which was certificated on Tuesday at South Kensington as "Knox's variety," was sold at Stevens' Rooms on Wednesday, when, after a brisk competition in the bidding, it realised £165. It is a healthy little plant with two bulbs, and bore one crowded spike, consisting of about half-a-dozen flowers. It is gone, we believe, to further enrich the choice collection at The Dell, Egham.

Cattleya Lawrenceana.—We continue to receive flowers of this new Orchid from various sources in evidence of its great beauty. Of course only fine varieties are sent, but these vary a good deal, and one of the deepest and richest forms is one received from The Woodlands collection at Streatham. The flowers of this form are not over large, but the colour is intense, particularly that of the lip, and the sepals and petals seem to be saturated with carmine-magenta. In contrast to this Mr. Measures encloses a lovely form of *Lælia elegans*, a species of which he possesses many beautiful varieties. That sent represents a form with white sepals and a broad lip of a deep velvety amethyst hue.

Terrestrial Orchids.—Among the more interesting exhibits at the South Kensington and Regent's Park shows was a collection of terrestrial Orchids exhibited by Messrs. Barr, of Covent Garden. Most of these were South European kinds so difficult to manage, except they have close attention under frames but the extreme beauty of their flowers and their curious shape are worth any trouble expended on them.

There were many kinds shown, but those which attracted us most were the following: *Orchis panormitana*, crimson and pink flowers; *O. Robertiana*, with very singularly shaped flowers of a dull purple; *O. fusca*, *O. longicornu*, one of the showiest of all; *Ophrys arachnites*, the Spider Orchis, *O. atrata*, *O. bombyliflora*, and *O. lutea*, all of which have affinity with our common Bee Orchis, *Ophrys apifera*. No doubt, many of these interesting flowers were not observed by the visitors, as they were intermixed with the Daffodils in the usual way, but they well deserved a place by themselves, and they would have made an attractive little group.

Odontoglossum cordatum Kienastianum.—A flower of this beautiful variety has been sent to us by Mr. R. H. Measures, of Streatham, who has a fine plant of it now in blossom. It differs from the ordinary kind both in form and colour. The sepals and petals are more attenuated, measuring from tip to tip nearly 4 inches. The colour consists of rich chestnut-brown blotches on a white ground and, owing to the lip being almost wholly white, the dark colour is intensified. The only variety that will compare with this, so far as we have seen, is that which Dr. Paterson possesses, and of which he sent us a bloom not long since. Mr. Measures also sends us a five-flowered spike of an exceptionally dark variety of *O. maculatum*, which has been in bloom for several weeks. Like the variety of *O. cordatum*, it is very much darker than the usual form, while the sepals are broader and their ground colour canary-yellow, the markings being chestnut-brown.

Dendrobium Brymerianum.—Dr. Paterson sends from Fernside, Bridge of Allan, a bloom of Sir Trevor Lawrence's variety of *Dendrobium Brymerianum* from a small plant with seven bulbs and one growth, the last made bulb 2 feet high, which is somewhat unusual, he thinks.

NOTES OF THE WEEK.

Mr. J. Smith, owing to continued ill-health, has felt it incumbent upon him to resign his post as curator of the Royal Gardens, Kew, an appointment which he has held for twenty-two years.

"Forestry."—With the issue of the present number of "Forestry," the publishers announce that the work will be discontinued, chiefly owing to the magazine not having received the impetus which was expected from its removal to Scottish headquarters.

Daphne Blagayana.—This little alpine shrub seems to become better known since it has been taken in hand by some of the chief nurserymen. Messrs. Backhouse, who send us a specimen of it, state that it is perfectly hardy at York, where it is flowering profusely at the present time. It is a straggly growing plant a few inches high, and with each branch terminated by a dense cluster of ivory-white blossoms delightfully scented. It remains in flower a long time, and is a capital plant for a sunny part of the rock garden.

Megasea speciosa.—This is one of the large-leaved section of Saxifragas, and, judging by the specimen which Mr. G. F. Wilson showed of it on Tuesday from his garden at Weybridge, it is a very handsome hardy kind. It appears to be intermediate between *M. Stracheyi* and *ligulata*. The flower cluster is large and dense, and the blossoms themselves are of a delicate flesh-pink colour. A mass of it in the rock garden at this season must have a fine appearance.

Double Violets.—In THE GARDEN of April 3 a correspondent writes that he thinks all will agree that the Marie Louise is pre-eminently an autumn Violet. I send you a bunch of mine which have been in equally good bloom for the last four months. My experience of the Comte de Brazza and Neapolitan is, that the former is not in perfection till the first week in February, and the latter the first week in March. All my Violets are grown without heat of any kind. —JANIE S. PERY, *Coderemon, Ballina, Co. Mayo.*

* * Excellent flowers of Brazza's White and Marie Louise accompanied this note. —ED.

Carnation, Pride of Fenshurst.—This beautiful yellow Carnation is already an established favourite, for no other yellow sort can excel it in floriferousness, in vigour, and in size and shape of flower. The colour, too, is pure, and without that pinkish hue

which other so-called yellow sorts possess. The fine handful of blooms which Messrs. Cannell, of Swanley, showed on Tuesday was admired by everyone, and in contrast to it they showed flowers of the brilliant scarlet *A. Aléatière*.

New hybrid Azalea.—Mr. J. Davies sends from the Brook Lane Nursery, Ormskirk, some trusses of his new *Azalea hybrida odorata*. It has pure white flowers, which being deliciously scented are found to be very useful for bouquets or wreaths. This *Azalea* is of great value for cutting from, and Mr. Davies thinks it is in some respects superior to the *Stephanotis*, as the plant is quite hardy, perfectly free from insect pests, and may, after flowering indoors in mid-winter or early spring, be planted out for the summer months and taken up again in October, potted and flowered again during the winter. The plant, which is of dwarf, bushy habit, stands cutting well, and makes new flowering wood freely.

Late Chrysanthemums.—I send you a few *Chrysanthemum* blooms of the Mrs. Charles Carey and *Ceres* varieties, which I think are very fair for this time of year. I am certain that *Chrysanthemums* may be had in flower all the year round; the blooms which I send you were cut from plants that have been in flower since last December, and to-day I can cut three dozen from each plant similar to what I now send, and I hope to have *Chrysanthemums* at midsummer still in flower. —A. J. GUILBERT, *Guernsey.*

* * Very fine blooms for the season, but it is doubtful if *Chrysanthemums* in April are really desirable, seeing that we have hosts of other flowers. —ED.

Primula Conference.—We are requested to announce that this conference will be held in the Albert Hall at 12 (noon) on Wednesday, April 21. The following papers will be read and discussion invited thereon. The first in order is that by Mr. Hibberd, "On the origin and history of the florist *Auricula*;" second, "In what direction should efforts be made with the view of improving the florists' flowers belonging to the genus *Primula*?" Mr. Barlow has been unable to prepare a paper on this subject, but the Rev. F. D. Horner has kindly consented to take his place. Mr. J. G. Baker, of the Royal Herbarium, Kew, will next discourse on "The nomenclature of the alpine *Primulas*," while to Dr. Masters has been assigned the important subject of "Root structure and mode of growth as affording indications of the probable best culture." —J. D.

Seedling Anthuriums.—The large group of seedling *Anthuriums* in flower exhibited at South Kensington on Tuesday last attracted a good deal of attention, and deserves more than a passing notice. A finer series of varieties of *A. Scherzerianum* we have never seen together before, and the fine condition of the plants added greatly to the credit of Mr. Bain, the gardener at Burford Lodge, from whence they came. There were about half-a-dozen named varieties, while the rest were seedlings. First and finest was Henderson's variety, which had spathes 6 inches long by 5 inches in width; then followed a grand plant of Ward's variety with thirteen spathes, each 5 inches long by 4½ inches wide. In contrast with these gigantic spathes were those of the variety *pygmaeum*, one of the smallest of all. There were also the two spotted spathed hybrids, *Devansayanum* and *Rothschildianum*, the former of which was certificated. The rest were seedling varieties, with spathes of various sizes and forms, some long and narrow, others short and broad, but all of exceptional merit. Now that the hybridising of *Anthuriums* is being practised a good deal, we may expect to hear of some surprising varieties, and a cross between *A. Andreanum* and *A. Scherzerianum* may yet be possible.

Beaumontia grandiflora.—Of this noble stove climbing plant, so seldom seen in gardens, Mr. Ruffett sends us a very fine flowering branch from the garden at Panshanger. The branch bears no fewer than fifteen buds and four fully-expanded flowers, each of which is 6 inches in length by 4 inches across the mouth of the corolla. The tube of the flower is funnel-shaped and is yellowish green outside, but the upper part of the corolla is pure white. The flowers are produced in crowded clusters

terminating the flower shoots amidst the leaves. These are a foot in length by 4 inches broad, and being of a shining deep green, they are handsome, and contrast finely with the flowers. This is an old introduction first brought to this country from India over sixty years ago, but even now it is only in botanical collections and old places like Panshanger that one meets with it. Mr. Ruffett says that there is a grand specimen of it now in full bloom in one of the stoves at Panshanger, and he finds it most useful for cutting from, as the flowers last a long time when cut. We hope to give a coloured plate of this plant in THE GARDEN.

FLOWER GARDEN.

RAMONDIA PYRENAICA.

In the annexed illustration is shown a luxuriant group of the pretty Pyrenean *Ramondia* growing on a rather steep, rocky peat bank in a Surrey garden. The spot is also shady and moist; in short, the conditions under which the plant is here growing closely resemble those of its native habitat in the Pyrenean Alps, where it is usually found in the crevices of steeply pitched rocks facing the north. Although the *Ramondia* is not fastidious as to its likes and dislikes, it has a decided preference for partial shade, which renders the spot in which it grows cool and moist in summer, and of all soils it delights most in a peaty mixture. It can be grown in a sunny spot, and we have seen good specimens of it under such conditions, but the leaves are apt to become browned, and we have seen it planted on the margin of a shrubbery a good deal exposed. The plants shown in the illustration could not be finer, and when the rosettes, which are nearly a foot across, are crowded in summer with deep mauve flowers, this *Ramondia* bank is one of the chief features of the garden in question. This is a plant that should find a place in every garden where a cool, shady spot could be found for it, and now that it is plentiful it can be obtained cheaply. A beautiful companion for it is the little *Haberlea rhodopensis*, a scarcer plant and not so easily satisfied. It belongs to the *Gesnera* family, and is about the only member of that family that can be grown successfully in the open air in this country. It has a rosette of broad wrinkled leaves, and produces small flowers like miniature *Gloxinias* on stalks a few inches high. Their colour is mauve and white. We shall give a coloured illustration of this plant in THE GARDEN.

Transplanting Daffodils in leaf.—Last year when Daffodils were coming into bloom a friend brought me a number of bulbs of an early blooming kind, the buds of which were expanding. I planted them on a south border, but they were not watered more than once or twice afterwards, and as the spring was very dry the foliage partly dried up and they looked very miserable. To my great surprise, every bulb has this year bloomed well. I think this worth recording not in order to recommend the moving of Daffodils in leaf, but simply to show that they may be transplanted at that time without injury, a fact which under certain circumstances it may be useful to know. —J. C. B.

SHORT NOTES.—FLOWER.

Daffodil culture.—We find the largest and best Daffodil flowers are those produced by bulbs taken up and replanted in fresh earth every year in July or August. By adding a sprinkling of Clay's fertiliser to the soil during the spring months after their leaves appear the flowers are much increased in size, and if cut in the fully grown bud stage and opened out in water in a sunny greenhouse, enormous flowers perfect as regards freshness are obtained. —F. W. B.

A beautiful Tulip.—Conspicuously beautiful now in Mr. Ewbank's garden at Ryde is *Tulipa Schrenki*. It is of moderate stature, but has a flower of great substance and surprising beauty of colour—a delicate clear rosy colour of the quality of *Lapageria rosea*, with vermilion shadows playing about the half-closed petals, as seen on an inclement April day between showers of cold sleet. —G. J.

CHINA ASTERS.

AMONGST China Asters the most desirable are, perhaps, the *Pæony*-flowered sorts, which attain a height of 15 inches or 18 inches, and produce large globular-shaped blooms, with petals beautifully incurved, and embracing nearly all shades of colour. The next variety in point of merit is the *Victoria*, which is much cultivated for exhibition, as is also the *German Emperor*, the flowers of both sorts being, when well grown, sufficiently large to make a magnificent show. Distinct from these, both in habit and appearance, are the quilled section, *Betteridge's* strain being perhaps the best; but, though these are in favour with some, they are too stiff and formal looking to come much into notice. The dwarf *Chrysanthemum*-flowered and the dwarf *Bouquet* are both compact kinds, that grow about a foot high, the first-named producing large reflexed flowers, and the latter an abundance of small ones. Both are suitable for beds, or for growing in pots for greenhouse decoration late in the autumn. The proper time to sow the seed is the latter part of April, which is quite soon enough, as plants raised before then are almost sure to get starved and stunted through keeping them till it is safe to turn them out in the open. Prepare some shallow boxes or pans by filling them with light rich soil sifted fine, and after that is made level and smooth, the seed should be scattered thinly over it, and then slightly covered, when, if subjected to slight heat by placing the boxes or pans in a warm frame, the seedlings will soon appear, and to prevent these from drawing, it will be necessary to place them nearly close up to the glass. As soon as the plants begin to show the rough leaf they will be ready for pricking out; and this should be done in a frame, on a prepared bed of rich mould, where they may be allowed to remain till the end of May; then they should be carefully lifted with good balls and planted out in the garden. Before this is done, however, it will be necessary to heavily manure and dig the beds deeply, as Asters require rich soil, and only stand dry weather well when they can drive their roots down and find moisture below. If they show signs of distress from want of this, they should have a soaking of water or liquid manure; and it is a good plan to mulch between the plants by placing a thin layer of Cocoa-nut fibre over the ground.

J. G.

Milla biflora and Freesia.—Whether the methods of culture of these bulbs pursued in the eastern part of the United States would answer in England is questionable; still it will probably interest the readers of THE GARDEN to know how we succeed. *Milla biflora* we keep dry all winter and plant out in the open ground in May. Our soil is light and seems to suit it well. Well-decayed manure does it no harm, and I think it is all the better for being planted near the surface, say within 2 inches, as frequently last summer bulbs were to be seen flowering perfectly quite exposed to our summer's sun, or only partly covered, the soil having been washed away during heavy showers. This lovely bulbous plant, when in good health, more frequently bears three than

two of its large waxy-white flowers. They often measure nearly, or quite, 2 inches across, each secondary flower-stalk rising from a common axis and 6 inches or more in length. When once the flowers open they never again close until withered. They last good four or five days, and always follow the sun, as do Sunflowers. The flowers succeed one another. I saved seed and sowed it six weeks ago, and it is now coming up. *Freesias* do equally well—*F. refracta alba* better than *F. Leichtlini*. These we plant in trays or shallow boxes indoors in December. Of seedlings I have a better account to render than Mr. Rawson, who sowed in February. I sowed after the seed ripened in June, and had plants in bloom by December, and they continued until May—that is succession bulbs. Other bulbs, such as *Cooperias*, *Zephyranthes*, *Crocus* and *Montbretias*, we give the same treatment. All are stored in winter, and they grow rapidly and bloom well in summer. All, too, increase abundantly by offsets, except *Cooperias*, and these I expect another year to grow from seed. Seedlings come up freely here in the open ground self-sown.—T. D. HATFIELD, *Passaic, N.J.*

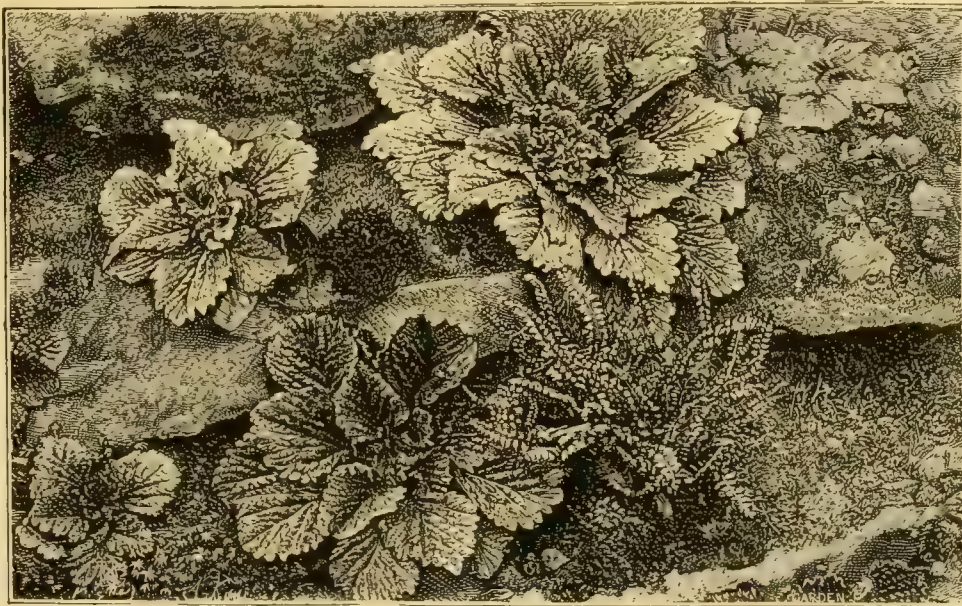
Everlasting Peas.—Where cut flowers are in request, these ought to be largely grown, as when

most useful in promoting luxuriant growth, and for guarding them against the ill-effects of drought, for the more growth the more flower. If walls or fences are not available, they may be planted in rows or clumps, and staked like ordinary Sweet Peas; but in stormy weather, if fully exposed, the purity of the blossom is soon tarnished; they therefore well repay a little protection.—S. D.

IRISH IVY FOR COVERING WALLS.

This is one of the best of Ivies for covering walls quickly where other kinds of creepers will not succeed. On lattice-work or wooden fences it makes an effectual screen, and if some pains are taken to plant it well, it repays any trouble in that direction by its extra rapidity of growth. It will grow in almost any kind of soil; but in poor material the growth is not so quick as in good soil, nor is its colour so deep green. In such plants foliage is their chief ornament, and therefore before planting the soil should be thoroughly trenched, adding some manure; and if water can be given frequently during the summer time, so much the better. After planting, keep the young shoots closely nailed to the wall until they are firmly established, when little attention in that direction will be required.

This Ivy can be easily increased as follows: It sometimes happens that at the back of a shrubbery a wall is covered with it, and, instead of cutting the long shoots off which are made during the summer, allow them to run along the ground at the foot of the wall, scattering a small quantity of fine soil over them when the borders are being dug. During the summer these shoots will emit roots, and in the succeeding autumn pieces of them cut off with roots attached make capital material for planting in other places where needed. Mistakes are sometimes made in clipping this Ivy at the wrong time of year. Some perform this operation in the middle of winter, and the consequence is that the walls present a bare aspect all through the dull months when

Group of *Ramondia* in rock garden.

once planted they give but little trouble; they grow freely in almost any kind of soil, and cling tenaciously to any kind of support that may be afforded them. I find that they do extremely well planted at the foot of low walls or boarded fences, faced with broad-meshed wire netting. They require no training or tying, as the tendrils lay hold of the netting and support the main shoots most effectively. All the varieties are good for cutting, but the white kind (*Lathyrus latifolius albus*) is a gem amongst pure white flowers, being a most continuous bloomer and lasting well in a cut state. Bunches of its bloom are especially well suited for forming sprays, wreaths, crosses, and for other purposes for which white flowers are in constant request. During the latter part of summer, when there is not a very great variety of white flowers suitable for cutting to be got, these Peas are at their best, and the closer the blooms are cut the more freely they flower, for, although they do not seed so freely as the annual Sweet Peas, they do perfect seed, and only a few pods will check their blooming. As the underground shoots are now pushing up ready for a start, it is a good time to increase the stock, if short, by division. A coating of manure over the surface roots will also be

greenery is most required. The best time to cut it is in April, just before it commences to make its growth; the old leaves should be cut off quite close to the stems with a pair of hedge shears; after this the wall will soon be again covered with young leaves, which are shorter stemmed than the old ones. It is well to clip them over annually, or at least every other year, in order to preserve constantly a neat appearance. E. M.

Anemone coronaria.—Dreary, long, and cold as the winter has been, it has not long kept back these *Anemones*; they have rushed up since the weather got warmer as if by magic, and are already aglow with their brilliant and many-coloured blossoms, which pop open directly the sun gets upon them. There is a wide difference, however, between old plants and young ones, the first-named being later than the latter and not nearly so floriferous, and it is evident that to have them at their best they should be treated much after the manner of annuals and raised yearly, as by doing this not only do they come into bloom earlier, but the flowers which they yield are, as stated above, finer and more abundant. This

being so, all who would have them should sow at once, and the best way of doing this is in boxes or pans filled with light, rich soil; just cover the seeds, and if they are then placed in a close, warm frame, the plants will soon be up and ready for planting out in the open. The most suitable situation in which to grow them is on a warm border sloping to the south; the ground should be well enriched by having a good dressing of mild, rotten manure dug into it; the plants may then be dibbled out in rows 1 foot or so apart; they should then be watered with a fine-rosed pot to give them a start. All the attention which they require during the summer is keeping the bed clean by hoeing, and applying soot now and then if the weather is dry. In the autumn, or as soon as the leaves die down, it is a good plan to mulch with leaf-mould, which keeps frost out of the ground, and benefits the plants during winter.—S. D.

VIOLETS AND THEIR VARIETIES.

AMONGST these fragrant flowers we seem to have more names than sorts, and the desire of most of those who grow them in quantity is to reduce the number of varieties. Recent correspondence arising out of a few notes in *THE GARDEN* has revealed this phase of Violet growers. One large grower who used to grow four varieties has cut his stock down to three, and one of these is grown chiefly for its leaves to garnish the other two. Enquiries concerning the best single or brace of double and single Violets pour in upon us in all directions. I have answered several of these already by anticipation, and may repeat the answers now. The best three double Violets are Marie Louise, Neapolitan, and, when well done, Comte de Brazza or Swanley White; the best single-flowered Violets are Victoria Regina and Czar. But a good white seems still greatly needed; such a one as would match the Victoria Regina in all qualities with the exception of its colour. Has anyone managed to grow the White Czar, the single white, or the so-called *suavis* or *argenteiflora* up to this high standard? Then where is the difference between Comte de Brazza and Swanley White. And has anyone grown the following double white Violets into satisfactory condition, such as good samples of Marie Louise and Comte de Brazza, for example, La Reine, the white Tree double-flowered Parma or Belle de Chatenay? A double lilac Belle de Chatenay is also offered. Is this after the manner of the so-called white variety striped with blue, which seems incapable of opening in our climate to any useful purpose, either out of doors or under glass?

Again, are not the New York, the Parma, Venice, and other double Violets only different varieties of our old friend the Neapolitan, taking their names from the places indicated, or from some slight differences in shades of colour? Some authorities recommend the Parma as the earliest and best for growing in frames; but surely this cannot mean that it is earlier or better than Marie Louise, only that it is earlier than the common variety of Neapolitan. But it is astonishing how much this question of earliness or precocity depends on modes of culture, site, and soil. Again, wherein does the King of Violets, the Tree, and the old double Russian or *suavis flore-plena*, as it is called, differ from each other, and which is the best for frame culture? There is also a double as well as a single Queen of Violets, the former bearing a good deal of likeness to Belle de Chatenay. The Duchess of Edinburgh is also very differently described by different growers, as, for instance, as light tinted mauve and fringed with azure and creamy sulphur edged with pale lilac. Of the latter, I hope some holder of stock true to the latter description will kindly forward half a dozen plants, as this would be a new departure in Violet shades. Carter's Mazarine Blue and Marguerite de Savoie are also highly spoken of and largely grown by some. Has anyone grown in this country in quantity the double blue variety of Comte de Brazza, which is described as larger and richer than Marie Louise? If so, this will probably take rank before or abreast of

Marie Louise, to the displacement of some of our present varieties of Neapolitan. As to red Violets, single or double, their colour is fatal to their extensive culture, as the colour of the Violet is a most vital and essential element in its character, and constitutes, with its fragrance and sentiment, the very basis of its power of conferring pleasure. There are at least four more single Violets that deserve notice, the single Russian and single London, dwarf, dense, and early, a carpet of sweetness as well as beauty; Devoniensis, very dark purple, especially sweet, and odoratissima, also one of the most fragrant, largest, and best formed of all Violets. The flowers are almost round, of unusual substance, and great staying powers. From the succulency and size of its foliage, it suffers more in severe winters from frost than most other Violets. Whether from its robustness or some other latent cause, this Violet does not flower nearly so freely from annual plants as most other Violets. Grown on moderately poor soil at distances of from 15 inches to 18 inches (or even more where ground is plentiful) from crown to crown, no Violet will grow into more magnificent masses and multiple rosette crowns laden with bloom the second year from division than V. odoratissima.

I have ventured to offer these Violet notes as suggestive, not exhaustive, as feelers to determine quality rather than dogmatic utterances of praise or blame, and I trust the violetarian lovers of *THE GARDEN* may assist in an honest and combined effort to make the best Violets better known and more widely grown, and, if needful, for I would write with diffidence on this point, to increase our lists of synonyms and reject worthless varieties. The culture, care, and space may almost be said to be alike for all Violets, but the difference in the products and in the pleasure they afford must be seen and smelt to be appreciated.

Just as this goes to the post a promising box of a seedling single white Violet arrives from Mr. A. Rawson, Bowness, Windermere. The flowers were of good size and fragrant, but unfortunately the stalks, which were stout and said to be long, were cut to get them into the box. If favoured with another sample, I will, with your permission, again refer to this Violet, as long, stout stalks are of the utmost importance.

D. T. F.

Ornamental Grasses.—The annual species are best sown now. I sow in the open air each sort in a little bed by itself, and transplant when large enough to move to the rockery or the border or wherever required. It is an advantage to cover the seeds lightly with finely sifted soil, as many of them are very fine and would be lost in rough soil. The following are useful kinds, viz., *Agrostis nebulosa*, *A. pulchella*, *Briza gracilis*, *B. maxima*, *Bromus briziformis*, *Eragrostis elegans*, *Hordeum jubatum*, *Lagurus ovatus*, and *Pennisetum longistylum*. Most of these are beautiful when cut, and have a graceful effect when in growth.—E. HOBDAY.

Narcissus calathinus.—I have received from *THE GARDEN* office a fine specimen of *N. calathinus* of Redouté ("Lilacæ," plate 177) referred to in *THE GARDEN* (p. 338). It is a two-flowered scape, and the perianth divisions are exactly of the same length as the corona, which is large. Unfortunately, as I recently explained in *THE GARDEN*, another *Narcissus* figured in *Bot. Mag.*, 934, has a better claim to be the *N. calathinus* of Linnaeus. Whether *N. calathinus* of Redouté is synonymous with *N. reflexus* of Brotero, as generally stated, or is a varietal difference, is uncertain. The latter, which is abundant near Oporto, is a very variable plant, and, though agreeing in colour and in most other characters with *N. calathinus* of Redouté, is seldom found with the corona quite as long as the perianth divisions. The flower sent to me grows wild in the Isle of Dréneq, in the Glénan group, off the south-west coast of Brittany. A flower of it was exhibited by Mr. Elwes at a show of the Royal Horticultural Society in April of last

year. I flowered a plant of it about the same time, which was raised from seed by Mr. W. Thompson, of Ipswich, and died after flowering. The variety is very difficult to cultivate successfully.—C. WOLLEY DOD, *Edge Hill, Malpas*.

Clematites.—At this season Clematites require a little attention to grow them well and induce them to continue blooming for a long time. The ground in which they are planted must be made rich by working in a little well-rotted manure. In dry seasons, or in cases in which the plants are planted against hot, sunny walls, mulching will be found of great value, and a soaking or two of water should be given. The only pruning Clematites require is a slight thinning out of the shoots. Any that are misplaced or weak should be removed, and all dead points should be cut back. The time for doing this is just before the buds burst, when it can be seen what part of the wood is likely to start. As soon as the pruning is done, the branches left should be regulated and fixed in their proper positions, after which they look best when allowed to grow as they like.—S. D.

NOTES.

MRS. EWING'S GARDEN.—The late Mrs. Ewing, well known as the authoress of "Jackanapes," and a popular writer of many other stories for children, was a keen lover of hardy flowers. Her garden at Taunton "was a Potato patch, with soil chiefly composed of refuse left by the housebuilders." But, in addition to modern lore, she had read the works of Gerard and Parkinson, and so it was soon filled with herbaceous plants from the market or from friends. In 1884, her story of "Mary's Meadow," in *Aunt Judy's Magazine*, was very popular, and led to the establishment of a "Parkinson Society" for the exchange of hardy flowers. Roses and Primroses were her favourite blossoms; and it is interesting to know that the latest literary work she penned was on the subject of flowers. Here it is:—

A garden of hardy flowers is pre-eminently a garden for cut flowers. You must carefully count this among its merits, because if a constant and undimmed blaze outside were the one virtue of a flower garden, upholders of the bedding-out system would now and then have the advantage of us. For my part, I am prepared to say that I want my flowers quite as much for the house as for the garden, and so, I suspect, do most women. The gardener's point of view is not quite the same.

No doubt this is one of the real points of a good collection of hardy flowers; not only are they beautiful outside, but may be brought inside to live with us indoors, and so nestle nearer to our hearts. A large proportion of them, cut in the fully-grown bud stage, actually bloom in the house, and endure fresh and fair much longer therein than when exposed to the vicissitudes of the open air. Flowers are, of a truth, most beautiful, but far nobler do they become if of beautiful service or use.

HARDY EUPHORBIAS.—One of the freshest and most singular of all hardy perennials, viz., *Euphorbia Characias*, is now in bloom. It is not likely to be a popular plant; it is not showy, but, if less brilliant than the Poppy, it has a distinctness of habit and a quiet beauty of its own which should ensure it a place among more highly-coloured things. Some other hardy Euphorbias merit a place in the garden for the sake of their fresh leafage and clusters of rich greenish yellow blossoms and bracts. They like a sandy soil, and crop up very prettily from amongst rough stones. A fine old shrubby species, *E. neriifolia*, is now and then seen in mild seashore localities. It is very effective, forming rounded masses of 5 feet or 6 feet in height, and its dark brown inflorescence is generally a poser when presented to the man who thinks he knows garden plants well. It has smoothly oblong wax-like leaves, 5 inches or 6 inches in length, somewhat resembling those of the Oleander, as its specific

name implies. If you want soft masses of mossy light green foliage to contrast with more showy things, you might do worse than grow *E. cyparissias*, a low-growing plant just now pushing up its young growths near the brickwork margin of an old well. Even that vagabond species, *E. Lathyris*, or Caper Spurge, is distinct in habit, and would be thought worthy of cultivation were it not so anxious to be where it is not desired.

PEONY LEAVES.—Just at this time of the year, when golden Daffodils are all ablow, the richest of all hardy foliage for contrasting with their yellow trumpets is that of the herbaceous Pæonies. Big clumps of these are now of a glistening crimson-brown colour, 1 foot or more in height. In places where large beds or masses, or well established groups, of these Pæonies already exist, I would urgently advise their owners to plant bulbs of some of the best Daffodils in amongst them next August or September. A few bulbs of *N. Horsefieldi* planted near some clumps of crimson-leaved Pæonies are now very fresh and lovely and most generally admired; indeed, some of our visitors who think they know this Daffodil well scarcely recognise it, so brilliant does it seem as contrasted in the way above described. There is a whole world of beauty in these Pæony leaves, and the greatest of variety also. Some are as finely cut like Fennel leaves, as in the forms of *P. tenuifolia*; others, as the native *P. corallina*, have crimson stems and broad greenish leaves; some have soft, grey foliage, but all are so beautiful, that even if these plants never bore such great and gorgeous blossoms—magnified Roses—as others do, we should be glad to grow them for their leaves alone.

THE GARDEN—COULEUR DE ROSE.—An old name for the garden is a pleasance, a paradise, a place for delight, and, as in the days of Bacon so today, gardening remains to us as the purest of human pleasures. A garden worthy of its name is ever beautiful, ever satisfying, see it when you will, morning, noon, or eve. It is a conservatory of things useful and beautiful, of fruits for service and of flowers for sacrifice. In the morning it is all freshness and perfume; at noon it is brilliant with colour; while at eve it becomes a temple for meditation and for rest. The richest fruits, the fairest blossoms are born there; and crowned heads, Marie Antoinette to wit, wearied with luxury, have found peaceful rest among shady trees and simple flowers. If we wish to describe a fertile land we say it is like a garden; and the gardener's art is almost magical, since it can make a bare rock or a sandy desert even to blossom as the Rose. A good garden is a continual delight, a paradise of flowers and of fruits from many lands. Every shady tree is a tabernacle wherein matins and vespers are sung by the birds, while the incense of many blossoms is borne on every gentle breeze. It is the time of Iris, of Lilies, or of Roses, and from the shrubbery comes the thrilling melody of that sweet singer of the night, whose limelight is the moon of summer. As *Cincinnatus* was happy on his farm, Virgil amongst his bees, so also may we be happy in the garden if we will it so.

THE GARDEN—COULEUR DE JAUNE.—It is all very well to talk of the satisfying beauty, the sentiment, and romance of a garden; but gardening is, after all, a continual trouble, and even at the best a fearful joy. The spring frost slyly nips your earliest growths and robs you of the fruit harvest; your pet Gentian is browsed by snails, or a slug eats off the first flower-spike of a new Orchid; cats destroy your fondest hopes, and birds, or a neighbour's poultry, scratch up your choicest seeds. Even in the hothouses there is trouble continually. The Peaches drop off at stoning time, the Grapes either set badly,

or they shank off, or, worse than all, the boiler breaks down during the sharpest and longest frost of the season; the gardener's work is never finished, his troubles never end; he must attend to his fires at night and be up by daybreak in the morning. There are thrips, red spider, bugs, scale, and green fly, fungoid growths, and blight mysterious of many kinds. Everything alive seems to have conspired against him; bird and beast alike do their best to thwart his labours. The mice eat his Crocus roots, the cats scratch up his newly sown seed-beds, pigeons or pheasants uproot his finest Peas at sprouting time, and the rabbits bark his best young fruit trees, while the blackbirds spoil his early Strawberries and steal his sweetest Cherries almost from under his very nose. If he wants to sow or dig, it rains continually. His newly planted vegetables are killed by drought. His hands are blistered, his back aches, his temper is soured. "Bah!" says he; "talk of poetry and sentiment, all real gardening means hard labour all the year round."

THE CANADIAN BLOODROOT.—When this first emerges from the soil until now, when its great pearl-like buds escape from the folded soft grey leaves, it is very beautiful, but it is beauty of that quiet kind most delicious to a real lover of flowers, but not startling enough for the people who themselves say that they love flowers. It is the earliest Poppy of the year, a dainty little Quakeress clad in silvery grey and white, somehow bringing to mind the voyage of the "May-flower," or it may be personified in "Evangeline;" but its botanical name is *Sanguinaria canadensis*, and it is one of the first blossoms of a Canadian spring; while its root is like a cut finger, bleeding profusely if touched with a knife or spade. In some soils and positions it spreads into good-sized clumps, and bears quite a sheet of its white, starry flowers; elsewhere it is capricious, and in some gardens it refuses even to exist; but its quaint leaves and pearly buds are so good to see when at their best that no trouble should be spared to establish this plant in the garden. It delights in a deep, moist soil, enriched with leaf mould or peat. Shelter also is necessary, as its leaves, like those of Hellebores or Hepaticas, are quickly ruined by drought or by seathing easterly winds.

ADONIS VERNALIS.—A pale yellow Anemone shining in the sun. There are a dozen of its bright stars, perhaps more, with many buds nestling amongst its finely cut leafage of a soft and Moss-like apple-green tint, and altogether they form a fresh and beautiful picture amid the sleet storms of what should really be a showery April day. This Adonis seems like the Pasque flower (*Anemone Pulsatilla*); it must be firmly established ere it will yield up its full store of earth-garnered beauty; but as seen at its best in a strong, healthy mass, it becomes one of the finest of all the Buttercups of spring. On a dull, cold day you may pass and repass the clump of folded buds and feathery leafage twenty times and not notice it, but at noon to-morrow, if the sun shines, it has all the brilliancy of lacquered gold, each petal having a burnished brightness rivaling that of the Ficara or of any other blossom thus early in the year. The harmony of its flowery stars and softness of its finely fringed leaves baffles all description, so that one wonders the more at its rarity in most gardens. There is a yet larger variety, *A. pyreniaca*, and as yellow Anemones are not too common, both varieties are worth a well-chosen spot, where they may delight one with their stars of gold.

GARDENING FOR LADIES.—Gardening is an art all women may learn with advantage and practise with every chance of success. Some of the best filled gardens I know owe their existence to feminine hands, so I hold that Charles Dudley

Warner got a little off the right track when, in describing his own conflict with Nature, and pusley weed and the rapacious ravages of striped bugs in America, he ungallantly remarks that all his "Polly" did was to sit on an inverted flower-pot and consult with him while he did the hoeing. Then he slights the friendly visits of two preachers, of whom he remarks that they did not bring hoes. Here in Europe we have so many good gardeners among the ladies and among churchmen, that somehow Mr. Warner's fun loses its point when applied to them. Time was in the days of Elizabeth and Shakespeare, when the garden was emphatically the ladies' province, and all the thoughtful organisation and not a little of the actual labour of conserving its finest products devolved upon the thrifty housewives of the time. Where are now the home-made jams and wines and marmalades, and sweet-smelling things, the candied Pears and Plums and Figs of the olden time? Before me is an old book, by Gervase Markham (1648), containing Lawson's "Country Housewife Garden," and from this we learn that not only the flower garden, but also the culinary garden and orchard with the ordering of all fruits and herbs or roots, the making of cyder and wines, together with the husbandry of bees, devolved on the women of the time. England was then less shoppy, but I question if people were less happy then than now.

SELECTION v. COLLECTION.—"Art is long and time is fleeting," and those who know most of hardy flower culture will agree that careful selection is necessary if the best results are to be expected or obtained. In all art there are negative as well as positive methods, and the art of leaving out with advantage is that which comes last to the student who wishes to excel. If we "climb to heaven on the ladder of repented sins," so is rigid selection, as a rule, the result of a younger and stronger passion for collecting all things, many and varied, into the garden. In a word, selection is born of a full experience; it is the gold which remains after the smelting of much crude ore. My own experience is that the selection of particular plants is but half the battle in the garden, since it is quite as necessary to select positions and places, to give peat or lime, or to withhold the same, as it is to select plants. If I were to make a selection of the best hundred plants in this locality on a lime formation, it would prove a bad selection on some soils where lime is absent, and so *vice versa*. In a word, the beauty or successful culture of hardy flowers is a far wider subject than their names alone would show. Every day I see plants praised that are here weedy and wretched, so also others rigidly condemned which are quite beautiful, and so things will remain to the end of the chapter. A long and troublesome experience is after all the shortest and best way of learning the selection and cultivation of the finest of hardy flowers. Let us have selections given by all means, but we must also have some data as to soil and climate as well as mere names.

SEED TIME.—The present is one of the worst seasons I ever remember for the sowing of annual and other seeds. Frost, snow, sleet, rain, and wind have so far been the rule, with but a modicum of warm sunshine. Now is the time to sow the seeds of Anemones for next season's bloom. Sown now, the strongest of the young plants will bloom in September and October, and prove very brilliant and useful along with early Chrysanthemums. Sow now also seeds of common Maize or Indian Corn, the young growths of which are most fresh and useful for arranging along with large flowers in pots and vases during the summer and autumn months.

Another little wrinkle I picked up last year was the sprinkling of Flax seed over the borders broadcast, the result being a shimmer of pale blue flowers waving in the breeze like little butterflies. Scarcely any annual is more elegant in habit, and it is a plant which does no harm to its neighbours if the borders be well manured, as all borders of hardy flowers ought to be. All hardy annuals may now be sown, and as a rule better results follow their being sown in the open air than when they are reared, and often half starved also, in pots in a frame. The main point is to work up the soil well and to sow the seeds very thinly. We find it best to make duplicate sowings, one in October and then again in March, in case any of the first or autumnal-sown seeds fail to survive the winter.

BRONZY LEAVES.—Do we make enough of the bronzy foliage in our gardens?—I mean the hardy outside leaves in which Nature has mixed red colouring matter among the green. Take, for example, the lovely leafage of some Mahonias or Berberis, than which no hothouse leafage can well be finer, and certainly not more enduring after being cut. These bronzy Mahonia leaves keep fresh for many days, and one valuable quality of all these leaves that are bronzy is that they suit nearly all the flowers which may be arranged with them. Put a good handful of crimson Pæony leaves along with your vases of Daffodils and note the effect. The leaves of Heuchera Richardsoni again are simply lovely, no matter how rare the blossoms placed beside them. Last autumn some ladies came to me to decorate a table at a bazaar. They could not afford to buy flowers, but we filled some big pots with purple Beech leaves and arranged amongst them the golden blossoms of the Corn Marigold (*Chrysanthemum segetum*) and everyone seemed surprised at the effect this mixture produced. For distant effects Beech leaves and Sunflowers make a brave show; but with the satiny brown of Heuchera leaves you may use the most fragile or delicate of Orchids in a tiny vase quite near to the eye. Just now these leaves, with spikes of Siberian Squill, are a picture in a bit of Salvati glass that is near me as I write, and Ghent Azalea flowers also make a brave show therein later in the spring.

TELLIMA GRANDIFLORA.—One of my happiest memories is of the dear old horticultural gardens at Chiswick years ago, when the wild garden or wilderness belt of hardy flowers and coarse herbage stretched all around the kitchen garden and fruit orchard, reaching from the American garden above to the arboretum below near the Duke's Drive. There were at that time but few hardy flowers in the dressed beds or borders, for fashion just at that period was mad on zonal Pelargoniums and Lobelias, and so the young botanical mind best loved the wilderness wherein yet lingered the taste of bygone days. There I one sunny evening in May came upon a big patch of Tellima growing in the rank Grass and bearing aloft its spires of pale green flowers. No plant ever puzzled me more. No one knew what it was—that is, among my young associates; so as the custom then was, I one day, after nearly breaking my heart over books, took the flowers to the old seedsman, Ben Hide, and then to my delight got from him its name and history. It is a North American plant allied to the genus Mitella, and one of the conceits of the botanist who named it was to alter the word Mitella into the name Tellima! Anagrams of this kind are not uncommon. Neja gracilis is an example, Neja being an alteration of the occult word "Jane," so that "slender Jane" is the meaning of the terrible Latin in this case. To return to Tellima, it is very pretty when in flower, and its slender spires

endure fresh in water for some time after they are cut, while during winter its leaves change from light green to a blood-red colour, very prettily veined, and so are ornamental at a season when beautiful leaves are scarce out of doors.

PRIMULA CASHMERIANA.—Some hard-hearted vandal has called this the "drumstick Primrose," a dreadful name for a beautiful flower, and one which makes us think even a dry and tolerably long Latin name preferable to such an English one. Of the Indian Primroses this is one of the most robust; but to see it at its best one must raise a stock from seeds sown as soon as ever they ripen every year. Young plants in deep moist soil, enriched with leaf-mould, remind one of Lettuce, so vigorous and fresh are their young leaves, of a greyish green tint above, sometimes thickly powdered with golden farina beneath. We shall never see the full beauty of Primulas until we treat them as annuals, or rather as biennials, more generally than is at present the case. The main point is to sow the seeds as soon as they are ripe thinly, either in boxes or in mild localities in open-air beds. Our strongest plants are from the open air, but on cold, strong soils in clayey land sowing thinly in boxes of earth in a cold frame and careful transplantation would doubtless prove a more successful practice. Strong plants of this Primrose of Cashmere, each bearing five or six dense globular heads of its purple or lilac flowers, are now very ornamental in the garden.

VERONICA.

EFFECT OF FROST ON PLANTS.

"T. B." is mostly so safe and sure in his conclusions, that they may be at once accepted and put in practice without question. The subject, however, of the effect of frost on plants (p. 303) is so imperfectly understood, even by the most experienced cultivators, that it may well be the case that some differences of opinion may prevail concerning it. The general principle laid down by "T. B.," that the less watery or succulent the plants the less subject are they to injury by frost, will be generally accepted. Such facts as he cites of semi-shrivalled Aloes and Echeverias enduring more frost than the same plants when plump and full of moisture are familiar to most of us. But it is difficult to see how these facts, and they are facts, can quite run on all fours with other cases, cited immediately afterwards, of dry Ferns and shrubby Calceolarias suffering more from frost when their roots are dry than others with their roots in a more moistened condition—sufficiently so, in fact, to keep their leaves crisp and plump. "T. B." cites Centaureas and Lemon-scented Verbenas in proof of the same contention that over-dryness at the roots favours their destruction by frost. Now, this seems a little bewildering, for here, in a single paragraph, we have it affirmed that extreme dryness of root and top proves the salvation from frost of two classes of plants, and the destruction of three other classes specified and numbers of others that might be named. Now, all this may be so, for we know how widely different in character, habit, constitution, and especially in cold-resisting power, plants are. Nevertheless, it is difficult to see that the self-same condition of plant that proves safety to an Echeveria brings death to a Centaurea. Neither have I ever found a moist condition of root favourable to the safety of Calceolarias, shrubby or herbaceous, when the frost has stolen a march upon our covering appliances or heating apparatus. On the contrary, the plants that had been most recently and copiously watered, and the leaves of which were most crisp and plump, were invariably the most severely frozen. The sweet or Lemon-scented Ver-

benas is a rather different sort of plant to either of the others named, being more shrubby than the shrubby Calceolarias. It also survives the winter against warm walls and dry sheltered borders in East Anglia, while any plants left out in common beds or borders in which the soil is in a more moist state are destroyed. This I have found to be the case again and again, and the safety of the plants has always been in the exact ratio of the dryness of the roots. I admit, however, that the age and consequent hardness of the stems have a good deal to do with the hardness of the Lemon-scented Verbena, thus confirming the views that "T. B." sets forth in confirmation of the superior hardness of his old sweet-scented Pelargoniums in contrast to the tenderness of zonals or of younger plants and growths of the self-same kind or other varieties of scented Pelargoniums. We have a striking case in point here of an old plant over 10 feet high, and with a stem almost like a tree, that has stood in an unheated passage for years and is still alive and vigorous, after being subjected to many degrees of frost again and again. Occasionally, but rarely, in an experience of over twenty years it has lost a few of its upper branches, but the major portion of the plant and its trunk have continued sound. But all these, and similar examples in almost any number can be found, tend to show that dryness of root and anti-succulency of stem and leaf are the most favourable physical conditions for the conservation of the heat of plants, or, to put it in other words, for enabling plants to resist cold.

ANOTHER EVIL results to the roots of plants from freezing, viz., the mechanical bruising of the roots through the expansive power of frost within the pots. Of course, this force will be greatest where the soil is wettest. Hence injuries from this cause will be more acute among Calceolarias, Centaureas, or other plants in which the roots are moist than among the same plants or others in which the soil is so dry as to force roots and tops alike into a state of semi-repose or a partially shrivalled condition. There is another cause of the destruction of plant roots in pots, especially when they are much cramped or crowded, besides that of the mechanical expansion arising from frost, powerful for evil as the latter undoubtedly is. This arises from the cold, to use a popular expression, hitting the roots in their most vulnerable part. The whole of the best and most tender roots—in fact, the only roots of value—in a crowded flower-pot will be found crammed up against its sides. Let the frost penetrate through the pots and it affects the roots as a heavy blow in the mouth or a stab through the heart would a man. It kills them at once on account of their utterly defenceless position. I quite agree with "T. B.'s" views relating to the debilitating effects of cultivation on hardy plants. As Celery, Cabbages, Cauliflowers, Kales, Sprouts, and Broccoli enlarge in size and increase in sweetness and succulency, they become more tender and more easily destroyed by frost. Moderate feeding and severe checks are some of the means at our command to restore them to something like their original hardness. Where this cannot be done some measure of protection is the penalty we must pay for our improvements. The heeling over or in-laying of Broccoli for the winter is one of the simplest means at our command for ensuring their safety; this cuts off or reduces their natural supplies of food, diminishes their succulency, and approximates their character and texture to that of the Aloes and Echeverias already referred to, and so ensures their safety.

Generally speaking, practical gardeners will endorse "T. B.'s" opinion in regard to the ability of plants to bear more frost when their tops

are dry than when wet, though the reason he assigned is hardly expressed with his usual perspicuity, "as the more moisture there is hanging about them the more they suffer from its being confined." Confined by what, and where? This is a vitally important point, as in nothing does the local experience of cultivators run more entirely counter to the general science of physical philosophy than in their respective estimates of the effect of moisture on the conservation of heat. Vapour is doubtless the warm blanket that preserves our heat, and so sustains the life alike of the vegetable and animal kingdom. The more vapour in any climate the more heat, and *vice versa*. Even the falling dew on the surface of the leaf is a conservator of the heat of the plant, though as the dew gets crystallised into hoarfrost it may become a thief in the night

heat, while by converting the still air into a troubled sea of restless molecules it virtually breaks the force and arrests the power of radiation, the most potent stealer of heat from earth, air, water, and plants. Horticulturists following the trail of frost wreckages, and invariably finding these most thickly strewn where the moisture on leafage, bough and bloom has lain the heaviest, have naturally linked the two together as cause and effect, though possibly the lack of motion in the air and not the presence of vapour should be credited with the frost bitings and killings all too prevalent in our gardens.

D. T. F.

INDOOR GARDEN.

ACACIA LINEATA.

THIS is one of the best of the Acacias suitable for a small greenhouse. In the last volume of THE GARDEN, this and another equally beautiful kind, viz., *A. leprosa*, were represented in a coloured plate, along with which an account is given of the most useful, in a garden sense, of the Acacias known in English horticulture. The habit of *A. lineata* is shown by the spray represented, and the freedom with which it flowers may be gathered from the countless little globes of bright orange which thickly stud the graceful branches. It flowers later in the spring than the majority of Acacias do, and it has the useful quality, not always belonging to these plants, of lasting well when cut and placed in water. A plant 2 feet high, well furnished with branches which will certainly flower, and be attractive even when not in bloom, may be grown in a 6-inch pot. It is therefore easy to see that the merits of this species as a greenhouse plant are at least equal to those of such well-known kinds as *A. arinata*, *A. Drummondii*, *A. leprosa*, and several others, not forgetting the singular flat-stemmed kind known as *A. platyptera*. These are worthy of being placed among the best of greenhouse plants on account of the beauty of their yellow balls or catkins of flowers, and because of their special adaptability to even the smallest greenhouses. Of *A. Riceana*, the most elegant perhaps of all Acacias when grown into a large size as a small pot plant, we cannot speak so favourably; but being almost a climber in habit, and, if happily situated, growing very rapidly, it may be used for training against pillars or along rafters with the most elegant effect. Anyone intending to grow Acacias should procure young plants from the nurseries now and at once start them into growth, as it is only from plants liberally treated from early spring till autumn that good flowering branches may be expected the spring following. These remarks are of course intended more for what is termed villa gardening than for gardens where glass space is abundant. Anyone who possesses a large conservatory in which are no specimen Acacias, ought just now to pay a visit to Kew, where in the temperate house enormous specimens are now either clothed with beautiful yellow flowers, or soon will be. Acacias are, many of them, almost tree-like when properly developed. Many of the comparatively dwarf and cramped specimens one sometimes sees in pots are mere caricatures of the bold and handsome shrubs they form naturally, and to expect some of these large growing kinds to give satisfaction when grown in small pots is unreasonable. There are, however, exceptions to this, and some of these are the kinds just mentioned.

B.

Æschynanthus pulcher.—Good high-coloured basket plants suitable for an intermediate house are so few, that it may be useful to direct attention to this *Æschynanthus*. In habit it is

drooping, and produces long wiry growths, furnished with plenty of foliage. The flowers are bright red, and on a strong plant are freely produced. In form they are not unlike the flowers of a *Pentstemon*, but considerably larger. I lately saw a plant of this kind in excellent condition in a house in which the temperature had not ranged above 50° all the winter, yet it had been in flower for three months.—J. C. C.

BOUGAINVILLEA SPECTABILIS.

WHEN this *Bougainvillea*, the nearly allied species *B. speciosa*, and the now common *B. glabra* were first introduced they were for a long time little known and seldom met with, and in the ease of those who obtained the two first-named kinds, not a few discarded them on account of the difficulty that was experienced in inducing them to flower, a difficulty in a great measure owing to the wrong treatment to which they were almost invariably subjected. *B. spectabilis* in its native country grows to a large size, attaining almost the dimensions of a small tree, and in a cultivated state it is a remarkably vigorous grower, so that if its roots are not confined as regards space the plant would literally fill a large house in very little time. It is not difficult to see that a plant possessing a natural habit of this kind was not well adapted for pot culture; consequently when so treated the result generally was that no flowers were forthcoming, especially when grown in a high temperature, and there appears to have been an all but general idea amongst those who first took this *Bougainvillea* in hand that it required the temperature of a hot stove, with the usual accompanying moisture-laden atmosphere. Under such conditions, when the plant was turned out so that its roots could extend in a rich bed of soil, the consequence was that it grew in a way that was more calculated to favour the production of gross wood than flowers. I well recollect the sensation produced when a quantity of its long shoots were shown in London, clothed with their glorious rosy purple bracts. They had been cut from a plant that was said to have been grown in a high temperature, but with the roots in a bed that had been subjected through the autumn or winter to the roasting influence of fire-heat, with little or no water, and to this was attributed, and no doubt in this case correctly, the production of its flowers. This naturally led to the supposition that this was the only way in which to get the plant to bloom. Few cultivators had the means of subjecting the roots to the semi-roasting process, and therefore few attempted to grow it. I know not who it was who first discovered that if grown cooler the root-baking process was unnecessary, but this has turned out to be the case.

IN A GOOD-SIZED CONSERVATORY kept a few degrees above the temperature of a cool greenhouse this plant will succeed if only a few matters connected with its cultivation are kept in view. A temperature of from 45° to 50° in winter is what it likes. The bed in which a plant intended to occupy a large space is grown does not require to be more than 15 inches wide by 10 feet or 12 feet in length; in autumn, when growth lessens, gradually withhold water so as to assist wood-ripening; allow the soil to become quite dry through the winter until growth again commences in spring, when it must be well soaked with water so as to thoroughly moisten the whole, the effect of which is to at once excite growth. The shoots will not extend much before the bloom is apparent, as this species—unlike *B. glabra*, which blooms from the strongest shoots of the current season's growth after they have reached a considerable length—flowers from the ripened wood. In pruning, therefore, only re-



Acacia linifolia; flowers yellow.

of the warmth that it previously husbanded. Besides, plants covered with hoarfrost suffer less from cold than during dry frost, and yet where the dew and hoarfrost are thickest in the troughs of valleys the plants suffer more from cold than on the sides or crowns of hills, where little or none falls. It seems contradictory, but that probably arises from our seeing but a small portion of the truth. One thing seems certain among much that is vague and undecided, and it is this, that the more still the atmosphere, the more intense the cold; or, in other words, the more potent the energy of radiation. Motion in the air, which to our senses seems but to intensify the cold, yet becomes our most powerful factor in combating it. This, while it scatters abroad part of the moisture, also more equally diffuses the

move shoots that are too weak to flower until after the plant has bloomed, when the growths should be thinned out and shortened back as far as may be necessary in order to confine the head within the space allotted to it to fill. As has been said, *B. spectabilis* is a strong, free grower, attaining a large size; and if an attempt is made to confine it too much, little of its real beauty will be seen. From the amount of growth the plant makes it soon exhausts the soil; to remedy this the bed must be top-dressed with manure of some kind each spring; liquid manure should also be given freely during the growing season. When well managed and it has room enough to admit of its extending freely, it is when in flower scarcely equalled by anything in cultivation. So far from deserving the character given it of being a shy bloomer, its flowers, or rather coloured bracts, literally hide the leaves and shoots.

THE DETAILS OF CULTIVATION here given will answer for *B. speciosa*, the kind mentioned by "B." in *THE GARDEN* (p. 314). As usually seen, this species is weaker in growth than *B. spectabilis*, and although often confused with the latter is easily distinguished from it, as the leaves and shoots of *B. speciosa* are hairy. *B. glabra* is much the best sort for pot culture, as it blooms profusely so treated, provided it gets warmth enough; but there is one thing connected with it that I have never observed in any other plant, and that is, though it does well and flowers beautifully when planted out in a house where the temperature kept up is only a little above that of a greenhouse, yet so treated it refuses to flower when grown in a pot. How the glabrous species was introduced is somewhat uncertain; the first I saw or heard of it was at an exhibition near Manchester, where two nicely flowered small specimens were shown by a gardener in the neighbourhood, who represented that he had received cuttings of it from a garden near Liverpool. Like most other things in the plant way, it soon found its way to London, but before there was time for it to become plentiful quantities of *B. speciosa* were sold for it, which, needless to say, caused a good deal of dissatisfaction, for, grown as most of them were in pots under hot stove treatment, they grew away at an amazing rate, but refused to produce so much as a solitary flower.

B. GLABRA, taking it all in all, is the most useful species, for if grown in a high temperature it can be induced to give two or three crops of flowers in a season, and, as already said, it blooms profusely when planted out in cooler quarters, but its coloured bracts are much smaller than those of *B. spectabilis*, and they never attain the beautiful deep rosy purple colour that is present in those of that species. Still, *B. glabra* may be induced to open its blooms very much darker by removing the plant just as its bracts begin to colour from the stove to a house where only an intermediate temperature is maintained with more air than it would get in a stove. In submitting to this treatment *B. glabra* differs from most plants, as there are few things that, after having been grown in a high temperature until their flowers were partially developed and then moved to a cooler temperature, would not drop their bloom before it opens. T. B.

Neapolitan Violets.—While the subject of frame-cultivated Violets is under discussion, may I be allowed to urge from the point of view of beauty the superiority of the old Neapolitan over the now more fashionable Marie Louise? The latter has been in favour of late years, owing, no doubt, to its greater vigour, size of bloom, and general ease of culture, qualities that naturally recommend it to gardeners who have to supply double Violets throughout the winter. It is also probable that

the variation in colour when it first appeared helped to make it popular, from the natural attractiveness to many minds of a new thing. But there can be no doubt that the Neapolitan is by far the more beautifully coloured flower. It is a pale blue-purple of great purity, shading by delicate gradations to the small white centre; whereas the colour of the Marie Louise is a red-purple of rather mean quality, generally disfigured by reddish flakes and spots; the white centre is commonly too large, and its greenish tinge towards the base of the petals, which is not displeasing in the pure-toned Neapolitan, is painfully inharmonious. What we want is a Violet with the colour of the Neapolitan and the robust habit and size of bloom of the Marie Louise. I read with pleasure lately that Mr. Allan, of Gunton, recognising its beauty, was paying special attention to the culture and improvement of the Neapolitan. I cannot help thinking that if a few of the great gardeners who grow frame Violets in large quantities would take this good old flower in hand, we should in a few seasons have a double Violet of greater beauty than has yet appeared upon our drawing-room tables in winter. That the Neapolitan is capable of considerable development no one will doubt who has seen it in the gardens of the south of France well grown among the Olives.—G. J.

AKEBIA QUINATA.

To the notice given of this useful climber last week, the following may be a serviceable addition. It was sent home by Fortune from Japan, where, as well as in some parts of China, it and the three or four other species of *Akebia* are as common in hedges and upon trees as Honeysuckle is with us. In the warmer parts of England *A. quinata* may be grown out-of-doors either against a wall or clinging about some bush or tree. The late Mr. Joad, in his garden at Wimbledon, had a very handsome specimen of this plant; it had made a home for itself upon a bush of *Ceanothus*, to which its branches clung, and in cold weather obtained from them slight protection. When in flower the vinous purple of the *Akebia* and the pale blue of the host plant formed a pretty combination. In the colder parts of this country it is useless planting this climber out-of-doors, for even if protected in severe weather it rarely produces its flowers in such places. In a cold greenhouse or conservatory it is, however, quite as much at home as in the most favourable outdoor situation, and we know of several fine specimens which are grown trained upon trellises or made to drape pillars with very pretty effect. There is an old healthy plant of it in the greenhouse (No. 4) at Kew, and another against a sheltered wall there, but the former is much the freer flowerer, and may be seen blossoming now, from March to May being the period when the plant flowers. The branches grow rapidly and twine about anything suitable for them to clasp; they are when young a deep chocolate colour, becoming green, as also do the leaves, with maturity. There are five leaflets to each leaf, arranged palmately, and the flowers are produced from the leaf-axils on the ripened wood of the previous summer's growth. The character of the flowers is somewhat singular, the sexes being in different flowers—males in a cluster at the ends of the racemes, females two or three together just above them. The female flowers are three times as large as the males, and they are also much deeper coloured, being a deep chocolate-purple. Sometimes, but only rarely, the flowers are succeeded by rather large brown pods, not unlike the fruit of *Capsicum*, and containing numerous seeds. The genus *Akebia* is related to the *Stauntonias* and *Lardizabalas*, the trio being here and there grown as greenhouse climbers or in sheltered gardens out of doors. They all bear

large fruits, which in their native haunts are gathered and used as food. In Japan *A. quinata* is known as *Fuji-Kadsura-Akebi*. B.

VIOLETS IN FRAMES.

PERMIT me to thank Mr. Allan, of Gunton Park, for some fine samples of Violet plants which he has sent me, and also to repeat and endorse the editorial estimate of their perfect character. Of Comte de Brazza it is said (p. 302), "An excellent crop so late in the season, flowers large and fine, pure white, and produced well above the foliage." Of the foliage itself nothing is said, but it is large, abundant, clean, and of the deepest green—altogether such a magnificent sample of perfect Violet culture, that I have no hesitation in replying to Mr. Allan's query, that it not only realises, but exceeds my expectations of what a good Violet should be, and that is saying a good deal. In fact, I have never questioned the high merits of Comte de Brazza as grown by Mr. Allan, but I have ventured to state that I have been somewhat disappointed in it as grown by myself—a widely different matter. It is well also to mention that, grown under similar conditions and side by side with Marie Louise, the Comte de Brazza will not yield equally satisfactory results. Like the Neapolitan, it has an inveterate tendency to produce runners, which it continues to do throughout the season, instead of developing early into crowns or bunches of crowns, as the Marie Louise does. It is this inveterate creeping habit that has proved my difficulty, as well as that of others, with this Violet. Doubtless more persistent stopping will force this fine Violet into a more rosette form. Another mistake has been the attempt to force it into bloom too early. Mr. Allan does not say whether under identical treatment the Neapolitan and the Comte de Brazza bloom abreast. My limited experience with the Comte is that it is later than the Neapolitan. Mr. Allan will also, I am sure, excuse me for putting a few questions: Are the three sample plants sent, viz., one of Comte de Brazza, Neapolitan, and Marie Louise, all of the same age? were they subjected to the same treatment, unless, perhaps, in the matter of stopping the runners? and were they grown in the same soil? Also, were Comte de Brazza and the Neapolitan stopped the same number of times throughout the growing season? Your readers will appreciate the significance of the answers to these questions when I add that Comte de Brazza is more than double the size of Marie Louise and four times the size of the Neapolitan, and is without exception the finest Violet plant, alike in foliage and flower, that I have ever seen. Violets are every day becoming of more importance, and I trust that Mr. Allan and others will not mind even repeating themselves occasionally in order to bring all the readers of *THE GARDEN* up to their high level of culture. Has Mr. Allan or any other Violet grower anything to say in favour of a good single white Violet with long stalks, or better single blue Violets than *Victoria Regina* or *The Czar*? Finally, has anyone succeeded in mounting the old double Russian Violet on longer stalks? Could this be done, I think it might almost be so cultivated as to rank second in merit, while running almost abreast in time with Marie Louise. It is nearly all bloom, very fragrant, and, from the smallness and scantiness of its foliage, probably more Violets could be gathered from a frameful of this variety than from any other. D. T. FISH.

Double-flowered *Sparmannia africana*.—

This variety has one very great drawback, and that is, it seldom flowers, while the single kind is, as is well known, a profuse bloomer. The double form has been cultivated for about half a dozen years, yet the first time I saw it in bloom was at Ghent some three years ago, and since that time I have not heard of its blooming until this year. Its blossoms last longer than those of the single type, but the fact of its being so shy detracts greatly from its value. I have often had it produce flower-

buds, but could never coax them to open, and that seems to be the experience of everyone with whom I have spoken on the subject. In all respects except the flowers it is a counterpart of the single kind, and, like that, is easily increased by cuttings. *Sparmannia africana* itself is an old plant, but a very beautiful one, and for furnishing large conservatories it is invaluable, though under proper conditions it will flower equally freely in a small state. Plants intended for blooming in this way are obtained in the following manner: Early in summer cuttings should be taken and inserted singly in small pots of sandy soil, in which they should be kept close till rooted. They should then be shifted into larger pots, and, when these are filled with roots, they should be again potted in pots some 6 inches in diameter. In pots of this size they will flower well, provided, in the first place, the cuttings are taken from a part of the plant that is thoroughly exposed to light and air; and, secondly, the growth should be free, but sturdy. Grown in this way, we have several small plants that are a source of beauty and interest, as well as a large specimen, from which the whole of the cuttings have been obtained.—T.

Hebeclinium atrorubens.—The best known of the *Hebecliniums* is *H. ianthinum*, a free-growing greenhouse plant, requiring much the same treatment as a *Salvia* or *Eupatorium*, to which indeed it is closely related, and its pale lavender *Ageratum*-like flowers are borne freely in large flat terminal corymbs, and last in beauty a long time. As an ornamental plant it is, however, much surpassed by *H. atrorubens*, which differs from the better-known kind in having larger leaves, the midrib of which, the leaf-stalk, and the young shoots are covered with dark-coloured hairs, which also extend over the exterior of the calyx, so that the head of flowers has collectively a much darker appearance than the other kind, although the actual difference in colour is not great. These *Hebecliniums* are good useful plants for greenhouse or conservatory decoration; they strike readily from cuttings, are easily grown, and remain in flower a long time during the spring months. Being liberal feeders, they require a good supply of nourishment at the roots; otherwise the foliage is apt to assume a sickly, yellowish tint. When cut, the flowers will remain fresh a considerable time in water.—H. P.

Forcing Lily of the Valley.—In "I.'s" note on this subject (p. 303) the fact is held in abeyance that in most of our earliest forcings of this indispensable plant the bloom alone is desiderated; hence the system that commands an equally good head of bloom in one half the time is often by far away better than that which perfects leaves as well as flowers in double the time. Either the express or slower method of forcing may be best according to the use or purpose to which the Valley Lilies are put. In most public and private establishments both systems will be put in force to supply the growing demands for Valley Lilies at all possible, and not a few seemingly impossible, seasons. For pots of Lily of the Valley to grace and sweeten a sitting-room window or a conservatory, the pace that commended itself to the judges of Bath is undoubtedly the best and most suitable. Of course the leaves are a factor only second to the blooms in pots of Valley Lilies for exhibition, but in blooms grown for cutting the leaves are not seldom of no moment; and in cases where they are, pots or boxes of common English roots are not seldom placed in light as well as heat to produce foliage for the flowers. Another merit of rapidly forcing Valley Lilies in the dark is wholly overlooked by "I."; the process blanches flower and flower-stems almost into ivory-like whiteness, which adds to the telling effect of their fairy-like bells in bridal bouquets or wreaths. Not a few bouquetists and decorators use Valley Lily leaves sparingly or not at all with the flowers; and hence their early state or colour is of little or no decorative importance. The writer has, however, at times used some blanched leaves of Valley Lilies with admirable effect as fringes to vases of brilliantly coloured *Bouvardias* or *Euphorbia* jae-

quiniaeflora, though such unnatural contrasts can hardly be defended on true principles of taste or laws of congruity, and are by no means needful to support the useful practice of hurrying in and on Valley Lilies into blooming as rapidly as possible, no matter what happens to their leaves.—D. T. F.

TREE CARNATIONS.

FOR obtaining a continuous supply of beautiful and deliciously scented flowers from perpetual or tree Carnations from January until Carnations come in out of doors in open borders, I find the following method of cultivation to give excellent results. About the first week in February I dibble cuttings of them thickly into 5-inch pots, and place them in a close frame on a hotbed previously prepared. Here they make roots in the course of three or four weeks, and as soon as they are well rooted they are removed to a small plant house and placed in a position slightly protected from the full force of air and sun. They are thus hardened, and in a few days potted off singly and placed in a light, airy situation in the same house, in which there is a night temperature of from 45° to 55°, and air is given during the day whenever the weather is favourable. They are grown on under glass until about the end of May; then they are gradually exposed to all the air that can be given them for a few days, and on the first dull or showery day that occurs they are set out in the open air on a bed of ashes. When the previous year's plants cease flowering, some of the best of them are retained and grown in the open air along with the spring-struck plants. There they are left until autumn, but receive due attention to watering and staking. If, however, we experience in July or August extremely hot and dry weather, they are moved into a more shady position while the hot weather lasts; afterwards they are again fully exposed and then housed about the end of September or first week in October, admitting air freely night and day for a fortnight afterwards, and keeping up a night temperature of from 45° to 55°. Two-year-old plants, I find, yield more flowers than younger ones, and though under the same treatment flower three weeks earlier. The compost which I use consists of four parts loam, thoroughly decayed cow manure one part, leaf soil one part, and a little coarse silver sand. When mixing this I take care to pick out all worms that I happen to see. The spring-struck plants I flower in 5-inch and 6-inch pots, and the older plants in 7-inch and 8-inch ones. *Souvenir de la Malmaison* I put into slightly larger pots. When flower-buds begin to show themselves I commence to use manure water; this is obtained from the farmyard and is used in a weak state each second or third time when watering. To succeed those grown in pots, I have plants planted in a small border and trained on the back wall of a house from which in winter time frost is merely excluded. These plants, though from two to four years old, are still perfectly healthy, and promise to furnish a good supply of bloom. Under the treatment just described our plants produce freely fine, highly coloured flowers that are extremely valuable both for their perfume and for the length of time during which they keep good in a cut state. The varieties which I grow are *Souvenir de la Malmaison*, bluish Lady Thorold, *Alagatière*, Miss Joliffe, *La Zouave*, *La Belgique*, *Lady E. Campbell*, *Florifera*, and a dark red seedling of my own.

Adare Manor, Limerick.

A. BARKER.

Rhododendron javanicum.—Apart from the interest attached to this *Rhododendron* as being one of the parents from whence the now long list of greenhouse tube-flowered varieties have sprung, it is in itself a handsome plant, and well worth growing even amongst the most select sorts. Its flowers, which are of a rich orange tint, are borne in closely packed terminal trusses; while the foliage, which is deep glossy green, renders it at all times attractive. This species needs the same treatment as that accorded to the hybrid varieties of this section, viz., the temperature of an intermediate house, with liberal syringings throughout the summer months. As the roots are not remarkably

vigorous, care must be taken not to overpot; even a large specimen can be readily kept in health in a comparatively small pot, while if the soil gets in any way stagnant, the plant will decline rapidly. Some small pieces of charcoal mixed with the potting material will tend to keep it open, and the roots will wind around them as if grateful for their presence. Cuttings of the half-ripened wood are not difficult to strike, while, if the blooms are fertilised, seedlings may be raised in quantity. As the seed-pods approach maturity they must be carefully watched, otherwise the capsules are apt to open somewhat suddenly on a bright day, and the small chaffy seeds may be blown away and lost. To prevent this, a good way is to put a paper collar around the shoot on which the seed is situated, into which it will drop. By this means the seeds ripen on the plant; whereas, if separated before the pods open, there is always a risk of gathering them too soon. Before sowing in pots or pans they must be well drained and filled nearly to the surface with sandy peat, finely sifted. When this is done a thorough watering must be given, and while the soil is still wet the seeds should be sown thinly thereon. The pots may then be either placed in a close propagating case, or a pane of glass may be laid over each, when germination will soon take place if kept in an intermediate temperature. When large enough to handle the seedlings must be pricked off and encouraged to grow quickly, for even under the most favourable conditions it will be some years before they flower; the variation among the seedlings is, however, great, and watching their development is therefore highly interesting.—ALPHA.

DOUBLE BOUVARDIAS.

THE first double *Bouvardia* (Alfred Neuner) sent out in the spring of 1881 created some amount of surprise, many being inclined to think that the description of it was exaggerated, but when it flowered in this country and was found to more than fulfil the expectations formed of it, there was directly a great demand for it, and before long it was extensively cultivated. The next addition to double kinds was President Garfield, a pale pink-flowered sort, but it never became such a favourite as the white-blossomed kind. Another American-raised variety is Thomas Meehan, bright vermilion-red, but the blooms are small and not so double as those of the two preceding. It is but little grown, and appears never likely to advance much in popular favour. The next double *Bouvardias* were sent out by M. Victor Lemoine, of Nancy, and announced by him to be the result of a cross between the bright vermilion-coloured *B. leiantha* and Alfred Neuner. The sorts were *V. Lemoine*, a vigorous growing kind with bright red blossoms, *Sang Lorraine* with more of a scarlet shade, and *Triomphe de Nancy*, a salmon-red kind. These are all free growing sorts, but as far as my experience extends they do not retain their foliage quite so well during winter as the older varieties. Another Continental form is *Hogarthi flore-plena*, of which, however, I possessed but a weak plant in the winter; therefore its merits could not be fairly tested. The few flowers that were developed, however, promised well, being very double, but the colour does not suggest that of the old *Hogarth*, being much paler. As the flowers of these double *Bouvardias* last in perfection much longer than those of the single kinds, they are especially valuable for use in a cut state, while their size eminently fits them for the smaller arrangements of cut blooms, such as sprays, button-holes, &c. When Alfred Neuner was first sent out a great deal of correspondence took place as to the way in which it should be propagated, some contending that cuttings of the side shoots produced only single blooms, while the tops of the main branches bore double flowers. After many experiments I was convinced of the fallacy of such a statement, as though a few single blooms were borne during the first season, the percentage was just as great among those struck from leading shoots as from side branches. The single blooms no doubt arose from the plant being a sport from Davidsoni, a single-flowered kind. It was, therefore, just a case of reversion to the type.

We do not hear of these things now-a-days with regard to double Bouvardias, while on the other kinds I have not found any single blooms whatever. T.

GARDEN DESTROYERS.

THE EUCHARIS MITE.

THIS, which might also be termed the *Pancratium* mite and *Amaryllis* mite, is among the most deadly and difficult to eradicate of the gardener's enemies. A short time ago I remember seeing somewhere the advice given to burn all the *Eucharis* bulbs infested. No more efficient plan, certainly, could be adopted for ending the existence of the pest than that, but one is naturally reluctant to lose the roots, and wishes that some other remedy, if even a little more troublesome, could be employed whereby the roots would be saved. Do not burn your bulbs on account of the mite if they are otherwise desirable property, or unless they are so bad that after clearance of the mite their recovery would necessarily be so slow as not to be worth treatment. From experiments which have been in process since last summer, I have no hesitation in saying that this pest can be both cured and prevented. It is not cleared all at once any more than scale or mealy bug, for his not-over-tender-skinned miteship will exist for some time in very different conditions from those which gave him birth. The experiments just alluded to are not yet completed, but both young bulbs and old ones have been lifted this morning which were treated in the bare state last summer. They have fine foliage according to their respective sizes, and the bulbs have good roots and are clean and white in colour, except, of course, where the old ones were deeply eaten. These have yet to outgrow the injury. From what I have observed, I believe the mite first appears on the succulent and blanched part of the leaf-stalk below the surface of the soil; after the leaf naturally turns sere, the thick stalk does not come off clean from the apex of the bulb, as do many bulbous growths, and when decay reaches the soil there seems to exist the fit conditions for the mite; anyhow there, on the three-quarter moon-shaped section of the decaying leaf-stalk a colony will often be seen at work. I believe that it is because the *Amaryllis* and *Pancratium* are usually grown with their bulb crowns well above the surface that this pest does not attack them so largely as it does the *Eucharis*. I think so for this reason, that the colony seems to originate in their case on the offsets, which, being much deeper proportionally in the soil, more nearly represent the condition of the *Eucharis* growth in that respect. The offsets of the *Pancratium* are often worse affected than the parent bulbs, and the latter are generally worse close to the offset. On badly-infested *Eucharis* bulbs a sort of wide rent may be observed; in relation to the natural position of the root it is V-shaped. This rent, as I take it, is an important symptom, for it forms the field of operations of the mite when thoroughly established. At the junction of the leaf-stalks with the bulb not only are the fleshy coats of the bulb widest, but they are more deeply consumed. I never saw the V-shaped rent in a contrary direction; often, however, the bulbs are badly affected all round the neck, as it may be termed. This is strong corroborative proof that the mite first began its work on the decaying leaf-stalk, and in these cases it is working its way down and through the bulb instead of by the side. When it does this it may be observed further that the bulb-coats on which the mite is feeding correspond with the last pair of strong leaves that existed. To these the mites confine themselves in a rather remarkable manner, the older

and outer coats being left intact like walls. Bulbs so damaged are the worst to cure, for though cleared of the mite their hollow character renders them liable to decay from holding too much moisture when set again.

So much for when, where, and how the mite operates; if these can be precisely ascertained, a good step will have been made with a view to applying remedial means, and it is on the facts and premises above stated, with one or two others, that experiments have been and are yet being made. Though I feel warranted in saying now that the mite pest can be both cured and prevented, I prefer to wait a little longer before I state the means tried; when the experiments will be more complete, then I will do so. In the meantime, let me say to those who have their *Eucharis* bulbs infested, "Throw none away but such as are eaten hollow; shake them out, set them with nothing but their roots (if they have any left) in dry sand in boxes and place them in a good light, where they will soon turn green. They should be kept in the stove, with the sand in which they are placed just moist; thus light and drought will avert further injury. One or two facts may be stated showing the tenacity of the life of the mite. I placed some of the livelier or better developed specimens in a shallow bath of liquid paraffin. For nearly an hour the creature lived on the top, and then sank, and I observed its struggles under the surface and on the bright bottom of the vessel, which was tin, for nearly as long. From this I should imagine that the paraffin treatment would kill the bulb rather than the mite.

J. WOOD.

MOLES OR WORMS IN THE GARDEN.

My own verdict would be, neither. No doubt both are useful in their places, or neither would be found in existence at all. But then there is a place for all things, and we want neither as drainers, soil-makers, nor regulators of the balance of underground life in our gardens. Cultivators undertake all these things for themselves, and fancy, rightly or wrongly, they can do them better, or at least time their operations better than either the moles or the worms. If "he liveth best who loveth best all things both great and small," and love, as here used, means the preservation of the life of the "all things" named, I fear most cultivators live very wicked lives indeed. But this is wholly from necessity and not from choice, and if necessity is above law, then it is to be hoped that our wholesale slayings and murderings among living creeping and burrowing things will not be laid to our charge. Be that as it may, a mole in a seed or flower bed is a thing that liveth to be laid dead as quickly as possible, unless Mr. Mole's life is to be reckoned as of more value than the lives of thousands of plants, or the entire value of the current season's crop of sweetness or of beauty. It is as illogical as absurd to bid cultivators stay the means of destruction about to descend on the mole because of the number of earthworms, grubs, or even wireworms he is about to slay and devour. Assuming for the moment that these are the evil things that the warmest advocate for the mole asserts them to be, we would rather the self-appointed executioner of these lesser evils would leave them alone than inflict far greater upon us by their destruction. The fields, parks, farms, if you will, are before the mole for his beneficent labours and destructive raids on worm life, but practical gardeners are agreed to a man to shut him out of the garden, or give him a short shrift should he enter there. And there can be no question that in this determination they are absolutely right. We have much less power over the worms, whether great or small. Such foes as wireworms are occasionally so troublesome, that, could moles be taught to work only in the dead season when the ground is bare, or be made to hunt them out as ferrets do rabbits, in chains, that is, with

cords round them, a stock of tame hunting, wire-worm-eating moles would not be likely to remain long idle. But as this dream is Utopian, we must needs bar out the moles and adopt other measures of keeping down worms in the garden. I confess I would like also to be rid of the whole of these, "bag and baggage," if I could. As for worms, even our friend the earthworm among seedlings and seed beds is a great nuisance, and destroys its millions of young plants every year. Our drainage is, or ought to be, so good, as to dispense with its tiny additions to it. While as to his soil-making, or rather perhaps transforming powers by which he adds about a fifth of an inch to our surface every year, and employs an army of over fifty thousand worms per acre to do it, why those most conversant with their, to use the mildest phrase, untidy methods of doing their top-dressings would be the first to exclaim, "We want none of them, nor any of their works; away with them, anywhere, everywhere, beyond the limits of the garden." We can do our own top-dressings in the garden where needed infinitely better as well as swifter than the worms. D. T. F.

GARDEN FLORA.

PLATE 540.

LILIIUM JAPONICUM AND BROWNI.

(WITH A COLOURED FIGURE OF *L. JAPONICUM*.)

LILIIUM JAPONICUM has in its time provoked a good deal of controversy, the principal point raised being the difference, if any, between it and *L. Browni*, while, in addition to these two, *Kramer's Lily* (*L. Krameri*) has been sometimes regarded as the true japonicum of Thunberg. It seems, however, now to be conclusively settled that



Habit of growth of *L. Browni*.

Thunberg's plant is the one here illustrated, and also known as *L. odorum*, a name under which it was figured in the *Botanical Magazine*. The principal points of difference between it and *Lilium Browni* are, first, the bulb, which in japonicum is white or yellowish, like that of *longiflorum*, while that of *Browni* is of a reddish tint. In shape, too, they are very different, japonicum being broad at the base with a raised centre; while the bulb of *Browni* is narrow at the base and widens out considerably; moreover, the upper portion of the bulb is peculiarly flattened. The scales of *Browni*, too, are much broader than those of japonicum. The young shoots of the two are also readily distinguished just as they emerge from the ground, those of japonicum being nearly green, while those of *Browni* are reddish brown. Indeed, in all stages of growth, *Browni* is heavily tinged with that colour, while japoni-

* Drawn in Mr. Ware's nursery, Tottenham, in July.



LILIUM JAPONICUM

cum is almost green. The flower-bud of Browni is more pointed than that of the other; and as to the flower itself, that of japonicum is shorter in the tube and much broader than that of Browni; generally speaking, too, it is less heavily tinged on the outside with chocolate, and after expansion does not become of so pure a white as that of Browni. These last two characteristics—the exterior and interior of an expanded bloom—are not so trustworthy as the others, for they vary to a certain extent in different individuals, but all the other points of difference here indicated are well marked. Another point worthy of notice is that the bulbs of japonicum are very delicate, being especially liable to decay after flowering, which is not the case with those of L. Browni, though that species is impatient of too much moisture. Besides the name of odorum, suggested by the blossoms being highly fragrant, L. japonicum is sometimes grown under the name of L. japonicum colchesterianum. It is quite a scarce Lily, for though bulbs of it are often imported, owing to their delicate nature the loss amongst them is generally great. They are especially liable to decay at the base, and frequently when apparently sound they will, when handled, drop to pieces from this cause.

The culture of L. japonicum is, as has just been stated, by no means easy; no difficulty is

under a microscope show abnormal structure; the decaying outer portion contained two or three different kind of mites, several small nematode worms, and springtails, but they were probably only attracted by the decaying vegetable matter, and were not the cause of the disease. I will reply again if further investigations prove more successful. —G. S. S.

FRUIT GARDEN.

PRUNING FOR VIGOUR AND FERTILITY.

I ONCE took charge of a garden, some portions of which had been rather neglected—run wild, in fact. A good collection of hardy Grapes, which in ordinary years ripened well there, and which had been allowed to ramble as they liked, bore fruit it is true, but of the most indifferent quality, and the Pears and Plums on the walls, beautifully formed trees, and which had once been awarded a silver medal for their perfect form and fertility, were bristling with shoots from 1 foot to 2 feet in length. The crop of fruit which these trees bore was very small indeed. The following season both Vines and wall trees were pruned in the ordinary manner, and next year they yielded a middling crop. Two seasons were, however, required to restore them to their normal fertile condition. It is, however, more particularly to a

BORDER of ROSES to which I wish to refer, as bearing directly on the question of pruning *versus* vigour, a subject which has been discussed lately in THE GARDEN. The plantation consisted of several hundred plants on their own roots, and contained the cream of the Hybrid Perpetuals. Having been allowed to extend at will, they had developed into bushes from 4 feet to 7 feet in height. Their condition was not, however, considered to be satisfactory, as the blooms, although abundant enough, came very small and so deficient in form, that in many instances the varieties were hardly recognisable. I could think of nothing

better than to cut them back hard, at the same time thinning out severely, leaving the youngest and most promising looking wood, and cutting clean away the major portion of the old branches. The following year they made very strong growth indeed, many of the shoots being 4 feet or more in length and correspondingly thick. Some of them were so gross, that they did not flower, and it was easy to see that at no period of their existence had they made wood of such substance in a single season. The following year they were pruned in the usual manner, but the strongest growths I allowed to retain six eyes, for I naturally thought that, being established so long, there would be no necessity to concentrate root action on two or three eyes only. That year there was a magnificent show of bloom, the flowers individually being large, and a great proportion of them good enough for exhibition. The severe pruning removed all the old knotted and weakly wood, and thenceforward they were virtually young, healthy, vigorous plants. On another occasion a friend was about to destroy an old Gloire de Dijon, because it no longer yielded any blooms worth speaking of. I pleaded for its retention, and recommended that it should be cut back hard. This was done, some of the branches being cut off with a hand-saw, and the

result was, that in the course of two years it again flowered satisfactorily. These instances tend to prove that the pruning knife under certain circumstances may be made an agent for good in inducing and restoring lost vigour. The removal of old wood must, when a plant is well furnished with healthy roots, cause new shoots to push forth where none had appeared perhaps for a long period. The question to be considered is whether this is an advantage or otherwise. My impression is, that the formation of an extra amount of young wood which severe pruning enforces is often calculated to maintain or restore vigour. The cutting back of a tree or shrub with such an object in view is, however, very different from the continuous hard pruning so often practised, and which, if carried to an excess, causes a serious loss of time and space. This is especially the case in

PEACH CULTURE; the space to be covered might frequently be fully occupied by the trees in half the time that is usually taken to do so without in any way detracting from their bearing capabilities. This hard cutting back of young fruit trees is, however, going out of fashion, and in this, as in all else that pertains to gardening matters, the true course will be found to lie between the two extremes. To me, the moderate use of the knife in order to lay the foundation for a thoroughly fruitful tree, seems just as reasonable as to permit the stopping and pinching back of free-growing plants, the floriferousness of which is increased by inducing ramification at an early period of growth. That which renders the work of the Montreuil Peach growers so meritorious is the fertility which their trees display and the high quality of their fruit. It is the same with Pears, the culture and training of which rank as an art amongst French gardeners, the majority of whom are well acquainted with the system which produces an admirably formed symmetrical and highly fertile tree. Here I may remark that one thing which strikes French gardeners conversant with fruit culture is the absence of beauty of form in trained Peaches and Pears in English gardens. "We must have symmetry as well as fruitfulness," said a Frenchman, who had graduated, if I may use the term, in one of the best pomological schools in France, "and this you rarely see in combination in England. We think that in endeavouring to obtain a tree which by its regularity and symmetry of growth shall please the eye, we in no wise detract from its productive power. On the contrary, we find that those who so master the minutiae of training so as to be able to obtain a finely formed tree are always noted for the quality and quantity of their fruit." As I have said, the greatest pains are taken to ensure the trees becoming well furnished with fruiting wood at the base, and I remember most particularly looking through a garden in the neighbourhood of Paris, the owner of which made a speciality of Pears; almost every good kind was there, and the combination of vigour, fertility, and symmetry that the trees exhibited was really admirable.

A PEAR GROWER who was with me seemed anxious to know how such results were obtained, how trees covering so large a space as many of them did were induced to bear almost equally well at their base as on the topmost portions. I do not remember the exact details of the training as then explained, but the substance was that a certain period was required to form a fruitful base, and that this was only obtainable by a system of pruning and pinching in the early stages of growth. A hastily formed tree, it was said, is sure to be disappointing in the long run; the fruitfulness of a young extension trained tree is a snare, which later on will cause a loss of



Bulb of Lilium Browni.

experienced in flowering good imported bulbs the first season, and in some cases the second, but skilful treatment is needed to keep them in health afterwards. I have been more successful with it in pots than in the open ground, as our position is dry and hot, whereas this Lily seems to prefer a stiff, cool soil; in pots, too, the supply of water after flowering can be better regulated than when planted out. As stagnant moisture is so fatal to it, a good way when planting it is to surround the bulb with sand, or powdered charcoal mixed with sand. In the case of imported bulbs care must be taken not to overwater them till root-action recommences; indeed, the same rule holds good with regard to all Lilies, but more especially this one on account of its delicate nature. Though still so scarce, this Lily was introduced into this country in 1804. T.

Diseased Gardenias (*G. Sage*).—I cannot say what is the matter with your Gardenias. The disease seems to me to be somewhat of the nature of club-root, or finger and toe, in Cabbages and Turnips, which is caused by a fungus; but I cannot make out any fungoid growth, though the tissues of the stems in the swollen parts are evidently in an unhealthy condition, and sections

space. If the object is to cover a wall or trellis quickly, this will naturally be best accomplished by allowing the trees to extend untouched by the knife, but a matter for consideration is whether, in the long run, the most will be made of the space. An extension-trained Peach will of course yield more fruit in the early years of its life than a restricted one, but will this precocious fertility compensate for the comparative barrenness of the lower portion of the tree in after years? The best French growers say that it is easy to permanently fill the top of a wall with bearing wood, and that the only real difficulty in Peach culture lies in forming trees which shall be equally fertile from the middle of the wall downwards. Once get the lower branches in a perfect fruit-bearing condition, and they form a base on which a permanent structure of fertility can be easily erected. On this subject I will let an acknowledged French authority speak for himself. "It is even more important in the case of the Peach than in that of any other tree that the development of lateral branches should be ensured. The formation of a tier of branches must never be commenced before the one beneath it is perfectly constituted. In a general way a tier of branches only is formed in two years." After giving minute directions for pruning and pinching, so as to ensure fertility in every portion of the branches, the same writer again insists on the necessity of devoting sufficient time to the formation of the tree. "Do not," he says, "seek to obtain new lateral branches until those already formed are as strong as the stem; in pruning, leave the shoots as long as the vigour of the tree will permit, but always in the way to assure the formation of fruit-buds wherever necessary." These extracts indicate that the object of the French Peach grower is rather to gradually build up a tree which shall be equally fertile in all its parts, and which shall remain so over a period of years, than to seek quick returns with comparatively small crops later on. I offer no comment thereon, except that I cannot believe that such large, fertile, and handsome trees as I have seen in France could ever be formed on the extension system. At the same time I doubt if such severe restriction extending over so long a period is ever likely to be followed in this country, where the climate not being so favourable, Peaches on walls are, of course, not nearly so long-lived as in France. The late Mr. Stevenson, when gardener at Cobham Park, was a close pruner and an admirable trainer of Pears and Apples grown on walls and trellises, but he allowed his Peaches greater liberty, getting the space covered as quickly as possible, as even with the best attention they died out in about eight years. Time spent in obtaining perfectly trained trees would, therefore, have been thrown away.

VIGOUR AND FRUITFULNESS appear to be regarded as synonymous by some who have written on this subject, but whilst the former may result from the use of the pruning-knife, the latter does not always. Some years ago a friend planted a number of Apple and Pear trees to grow into pyramids. The soil, which was a rich loam, had been well deepened and drained. The trees, which grew well, were submitted to the usual routine of winter pruning and summer pinching, but the amount of fruit which they bore was in an inverse proportion to the strength of growth which they made. They were pinched back at midsummer, but they made a foot of growth after that and formed no fruit spurs worth mentioning. This went on for some years, and then it was resolved to trim off the lower branches close to the trunk and allow the remainder to extend. In the course of several years they began to bear very well, and eventually formed handsome half standard trees. In this case fertility only commenced when vigour diminished, for with ex-

tension came shorter and naturally better ripened wood, and abundance of fruit buds. This is, however, only what we see in the case of standard fruits, and is a provision which Nature seems to make against the trees being crippled by over-production before they acquire the stamina which greater maturity gives. It is certain that an Apple tree does not yield so much in proportion to its size during the first few years of its life as it does later. If in favourable conditions it first grows very vigorously, and it is only when its vigour is toned down by age that it commences to bear abundantly. In the case of unpruned trees time is the restrictive agent which brings about fertility. J. C. B.

THEORY OF PRODUCTIVENESS.

I HAVE not time to reply to all "D. T. F.'s" remarks on this subject (p. 333), nor is it necessary that I should do so. My observations under this heading have, I see, not been without their effect upon "D. T. F." First, he told us that vigour and fertility were "antagonistic," and that "fertility represented a lack of vigour," i.e., weakness, for he did not qualify his statements at all. Now, we are told, in the light of facts which I have since furnished, that "mere weakness" and lack of vigour are quite different things, and not to be confounded; but allow me to say that no such distinction or difference as "D. T. F." describes exists. The vigour of which "D. T. F." spoke at the beginning was the vigour of growth and fertility combined as generally understood, and he meant no other then, as his words plainly showed. As I have no other purpose to serve than to make my meaning clear and stick by it, I hope "D. T. F." will meet me in the same spirit. I propose we should get rid of the expression "parallel lines," and say, as representing my case, that "vigour and fertility go together," which will be better understood. "D. T. F." avoids the examples which I gave him, and only picks out such as he thinks can be made to serve his purpose, and with this object he takes the Castle Kennedy Fig and compares it with weaker varieties, a wholly one-sided illustration, because, apart from conditions of growth, there are *fertile* and *unfertile* varieties; but what I contend is, that the thickest and strongest shoots of the *same variety* invariably produce the most fruit, as well as the largest, under equal conditions of maturity, &c. Let us go back to the Currant bush, which represents the case well. Does "D. T. F." deny that under equal conditions the strongest shoots produce clusters bearing the most berries and the largest? Does he deny this, or does he admit the fact? We shall put aside for the present his quibble about "mere weakness" and "lack of vigour," and put it "healthy bearing Currant bushes of different degrees only of vigour." I say that under equal conditions the same variety of these produces the *most berries*, and *best berries*, on the *strongest shoots*, and I believe everyone who has given the subject attention would certify to this. I call it vigour and fertility combined, and it contradicts "D. T. F.'s" opinion as flatly as anything can do. Next I will take the Vine. Are or are not the biggest bunches produced on the strongest shoots, all being equally well matured? I cannot allow "D. T. F." to find fault, in order to extricate himself, with my proviso that the wood must be ripe in all cases. That is a perfectly fair proviso in any case, for no fruit can be produced without it, and it does not affect the question under discussion; neither weak nor strong shoots will bear unless ripe. I cannot follow "D. T. F.'s" digression into the accidents of our climate, &c., which have nothing to do with the question at issue.

I have no objection to afford my opponent every latitude, and will meet his arguments in a fair and logical spirit provided they are stated fully, distinctly, and adhered to. I give "D. T. F." an example in the case of the common Currant—a representative subject—that refutes his view. Can he deny what I have stated or make it conform to

his theory, and how? If we come to herbaceous subjects and the like, vigour and fertility going together is even more convincingly exemplified. Thus the heaviest and largest Hyacinth bulbs produce the most flowers, and so do Scillas and other bulbs. The strongest Liliums produce the most Lilies, and in the case of Phloxes and Delphiniums and the like it is notorious that the strongest grown plants produce the finest spikes of flower, as well as most flowers and the best crop of seed. "D. T. F." expresses his anxiety regarding the samples illustrated by me in Vol. XVII. lest they should become "speedily skeletonised." That is not the question at present, but it will allay his doubts if I state that our early trees planted in 1866 and described by me in 1870 are still in existence, as healthy and as fertile as ever and furnished to the bottom, although, as I believe, there are very few if any trees in England that have borne as constantly or as heavily since the year after they were planted. There are also the trees at Floors Castle described by Mr. Coleman. I think it would become an opponent like "D. T. F." to offer some kind of practical evidence other than mere assertion on the other side; if not his own, then somebody else's. It is the proof of what I have seen that makes me confident. We have a whole wall 300 feet long here covered with select flowering shrubs, every one of them out and out examples of extension training of different ages, and every one a model in its way and to be seen. "Veronica" (p. 321) speaks of the Forsythia suspensa as a beautiful shrub at this season and a quick grower. One of these shrubs is this Forsythia, a young plant, yet nearly 30 feet across and 12 feet high, flowering from the centre to the extremities of its branches—probably as fine an example of its kind as could be found. I gave it more room less than two years ago, and it has just about doubled its size and produces a sheet of bloom, every part of the wall being covered by shoots. It has been well attended to and made to grow vigorously and flower abundantly. I do not evolve my ideas on this subject from my inner consciousness, as the metaphysicians say, but get them from actual facts pressed upon my attention every day and by almost every bush and tree. J. S. W.

Raspberry and Mulberry hybrid.—"A. D." should, in justice to himself, read more carefully, and not venture to write of that which, on his own showing (p. 298), he has "not heard." If he will refer to the *Gardeners' Chronicle* for March 6, 1886 (p. 320), he will find a notice of the unexpected combination to which I referred, namely, a cross or hybrid between the Raspberry and the Mulberry (p. 274). Before "A. D." ventured to assume that I alluded to a hybrid or cross between the Raspberry and the Blackberry—a totally different and quite possible combination, by-the-by—he should have made himself quite certain of his facts in the manner above indicated. There is no misprint in the matter; and no botanist will ever believe that a sexual combination ever yet took place between a Raspberry (*Rubus*) and the Mulberry (*Morus*), plants belonging to two widely separated Natural Orders.—F. W. B.

Pruning to promote vigour.—"J. S. W." sends a curious note (p. 316) denying that he adduced the vigorous growth of the snow-riven Thorns as examples that pruning promotes vigour. This is quite superfluous, as I never accused him of doing so. He gave the case of the rupture and reduction of top and the subsequent results, and I logically claimed it as a striking confirmation of my contention that pruning, either by accident or design, promotes vigour, as anyone may see for himself by turning to THE GARDEN (p. 233). I seized upon "J. S. W.'s" fact and drew my own inference from it. Neither have I contended that more vigour was put into the Thorn trees by being broken, but that more came out of the portions left in consequence of the concentration of force and limitation of area resulting from the removal of large portions of their heads.—D. T. F.

EXTENSION TRAINING.

"W. W. H.," like one or two others who have written on this subject, appears to be unable to see that the defects of extension training when carried to the lengths which its advocates recommend, outweigh the imaginary advantages claimed for it, and seems to be alike oblivious to the fact that there is a medium course between the extremes of shutting up the knife and letting young trees run wild. The extreme hard pruning which extensionists are continually talking about is more a bogus than a reality. Although here and there an individual might be found who uses the knife in the way spoken of, yet pruners to anything like the extent that the extensionists try to make out, are far from common. If those who grow for sale took the training of their maiden trees in hand the first season of their growth from the bud, and shaped them as they might be, then there would be little need for cutting back to any great extent; but to plant maidens of the shape that nineteen out of twenty now are when bought in, and to leave their shoots untouched in the way that the extensionists advise, especially in the case of Peaches, to which the present discussion mainly applies, particularly when to be grown on open walls, is to insure having trees with all the strong branches where they should not be—in the middle—leaving the bottom of the wall from the first half furnished, a defect that invariably gets worse as the trees get older. Respecting ordinary trained trees, as I have all along urged, if their growth is evenly balanced, with strength enough in the lower shoots, there is no object in shortening them back further than is needful to keep the whole surface furnished with bearing wood. But the greater portion of the trained trees with which one meets have their centre shoots so much bigger than the bottom ones, that if not cut back they draw the strength so far that they leave the lower part of the trees in a like condition to the unpruned maidens. This is a fact so well known to everyone who has had to do with fruit growing, that it would seem unnecessary to mention it. I have repeatedly pointed this out, yet the extensionists appear to shut their eyes to the waste of wall space that it entails.—T. B.

—As most modern pruners succeed in securing fruit in plenty from maiden trees the second year from the bud or graft, it is difficult to know who or what "W. W. H." refers to in his condemnation in *THE GARDEN* (p. 299) of those "severe pruners who postpone for years by the means which they employ the formation of a healthy, vigorous, and fruitful tree in as short a time as possible." Why this very basis of our rational pruning consists, as has so often been repeated by "T. B.," myself, and others, in the obtaining of a maximum amount of produce in a minimum of time and space, and so linking together vigour of growth and fertility as to have these qualities developed within the same areas in perpetuity. The extensionist pure and simple, such as "W. W. H." appears to be, endeavours to cover all his space with mere wood at a rush. Rational pruners, see to it that those areas shall be duly covered with such a nicely adjusted and skilfully balanced combination of vigour and fertility as shall prove as profitable as it shall remain permanent. He prunes less to count his sensational dozens the second year than to fill his fruit-basket abundantly through half a generation.—D. T. F.

—As one of the first, if not the first, who advocated the extension system of training young trees, I strongly condemned the old practice of cutting back their heads. I am glad to see that all, or nearly all, our best cultivators adopt this plan. One of the chief advantages of this system is the great saving of time in getting the trees established and up to a fruit-bearing size. This may easily be done with most kinds from maidens in two or three years, as by laying the shoots in full length a large space of wall is filled the first season, and we have only to pursue the same course in order to get fine heads on pyramids or espaliers, which, from having a large leaf surface spread rapidly at the roots, increase in size at a

great rate, and soon set plenty of blossom. Those who are in doubt have only to do as "W. W. H." advises (p. 299)—plant a given number of trees of the same size and age and under the same conditions, and treat one half on the cutting-back system, and the other in the way here referred to, when they will soon be convinced which is best.—J. SHEPPARD, *Woolestone Park, Ipswich.*

WALL TREES IN SPRING.

TREES on walls, I need hardly say, must receive timely and judicious attention during both spring and summer, but especially in spring, if we would reckon on securing satisfactory crops of fruit. Protection of the blossoms from frost must either be done in an effective manner or not at all. I have seen so many failures arise from makeshift protection, that I am satisfied it does no good, but probably harm. The kind of protection to which I object is suspending old netting before the trees, and fixing evergreen branches on them for warding off frost. In both kinds of protection I have lost faith; I have noticed that trees so dealt with have produced a crop of fruit, but others in the same garden which had received no protection furnished equally good crops. The only kind of shelter in which I have any faith is covering the trees entirely with glass. As to glass copings, even where 3 feet or 4 feet wide and fixed to a rather low wall, they are not to be relied upon to secure a crop of fruit unless there are also substantial curtains so fixed as to be drawn over the trees at night and removed in the morning. In regard to Cherries on walls, their popularity is evidently on the decline, at least so far as dessert kinds are concerned, a matter to be regretted, for when such sorts as May Duke and early Purple Guigne are grown on south walls, they make useful additions to hardy fruits early in the summer. The cause of their decline is doubtless owing to the uncertainty of the crop which is frequently either destroyed by frost or insects; black fly and leaf maggot often destroy our Cherry crops on walls. When we had time to properly attend to the trees we used to get good crops of both May Duke and Bigarreau from walls facing the east. For destroying these pests we used to syringe the trees with half an ounce of soft soap to a gallon of warm water. This was done twice a week, and as soon as we saw signs of the leaves curling they were carefully examined, and the maggot which was rolled up in them destroyed. Where trees are liable to be attacked by these pests I know of no better remedy; the fly often attacks them just as the flowers open, and when anything stronger applied would injure the blossoms.

MULCHING THE ROOTS of wall trees is more necessary in some soils than in others. In strong holding mediums in which the trees have become well established and the rainfall equal to keeping the roots well supplied with moisture, mulching may be dispensed with; but in cases in which the land is naturally well drained and the soil light and not very deep, mulching is necessary. In the case of newly planted trees either in light or heavy soils a thick layer of half rotten manure laid on the surface will assist the roots to lay hold of the soil quicker than they otherwise would, as it keeps the soil about them in a more uniform state as regards moisture. The time when mulchings should be applied depends a good deal on the character of the weather. With an average rainfall during May the soil becomes warmer if exposed to the sun than mulched, and the roots of the trees are benefited thereby. As a matter of fact, mulchings only become necessary early in summer when there is prolonged drought. In a general way the middle of June will be soon enough to apply them. Half rotten farmyard manure makes undoubtedly the best mulch, and to enable it to resist the sun's heat it must be laid on 4 inches thick, a less quantity being soon reduced in bulk by the action of the sun and air. Of other materials suitable for mulching old tan or spent Hops are next to manure in value, but these appear to soak up more water than manure;

in fact, I have known heavy rain fail to reach the surface of the border where these materials have been used, and in that case, unless the condition of the border is watched and water given when necessary, the trees suffer. Short Grass from the lawn is better than nothing, but it quickly dries up when exposed to the heat of the sun, unless repeated applications are given.

PEACH TREES will require early attention after they have gone out of blossom; in most cases the wood was so thoroughly ripened last year that the trees will be likely to break away with great vigour, and it will be matter for regret if such an excellent promise as regards a crop is crippled for want of timely attention. Greenfly is a serious enemy if it attacks the trees early in summer, because ordinary antidotes cannot be used without risk of killing the tender fruit. The safest remedy for fly is to dissolve 1 oz. of soft soap in a gallon of warm water, and apply it to the affected parts of the tree with a small painter's brush. The mixture can thus be applied without touching the unaffected portions; and in dressing the trees at this early stage one cannot be too particular as to the way in which it is done. Disbudding will next demand attention; it cannot be done too soon after the young shoots have grown, say, an inch in length. If allowed to remain longer, the strength of the tree must be unnecessarily taxed. In the case of vigorous growing trees, disbudding must be done on well directed lines. Many do not disbud so freely as they ought to do, and the consequence is the young wood is unduly crowded, and weak growth at the end of the season is the result. For the most part the fruit of the Peach is borne on wood made the previous year; therefore allowance must be made for some old shoots to be removed and young ones to be laid in to take their places. Young shoots for that purpose should be as nearly as possible the lowest on the branch that is to be removed after its crop has been produced.

AS TO TAKING OFF THE YOUNG SHOOTS not wanted, it is a barbarous practice to break them off as some do. This not only leaves a ragged wound on the branch, but sometimes a strip of bark is brought away with them. In my own practice I make a point of cutting off each shoot with the point of a sharp knife, and I am satisfied that a smooth wound made by a knife heals more quickly than one resulting from breaking off the shoot. In dealing with young and vigorous growing Peach and Nectarine trees where there is space on the wall to fill, the cultivator should endeavour to spread the growth over all parts of the wall. If left to themselves there will probably be two or three of the leading shoots making much more vigorous growth than the others, and if allowed to grow on unchecked they will monopolise the strength of the roots. By the judicious topping of such shoots it is quite possible to have every part of the branches under command and of equal strength. I am, however, far from advocating a persistent system of pinching; what I wish to impress on the inexperienced is that a timely stopping of gross-growing leading shoots will not only help to fill up the wall space more quickly than it otherwise would be, causing, as it does, the shoots so dealt with to branch out into several others, but it will be the means of diverting the supplies from the roots to the weaker branches, and in this way the whole tree will be benefited. J. C. C.

SHORT NOTES.—FRUIT.

Cherry tree insects (*Constant Subscriber*).—The grubs attacking your Cherry trees are the caterpillars of a small moth, one of the Tortricidæ (*Antithesia pruniana*); the eggs from which the caterpillars were hatched were laid in the buds last year. I cannot suggest any means of destroying them except hand-picking. Syringing with an insecticide might do good, but I doubt if it would reach the caterpillars.—G. S. S.

A good late Apple.—In a large collection of late-keeping Apples shown at South Kensington we were assured by Mr. Barron that one of the best was one called *Ord's Apple*, a sort not remarkable for good appearance, being green and sour-looking, but its flesh abounds in juice and good flavour. Apples in April are generally so dry eating, that a juicy one is worth making a note of.

KITCHEN GARDEN.

KITCHEN GARDEN CROPPING.

YOUNG vegetable plants raised under glass will now require attention. Altogether, we have some thousands of Onions, Leeks, Lettuces, Brussels Sprouts, Cauliflowers, &c., in frames ready for planting out, and such plants are very valuable this spring; but the secret of success with plants raised under glass is to deal carefully with them at the time when they are planted out. Sometimes they are reared in a brisk heat, a sure way of getting them to grow fast, but such plants require careful hardening off before being put into the open ground. At first they should be placed in a cool frame with the lights over them night and day for a short time; then the lights may be drawn off during the daytime, and by-and-by they may be removed altogether, and finally the plants should be placed wholly in the open air before they are turned out and planted. It requires three weeks at least to harden them off prior to planting out, and they pay handsomely for this little extra attention. Thus treated, they experience no check when turned out, and go on growing as if they had never been subjected to heat. This hardening off thoroughly is a rule which all who wish to succeed must follow.

PEAS IN BOXES.—About six weeks ago we cut some hundreds of 3-inch squares of fibrous turves and packed them as closely as we could get them into shallow cutting boxes. A small hole was then made in the centre of each turf and a few Peas dropped into it. The whole were then covered over with a slight covering of fine soil, and then they were placed in a vinery to be started into growth. Young plants soon appeared, and they were gradually hardened off until the other day, when they were planted out. In taking them out of the boxes, each of the little squares of turf was one compact mass of roots, and the whole were transplanted without disturbing either roots or plants, and of all the ways we have tried of raising early Pea plants under glass I am of opinion that this is the best.

EARLY CELERY ready for use from the beginning of August onwards is always much valued, and in all gardens of any importance a quantity of it should be grown. A pinch of seed sown in a 6-inch pot will produce many scores of plants, and it is seldom necessary to sow more than this. Our first sowing was made in this way the last week in February, and the plants are now some inches in height, and will be turned out into the trenches early in May. They were raised in pots and as soon as they could be handled they were lifted and dibbled into boxes about 2 inches apart. From the time the seed was sown until the young plants were transplanted they were kept in a vinery and after being put into the boxes they were replaced in that structure, but as soon as they had fairly taken to the new soil and began to grow freely, they were withdrawn from the vinery and placed in a cool frame, where they will remain until they are planted out. We have practised this plan of raising Celery plants for many years, and it answers admirably; we have always the plants ready for planting as soon as we could wish them to be, and, what is of equal importance, they succeed well afterwards. We very rarely experience any trouble through these early plants bolting or blooming prematurely, a circumstance mainly attributable to a little extra attention being devoted to the hardening of them off and, above all, to careful watering at the root; they are never allowed to suffer in this way from the time they are visible until they are established in the trenches and earthed up once, when there is no further danger of their suffering from drought. Celery can hardly ever be surfeited with either manure or water so long as it is in active growth.

JERUSALEM ARTICHOKE.—These are grown in all large gardens, but they are unknown in many small ones; their introduction into them would, however, be sure to give satisfaction, as they are extremely useful, especially in winter and spring, when a variety of choice vegetables is scarce. They are of easy culture and always remunerative; indeed, I never knew them to fail, and I have often seen them in gardens in the worst corners. The present is a good time to

begin their culture for another year. The whole of the old roots should be dug up, putting the largest aside for immediate use and replanting the smaller ones. Owing to the free way in which they grow and the impossibility of killing them, many do not lift and replant them annually, but allow them to grow on year after year in the same place; under this plan, however, the tubers soon degenerate, and in order to secure large ones they should be replanted annually. Moderately rich, deep soil suits them best, but useful roots may be grown in very ordinary soil. The stems run up to a height of 8 feet, and the roots should be planted 18 inches apart in the rows and 3 feet from row to row. They form excellent screens in summer; a few rows of them will effectually hide the most objectionable objects, and those who have any such spots to deal with could do so profitably by introducing this Artichoke.

RHUBARB.—We gathered the first dish of this from the open air on April 3; those who wish to divide their old roots and make them into several small pieces should lose no time in doing so. This is a simple way of renewing a Rhubarb plantation, and it may be done without missing a crop. The observance of two points will always give abundance of the finest Rhubarb, and these are a deep rich soil and plenty of space in which to develop.

Margam.

J. MUIR.

Mushrooms in sheds.—In my kitchen garden notes in THE GARDEN on March 6 I mentioned that a Mushroom bed had been made up in the potting shed on January 30, and that Mushrooms had been gathered from it on the second week in February. They came up well then, but during the extremely cold weather which we had in March they were not quite so abundant; since, however, April came in and the weather milder they have appeared in unusually large numbers, a sample of which I send you to show what we are now gathering. I may add that the bed from which these were taken is 6 feet in length and 4 feet in width, and that we have gathered from it weekly for eight weeks.—J. MUIR, Margam Park, Port Talbot, S. Wales.

* * The Mushrooms sent by Mr. Muir were fleshy, richly flavoured, and large in size—excellent, in short, in every respect.—E.

Beet for salads.—Sow the Egyptian Turnip-rooted variety now for early use in soil well cultivated and in a mellow condition, but not freshly manured, or the roots may fork. The main crop should not be sown before the end of April or beginning of May. It should consist of long-rooted varieties only. Sow in drills 14 inches apart, and thin to 6 inches asunder in the row. Stir the surface of the soil frequently. Transplanted Beet makes the handsomest roots if the plants be lifted carefully and planted with a dibble, keeping the tap root in a vertical position. We transplanted some of Carter's Perfection and other varieties at the commencement of the dry weather last year, and though only one watering was given to settle the plants at the time of setting not a plant appeared to suffer, and they made handsome, medium sized roots. In transplanting it is best to pinch off a good portion of the leaves, as their action only exhausts the roots. If the stalk with just the lower part of the leaf blades are left, there will be quite green enough to carry on the work till new leaves are formed, which will be the moment the roots get to work. There are so many good kinds of Beet grown, that anyone getting seeds from any good house can scarcely go wrong. The following are desirable sorts, namely, Carter's Perfection, Henderson's Pine-apple, Dell's Crimson.—E. HOBDAV.

The old Ashtop Potato.—I have known this Potato for fifty years, and well do I remember, when head gardener to my grandfather, that he used to sit in an armchair on the walk and direct me how to plant these Potatoes. The raiser of this Potato was, I believe, a Mr. Holbery, who carried on business as a chimney-sweeper at Retford, and who, of course, used to declare that soot, of all things, was the best manure for Potatoes. Leaving home for the sunny south (Arundel), I saw no more old Ashtops in any

place in which I have lived; but some eight years back I was visiting one of the London shows, and there I met an old and valued friend. Of course, the conversation soon turned on garden topics, and my friend remarked, "Do you grow the old Ashtop Potato?" I said I had not seen it for a number of years. "Well, I will send you half a bushel." These arrived in due time and were planted; but, oh! Mr. Editor, when lifting-time came, I was much dissatisfied with them. The crop was anything but good. Nevertheless, I gave the sort another year's trial. My seed was sprouted in the manner described by "W. I. M.," but I was again disappointed. The early Potato which I now grow is called Wilson's Ashtop, of which I have at this time nearly two acres planted. The seed has all been carefully stored, set up on end, on shelves in a cool room. I have in years past grown all the Ashtops in the market, but for crop (which is excellent) and quality this is the best to my knowledge. The top is short, but we plant 2 feet apart, and allow 1 foot between each set. I may not have had the true variety of old Ashtop sent to me; but to settle the question, if "W. I. M." will send me a dozen by post, I shall be happy to forward him a dozen of mine in return.—R. GILBERT, Burghley, Stamford.

MOUNTAIN ARALIAS.

(OREOPANAX.)

The genus *Oreopanax* appears to be made up of various old plants, which in gardens are known as Aralias, Panax, or Hedera, and is something like a connecting link between the true Ivies, as represented by our British form, and the Aralias proper. According to Sir Joseph Hooker, the genus *Hedera* is confined to the English Ivy, which, under various forms, extends all over the

Flowering branch of *Oreopanax eprenesnilianum*.

north temperate regions of the Old World, whilst the plants known under *Oreopanax* are all natives of the mountainous regions of the New World, from Mexico to Peru. A comparison of the plant represented in the annexed woodcuts with some of the palmately-lobed forms of Ivy does not seem to suggest a very near relationship between the two, but in the flowers there is practically no difference. We may, therefore, look upon the genus *Oreopanax* as nothing other than a section of *Hedera* which has become altered in habit and leaf characters through the effects of changed conditions. Here we have called them Mountain Aralias, owing to the derivation of the name; it is, of course, well understood that the true Aralias are first cousins to the Ivies. A study of the metamorphic characters of the foliage of these Araliads gives some very remarkable results, to which, however, we cannot do more than hint here, with a view to justifying the

opinion, that the genus *Oreopanax* is probably but a geographical section of our own Ivy.

None of the true species of *Oreopanax* have found their way into English gardens as ornamental plants, although in the countries bordering the Mediterranean, and especially Cannes, Nice, &c., several kinds are commonly seen in cultivation, being in favour because of their handsome bright green foliage. The specimen shown in our figures was grown in the gardens of Count Epr mesnil, to whom we are indebted for the rather ugly name this kind bears. Probably, however, it is only a slightly varied form of *O. dactylifolium*. The leaves are large, digitate, the divisions lobed, and they thickly clothe the branches down to the ground, not unlike what occurs with *Aralia Sieboldi* when happily situated out of doors. In the southern counties probably this species and several other introduced kinds might thrive outside, and would be useful as evergreen shrubs. *O. Andreanum* has undivided oval leaves, sometimes lobed, thick in texture, and covered with a thick reddish felt; its flowers are in an erect terminal spike. *O. peltatum* is very *Aralia*-like; so also is *O. Thibauti*, which was first distributed as an *Aralia*. Except for large conservatories, we would not recommend these plants for indoor cultivation. B.

Seakale from seed.—I was recently interested to learn that a large grower and forcer of Seakale for the London market had been compelled lately to obtain some thousands of roots of Seakale from Ireland, either because they were too dear or too scarce at home. That there is a considerable demand for good blanched Seakale here there can be no doubt, and it is probably a demand that might be appreciably increased were it possible to obtain good roots suitable for blanching at reasonable prices. We have plenty of land suitable for the growth of this vegetable, provided this land receives the greatest need the land has—deeper cultivation and ample manuring. Given these essentials, and there is no reason why we should not raise enough Seakale to render it acceptable in price to all classes. As it is, early blanched Seakale is a costly luxury, and at any time it is seldom within the reach of even the lower middle class. I have been engaged in doing a small part towards this by sowing a quantity of seed, although there can be no doubt that in order to secure good crowns the best plan is to plant clean sets with or without crowns, because these, if of fair size, will give in good ground the best results in one season.

For blanching, long roots with other branching ones are not essential. If there be a stout crown and 6 inches of stout clean stem, that is enough, and all other roots may be cut off and utilised to form sets. It is, however, needful first to obtain roots, and no better plan presents itself than to sow seed and thus procure a stock, because the prime cost is trifling and labour is small. I have sown now in drills, 15 inches apart; that will suffice for the first year's growth, and when transplanted next autumn, a width of 18 inches between the rows will not be too much for the selected crowns. In good soil the second year's growth should give roots fit for blanching. If it be desired to blanch in the ground and not to lift the roots, then intervals of at least 2 feet should be given, because the simplest plan on a large scale is to earth up the soil over the rows of crowns in sharp ridges, cutting clean all through when the growths are ready. Seakale thus produced is without doubt the sweetest and best flavoured. Still it is a plan that will not suffice, because it is indispensable that forcing should begin early to secure a large succession,

and to perform that successfully there are numerous methods, all more or less available, according to circumstances and convenience.—A. D.

WORK DONE IN WEEK ENDING APRIL 13.

APRIL 7 AND 8.

THE weather these two days has reverted back to winter. Hail, rain, and windstorms have followed each other in rapid succession, and have woefully discounted our intentions as to work we meant to accomplish. To work on the soil has been simply impossible, and the only outdoor work we have been able to do between the showers has been mowing with scythes, rolling turf and coach roads with horse roller, mixing up manure for hotbeds, returfed bare parts of lawn, and clipped a hedge, *Thuja Warreana*. Work in the houses increases daily, Grape thinning being the most pressing, for work of that description cannot be deferred without serious risk of injury to the crop, and,



Oreopanax Epr mesnilianum in the open air in France.

therefore, we never allow the word procrastination to be applicable to any of our vineries anent this matter of Grape thinning. Early Hamburgs are just finished thinning, and Muscats began. In thinning the latter our young men are charged to err, if at all, on the side of leaving a few small or imperfectly fertilised berries rather than risk overthinning. It is only in our earliest house, which is rather dark, and the Vines too close together, that Muscats fail to set as perfectly as we could wish; not that we ever miss a crop, but sometimes lose a few good bunches by the preponderance of small berries, owing to imperfect fertilisation. The forcing of Strawberries also gives us an immensity of work at the present time; a daily supply of ripe fruit is now demanded, and, I may add, met, so that on alternate days there is thinning the fruit of these and putting in successional batches of plants. Our plants are now allowed to ripen about nine fruits each, and in thinning we endeavour to have all fruit that are to be left of about the same size, so that they may ripen together that the plants may be cleared away as soon as the fruit is

gathered; thus the spread of spider, should there be any on the plants, is reduced to the minimum point. Abundance of water is now a necessity, and after the fruit is set till colouring has begun, we give clear manure water at each alternate watering. We are never troubled with non-setting of fruit, and out of the hundreds of plants already forced this season, two plants are the full extent of what are generally termed "blind," or have failed to set, a fact attributable first to the variety—*Vicomtesse H ricart de Thury*—which won't fail, and secondly, to wintering them plunged in ashes, leaves, or cocoa fibre, in a natural, not to say rational, in contradistinction to the haycock plan of stacking them by the pots being laid on their sides, a plan that I thought had quite died out, but recent notes in some of the papers show that I was mistaken. Made a general sowing in frames of Asters, Stocks, Zinnias, ornamental Grasses, and Everlastings, and have labelled ready for sowing under handlights on a sunny border on the first favourable occasion Antirrhinums, Wallflowers, Sweet Williams, Canterbury Bells, Pentstemons, Columbines, Delphiniums, &c. Potted on Dahlias, Marguerites and Pelargonium Lady Plymouth that are required as central or standard plants in the summer bedding arrangements. Put in cuttings of various kinds, and potted the later struck Chrysanthemums into 5-inch pots.

APRIL 9.

A fine day, though sunless, but a drying wind favoured our ground operations, and we finished Potato planting, and prepared ground for Seakale sowing and planting. The medium-sized roots of those that have been forced we again plant as cuttings, which we prepare by cutting them into straight lengths of from 4 inches to 6 inches, and cut out all eyes or root-buds, except one, or at most a couple of the strongest nearest the top of the cutting. The ground having been deeply trenched, we plant with dibbers, in rows 2 feet apart, and from 15 inches to 18 inches from plant to plant. The seed we sow in drills the same distance apart, and thin them out to a foot apart soon as large enough to handle. Thinning Muscat Grapes, and pinched out the points of about half the laterals; the remainder will be left for a few days till those now pinched have again begun to grow. I don't profess to an overplus of scientific knowledge, but little is needed to fathom how, or why, injury may be, is done, to Vines that are at one stroke denuded of all their lateral growth. Tied down Fig shoots and pinched out the longest growths, at least the longest of those that are not needed to furnish the trellis; these we allow to grow from 1 foot to 18 inches in length, and then pinch, and so continue till they have covered the desired space. The border is inside, well drained, restricted in extent, so that

high feeding is imperative, and which we supply in the form of liquid manure about once a fortnight, and which has been done to-day, the water being at a temperature of from 80° to 90°. The border of late Muscat vinery has been served the same and forcing begun. The night temperature will range from 55° to 60° and 70° by day, and we shall close up when sunny in time to run up the temperature to 90°. Laid in wood of second Peaches and thinned fruit. Potted a few Palms, small Drac nas, and Maiden-hair Ferns that are required for table decoration. For the present the propagation, potting, planting, and pricking out of bedding plants forms a part of each day's work.

APRIL 10.

Five degrees of frost this morning followed by sunshine and showers, the latter not sufficiently heavy to stop our outside work, of which sweeping and clearing up formed a large part, the late wind storms being answerable for a goodly proportion of the work we have had to do in this direction. Sowed Seakale and Turnips; weeded the mulching on Straw-

berry plots and trod it down, taking special pains to make it firm immediately round the crowns of the plants. Our plots were thickly covered with manure late in autumn, and though the foliage is a bit brown, the crowns are now starting growth as vigorously as if there had been no winter. The same is true of Raspberries; the mulching over these we have beaten down with spades, the same as one would beat down turf, and the first chance all the fruit tree mulchings will be served the same. The usual weekly shifting and rearrangement of plants in houses has for once had to be abandoned, Grape thinning being so pressing. Strawberries have been overhauled, a number thinned, and every vacant place in Strawberry house and shelves in other houses filled up. I may add that the plants up to the time of flowering are syringed overhead twice each day, but never afterwards, and very rarely indeed do they get affected with either fly or spider, the washings before flowering doubtless contributing to their freedom from these pests. Tied Melons; the first lot are now in flower, and a comparatively dry atmosphere will be maintained till the fruit is set and swelling. The bed has had a thorough watering and mulching with droppings, and this will serve the plants till the fruits are as large as a moderate sized Apple. At this season, with proper appliances as to frames or houses, Cucumbers give but little trouble other than thinning out growths, pinching and thinning out the fruit, the last named being the most important, as over-productiveness soon cripples—in fact sometimes causes the sudden collapse of the plants. Our summer supply is grown in frames, and once a week the plants have attention in respect of training, stopping, and soiling; overhead syringing is always done once, and in sunny weather twice each day. When in full growth they revel in a sunheat temperature of 80°, and, with plenty of moisture, 90° is none too high, as we have repeatedly proved—forced to do so really, owing to being short of fermenting material wherewith to increase or keep up the heat. Looked over Grapes in bottles; they still keep well, and Apples the same.

APRIL 12.

A day of bright sunshine, preceded by a sharp frost, and the fruit-tree coverings were therefore left over the trees all day long, as it is sun and frost in combination that do the greatest harm to expanding fruit blossoms. Our ground worked so well, that we have been able to complete the sowing of Broccoli, Borecoles, Savoys, and a successional sowing of Autumn Giant Cauliflowers. They are sown thinly in drills a foot apart on a border looking east, in which position the plants withstand drought and heat for a long time without injury, a consideration of some moment to those, who, like ourselves, have sometimes to wait for a crop being exhausted before ground can be had for putting out the plants. The seeds were at once netted over to protect them from birds, a plan we have also to adopt for Turnip and Radish seeds; red lead, soot, and lime applied to the seeds have proved quite useless in our case, as the birds pull up the seeds just the same, but are too cute to eat them. Planted out a first lot of Brussels Sprouts; the general planting will not be made for a month to come, but the plants are already pricked out in cold frames, together with the earliest spring-sown Cauliflowers for use at the end of July and during August. Sowed Sweet Peas, Mignonette, and a few hardy annuals, the last named in small patches amongst Roses. A few pieces of Asparagus were to-day just breaking through the soil, and this was accepted as warning to be on the alert as regards slugs and weeds, and therefore a second dressing of salt was given at once. Raked over ground and picked off stones that is to be sown with Grass seeds on the morrow, should the weather continue fine. Still at Grape-thinning. Planting out Lobelias, Verbenas, and Ageratums in frames, and refilling the boxes they occupied with the more tender section of bedding plants that still require heat. Seedling Carnations, Salpiglossis, Gold Feather, Perilla, and another lot of Celery are amongst those that are now being pricked out at the foot of fruit tree walls having a southern aspect. The bright sunshine of to-day we made the most of, closing up all forcing houses early, which, whilst it benefits the Vines, trees, &c., very greatly reduces

the fuel bill, and there is need of reduction of this item during the present quarter to counteract the formidable bill of last quarter, otherwise some of us are likely to hear that the bills are too high.

APRIL 13.

Another fine, but less sunny day. Sowed Grass seeds, raked and re-raked them in, and afterwards rolled the ground twice over. This work has occupied all our outside hands, for much as we wished to get on with other work, we made a duty of necessity, and have thus got the Grass-seed scare off our mind. Indoors work has been much the same as for a week or two past. Plenty of Grape-thinning, propagating of summer bedding plants, and shifting about the same. Tied up Tomatoes. They are in pots, and those in flower we have moved to the lightest positions in the vineries. Pinched the points out of Calceolarias in frames to induce a bushy growth. They want more space, but they will have to wait till the flower-beds are ready, to which we intend to transplant them for good instead, as we have usually done, to a sheltered border in the kitchen garden, but which is not this year available. HANTS.

FRUITS UNDER GLASS.

VINES.

ALTHOUGH the change from a cold protracted winter to a bright, smiling spring has not been quite so decided as we could have wished—rain, cold, heavy, and drenching, having fallen more or less ever since the frost and snow left us—the improvement has already become manifest, not only in our houses, but also in the open garden. Still, the season must be decidedly late, and perhaps the arrangement is the best which Nature could have made for us, as it is to be feared that detailed management is in many places greatly in arrear. So much rain within the past month has sadly delayed outdoor work on cold, heavy soils; many operations which I have performed in February have yet (April 8) to be carried out; but one important matter to which I recently directed attention has been satisfactorily settled for the present. That is, I hardly need say, the watering of external borders, for no matter how well the internal roots may be fed and flushed, dryness outside when advanced growth begins to draw is one of the most fatal causes of sterility, shanking, and imperfect finish, independently of attacks of spider and mildew, to which Vines under glass can be subjected. Assuming, then, that Grape growers throughout the kingdom have had enough rain for the external roots, mulching from rich, heavy spit manure to light horse manure or stable litter should be placed over the surface to keep in the moisture and draw the young feeders up to the influence of the sun. Light, sandy, or elevated borders will carry heavy coatings of the first, while old, depressed, or heavy borders will most likely produce the best results under a covering of fresh Mushroom manure and old lime rubble, or a good layer of stable litter just as it is taken from the horses. Inside borders may now be treated in a similar way, but, like the fresh manure which I have just recommended for Peach houses, it must be well worked before it is placed on the floors of vineries, otherwise the tender foliage may be caught by a whiff of ammonia, when a good thing will be condemned for the season because it has been improperly or carelessly applied. Some thirty or forty years ago there sprang into existence a number of horticultural builders who ran private growers into enormous expense by the introduction of tons of York paving for broad back and front paths and steps, while pits in the centre of each vinery, so well adapted for the reception of fermenting and decaying leaves and manure, were carefully covered with Welsh slates for the reception of Azaleas and other hard-wooded plants, which generally carry with them a stock of bug, thrips, and other minor abominations. The unfortunate gardeners, many of them much against their will and better judgment, were given to understand that ordinary cultivation would very soon lead them to the front rank at the great London shows, while their humble brethren who had to make shift with turf walls, home-grown timber trellis paths, and ground for the floor were to scramble for the good things given away at country gatherings. External planting

was, of course, compulsory, but then what a splendid length of rafter for the rods, for every division was wide enough for the admission of two doors, one at the back, another on the front path, and how clean and imposing the houses looked, free from straw and litter and the pungent smells which sometimes tickle an old hand's olfactory nerves when passing through, lantern in hand, last thing at night. But, notwithstanding the fact that the borders, broad, rich, and deep, had forced up good canes, the foliage looked thin and flabby; the moon and stars could be seen through it; a rifle ball could be fired through a bunch of Muscats without touching a berry, and Hamburgs ripened up with a tinge of red in them. Tons upon tons of water were cast over the hissing flags and slates; the more they were watered, the drier the atmosphere. Thrips, spider, bug, and mildew reigned supreme. Fourteen years finished the Vines, but the Grapes never reached the front row at Kensington. This is no imaginary picture, but one out of many real facts for young gardeners to look upon and study when they have made themselves thoroughly acquainted with roots and their work. The last time I walked through one of these fine ranges of vineries superfluous flags and slates had been removed, front walls had been pierced, and new sets of Vines had been planted in narrow inside borders, eventually to be made wider as root space is required. The present well-trained gardener fills his pits with fermenting materials, mulches well, and the dense leathery foliage of his young Vines shows at a glance that insect pests can find no abiding place there. By all means let us have a rising generation of scientific gardeners—men who can tell us how roots are formed and what are their functions; let them also be able to tell by the feel of their Pine leaves and by the appearance of their Vine foliage when they enter the house if they really require liquid food; let them learn from practical lessons with the hose, the liquid barrel, and the guano bag when they require feeding, what quantity will be good for their plants or their Vines, and whether it should be stimulating or otherwise. But I digress. I started with my Vine calendar, and already half my allotted space is taken up with generalities not usually touched upon in the hard and hackneyed path almost invariably followed. With a set of vineries now in full work it is impossible for the watchful superintendent to proceed many paces without finding plenty of work for deft and willing hands to do.

POT VINE HOUSE.

In this house the Grapes, if they are to shake hands with the departing Lady Downes, will now be colouring fast, if not ripening. In order to facilitate this process and ensure perfect colour and finish, more air with sufficient fire-heat to keep it in constant motion will be needed, not only by day, but also through the night. The only time from this stage forward, when a close atmosphere will be advantageous, will include the three or four hours' daylight which will follow, closing with sun-heat to swell up the berries, when the supply of moisture may be slightly reduced. Root-watering to a certain extent must also be gradually diminished, but not entirely discontinued, unless the pots are deeply plunged and the crotch and surface roots have taken a thorough hold of the fast-decaying vegetable matter, which will require a moderate quantity of warm stimulating liquid to aid them up to the finish of the fruit. These precautions with regard to water and atmospheric moisture apply most particularly to those two fine pot Grapes, Madresfield Court Muscat and Foster's Seedling, which should be still further safeguarded from cracking by an unrestricted growth of lateral foliage. Hamburgs and Buckland Sweet-water will take liberal supplies with a proportionate circulation of warm air; but where these four, still the best for early work, are grown together, the give-and-take principle is the only safe course to pursue.

Vines from eyes put in in January and intended for fruiting next season will soon be fit for shifting into 16-inch or 12-inch pots, which must be clean and carefully crocked with crushed bones. The compost for the final shift should consist of light rich turf in a dry rough state, a liberal sprinkling of bone meal, burnt earth, or old lime rubble. Uncoil the roots,

pot firmly, and replunge for a time in a sharp bottom heat to give them a fresh start. When the crisp foliage, tipped with beads of moisture on opening the pit, indicates that the roots are at work, gradually raise the pots out of the bed, but allow them to stand on the surface until more head room is required. As soon as there is danger of crowding, remove all the strongest to a light structure where they can be trained close to the glass, and revel in a temperature ranging from 68° by night to 80° or 85° on bright days. Feed well with warm diluted liquid, guano, and soot water occasionally, and syringe freely when the house is closed with sun heat. The object being stout short-jointed canes, pinch all laterals at the first leaf, and finally stop the points of the canes at 6 feet or 9 feet according to the length required for furnishing the fruiting pit. Expose the young canes to every ray of sunshine, ventilate early on bright mornings, and shut up with moisture in moderation, as an excess in a confined atmosphere produces warts on the under side of the leaves, which in time check the progress of the Vines. If under this treatment any of the top buds break, allow the laterals to grow freely, and pinch again until such time as the young canes begin to show signs of changing to a bright nut brown colour. When this stage is reached, gradually withhold atmospheric moisture; but on no account neglect the roots, as they must be regularly fed until the foliage shows signs of ripening. When growth ceases, remove all the laterals from the base up to within 1 foot of the top bud, but carefully preserve the main leaves, as upon them depends the plumping of the buds and the formation of the embryo bunches before the Vines go to rest for the remainder of the season. Vines struck in sods of turf for planting out during the month of May or early in June will now be making good progress and the roots most likely be interlacing with each other, as is generally the case when the sods are placed close together on a gentle hotbed. Should this happen it will be necessary to sever the roots by passing a sharp knife between the sods some time before the season for planting. In the meantime follow former directions by the introduction of new compost for making up the borders, and see that it is thoroughly aerated and warmed by occasional turning and the application of fermenting manure.

GRAPES IN EARLY VINERIES

Started in November last, although the season has been unfavourable, will now be taking their last swelling, and some of the most forward bunches will most likely be colouring. When this stage is reached rules laid down for the management of pot Vines under similar conditions will apply; but unless time be an object it will not be prudent to hurry them, as undue haste, particularly at night, is sure to result in imperfect colour and finish. If the roots have the run of internal and external borders, see that the first are well mulched and thoroughly watered with warm diluted liquid at a temperature of 85° to 90° and in quantity sufficient to permeate every particle of soil down to the drainage. Look carefully over the bunches, and if any of them show signs of binding remove a berry here and there, to set the remainder at liberty, but the scissors must be used with great care, as the slightest touch will destroy the delicate bloom. Pinch all gross laterals to prevent the foliage from crowding up against the glass, but allow weak ones to grow until the Grapes are ripe and fit for cutting.

In succession houses, disbudding, tying, and stopping must be taken in hand and completed before the shoots reach the glass, the lengths to which the growths are allowed to extend beyond the bunches being regulated by the space at disposal. Some stop at the first joint beyond the bunch; others go to the second or third. In my own practice I prefer allowing two clear joints to be formed before I pinch, and then lay in laterals on the semi-extension principle until every part of the trellis is furnished with foliage. I once saw a house of Grapes pinched back to the joint from which the bunch emanated, but the bunches and berries were very small, and evidently suffered from this severe treatment. Tying down should be performed by degrees, little and often; otherwise, if drawn too close at first many of the strongest shoots, particularly on old spurs, will roll out of their sockets,

not, perhaps, at the time, but shortly afterwards, when unsightly gaps and loss of the spur will mar the appearance of the house for the remainder of the season. Houses containing mixed varieties, including Muscats, Mrs. Pince, Black Morocco, Buckland Sweetwater, and Lady Downes, should be carefully fertilised when in flower. Cross-fertilisation, when the camel's-hair brush is used, answers best, but some good growers prefer setting with the syringe. Last year we were driven by force of circumstances to use the syringe in an early house, and the Grapes never set better. This year, a Muscat Hamburg, which never had set well, was treated on drastic principles, and the set is quite satisfactory. Having for many years given preference to the camel's-hair brush, I am not ashamed of saying I have found the syringe succeed where the brush had previously failed. My Cherries have been treated in the same way, and I never had so much thinning. Where thinning is a heavy operation, free setters should be taken in hand as soon as they are out of flower to give the shy varieties time to declare themselves.

LATE HOUSES

are unusually backward this season, and, judging from the extraordinary weather which still prevails, we must not for the present look for much forcing help from solar influences. The Vines are, however, unusually strong and the shows are very fine—two important compensating points which may be turned to advantage when the period arrives for pulling up the time which patience justified our sacrificing to a late spring. At the present time we are quite a month late, but from this it must not be inferred that we shall be a month behind at the finish, as Lady Downes, Gros Colmar, and other varieties usually found in this compartment always pay, not only in size of bunch and berry, but also in quality for Muscat treatment. As a preliminary step to this treatment, all internal borders should be thoroughly soaked with water at a temperature of 90°, and at once littered down with well-worked stable litter. The houses must be well syringed twice a day until the Grapes come into flower, and the temperature may range from 65° to 70° by night, 80° by day with air, and 90° with sun-heat in the afternoon after closing.

GRAPE ROOM.

I have on one or two occasions stated that forced suits have set unusually well this season, and can now supplement those remarks by saying late Grapes never kept better—two facts which may safely be relegated to the fine tropical weather which prevailed when the wood and fruit were ripening last year. Although we have barely kept the frost out of our Grape room, Lady Downes are still as plump and fresh as when they were cut from the Vines at Christmas, and, judging from the appearance of the stalks, I have no hesitation in saying they will keep well up to the end of May. The principal points in this department will now be the maintenance of a low, even temperature, damp rather than dry, and the exclusion of light. Decaying berries must of course be removed, and the bottles must be kept full of water, otherwise the roots now forming will rob the berries. After this time it is a good plan to wash and refill a few bottles with soft water, and transfer the remainder of the stock to them. This is not, however, absolutely necessary, as I have frequently kept Grapes for five months without ever changing the water.

W. COLEMAN.

Planting hedges of White Thorn.—Trench the site 4 feet wide and as deep as it will bear—at any rate deep enough to bury the weeds and rubbish. There is no reason why the hedge should not occupy the site forty or fifty years in good condition if required, so the preparatory work should be well done, manure being given if necessary. Many of the present worn-out hedges reach that condition owing to thick planting in the first instance and unskilful pruning afterwards. Two rows of plants are commonly planted, but a better and more lasting fence will be obtained by planting only one row 6 inches apart. Make the soil firm before planting, and select only healthy plants 18 inches high and strong in proportion. Cut them back to 3 inches high just before planting. Keep the bottom of the hedge free from

weeds till it is strong enough to take care of itself. For the first two years very little pruning will be needed, only nipping off leading shoots, and for this purpose the knife is as good a tool as any. Then the shears or a sharp-bladed switch-hook should be employed, usually towards the end of July. The hedge should always be wider at the bottom than at the top, in order to keep the bottom well filled up.—E. HOBDAY.

TREES AND SHRUBS.

PIGMY CONIFERS.

THERE are a good many miniature forms of even the largest growing coniferous trees that are adapted for planting in small gardens or confined spaces, for their growth is so slow as to be scarcely perceptible, so that but little allowance need be made for the full development of the specimen. All are good rock-garden plants; indeed, many of them are better suited for rockeries than for anything else, as a suitable position is readily enough found for them there; whereas in the open ground, associated with other shrubs, they are apt to be overrun by other things. Many do well in pots, and in this way may be used for various decorative purposes where more delicate subjects would be injured.

THE NORWAY SPRUCE (*Abies excelsa*) contributes largely to the list of dwarfs, the most distinct varieties of this being *brevifolia*, a low round bush with remarkably short leaves; *Clanbrasiliana*, with the branches horizontally arranged, causing the plant to assume the shape of a round, flattened mass. It is more vigorous than some of the other varieties, but a plant a yard high is a good sized specimen. There is also a sort of this with ascending branches. One of the smallest of all is *Gregoriana*, which forms a low dense tuft of very slow growth. Another variety (*pygmaea*) is generally of a bluntly conical habit, which imparts to it quite a distinct character from the others. There are several more names of dwarf varieties to be found in different lists, but the above include a distinct selection.

THE CHINESE ARBOR-VITÆ (*Biota orientalis*) is represented, among others, by the golden form, which, more frequently known as *Thuja aurea*, is such a common object in small gardens. There is another variety (*sempervirens*) in which the golden hue is retained for a longer period than is the case with the commoner kind. A good contrast in colour to the above is *Zuccariniana*, a dwarf globular form with rich, bright green foliage, very cheerful at all seasons. Of *Cryptomeria japonica*, its variety *nana* is seldom more than 2 feet or 3 feet high, and is of a dense sturdy habit. Another variety, *spiralis*, is a small, loose-growing plant, with the sickle-shaped leaves pressed so closely to the stem as to look as if wound around it. *Cupressus Lawsoniana* produces individuals so widely different from the type that a dwarf variety of this will be taken as a matter of course; indeed, there are a couple of good kinds. The first is *nana*, or *pygmaea*, a dense globular little bush of a deep green colour. We have a couple of plants of this on the rock-work here that have scarcely increased in size for the last ten years, yet they are always fresh and beautiful. The other form is like this last in growth, but the foliage is very glaucous. The White Cedar (*Cupressus thyoides*) has also a dwarf variety, that like the type needs a damp position to be seen to advantage. When so situated it is a pretty little shrub.

Many of the Junipers are naturally low growing, but spreading in habit, so that they will cover a considerable space. A couple of miniature varieties are a form of the Irish Juniper known as *compressa*, a little upright habited plant reaching a height of about a foot, and the Hedgehog Juniper (*J. Oxycedrus echiniformis*), which forms a dense little tuft of prickly foliage. Among Silver Firs the only one to mention here is *hudsonica*, a little spreading plant but seldom seen.

THE PINES, considering their number, have not many pigmies among them, the principal being a dwarf variety of *P. sylvestris*, *P. Laricio*, *Cembra*, and *Strobus*. This last, known both as *nana* and *umbraculifera*, is a little, much-branched bush of a somewhat table-formed shape. A good specimen is a very interesting object, and it is perhaps the best of the dwarf Firs. Several of the *Retinosporas*

into bloom rapidly. The *Mezereon* (*Daphne Mezereum*) is one of the showiest, and when in a group it has a striking effect. Though so beautiful, its merits are but rarely recognised, being frequently seen dotted here and there, perhaps in some light sandy soil, where it can barely exist, and consequently is never effective. A cool, moist, rather stiff soil suits this *Daphne* best, and if the

at all seasons, for even when devoid of foliage the graceful contour of the branches is most pleasing. The flowers are something like those of the Hawthorn, but smaller, yet they are borne in such profusion that the principal shoots are completely wreathed with them. Even when the flowers are over, the bright green lanceolate leaves retain their freshness, generally speaking, till late in the



The Alpine Rose (*Rhododendron ferrugineum*); flowers deep pink.

are small growing plants, and even the larger ones can be easily kept within bounds by the use of the knife, for they readily adapt themselves to pruning. *R. ericoides* is a dense Heath-like shrub seldom more than a yard high, and from its distinct purplish red colour during winter is well worth consideration. There is a dwarf variety of *Retinospora obtusa* which is a perfect gem, the small, but dense, frond-like branches overlapping each other reminding one strongly of some of the cuspidata section of *Selaginella*. It is often met with as *Thuja pygmaea*, under which name I obtained a small specimen nearly twenty years ago, which was planted on the rockwork, and though in a thriving condition its height now can be counted by inches, being only 8 inches high and $1\frac{1}{2}$ feet in diameter. There are different forms of this dwarf *R. obtusa* that have been raised from seed, some being more vigorous than this Moss-like favourite of mine. *R. tetragona aurea* is another pretty little shrub with the young growth of a bright golden yellow colour.

OF Yews there are several small forms, one of the most distinct being *ericoides*, a little twiggly bush with small blackish green leaves. Of the American *Arbor-vitæ*, the nurserymen on that side of the Atlantic catalogue a long list of varieties, some of which I have not yet seen, but of those that have come under my observation the best dwarf kinds are *Hoveyi*, a globular bush, bright green in colour, and compact, another close-growing form. *Thuja plicata dumosa* forms a little dense, slow-growing mass of a greyish green colour. The tips of the shoots are curiously flattened and crested. The last I will mention is the Japanese *Thujopsis latevirens*, a miniature form of the better-known *T. dolabrata*, of a beautiful light green colour. When in a thriving condition it is a most handsome little plant.

ALPHA.

The Mezereon in bloom.—With the mild weather many early-flowering shrubs are coming

situation be partially shaded, so much the better. We have a bush of the *rubra* variety on the north side of a wall which never gets any sun, yet it is in robust health, and is now covered with its highly fragrant, brightly coloured blossoms. In some parts finely developed specimens are to be met with in cottagers' gardens, where they have been undisturbed for years. It is a plant very impatient of removal, for but few fibrous roots are produced, yet if it is necessary to transplant it at all, the best season for the operation is in the autumn, for it commences to grow (in the case of mild winters) about Christmas, and consequently greater risk is then run of moving it at that time. As seedlings are raised in quantity, there is, of course, a good deal of variation to be found among plants thus obtained. The principal points of difference are, however, the flowers, which in some individuals are greatly superior to the others. In nurseries the best forms are generally propagated by cuttings or layers, and to the most decided varietal names have been given. The two finest are the deep-coloured variety, which is sometimes found under the names of *rubra*, *purpurea*, or *atro-purpurea*, and the white-blossomed kind (*alba*), a delightful contrast to the preceding. Apart from the beauty of their blossoms, these *Daphnes* make a goodly show in the autumn with their coral-red berries.—A.

Spiræa Thunbergi.—The slender arching shoots of this *Spiræa* are just now wreathed with the tender green unfolding leaves, and in a short time these will be accompanied by crowds of tiny white flowers. This *Spiræa* forms a pretty bush

season; indeed, it is often sub-evergreen in character. Like all the other *Spiræas*, it needs a fairly moist, cool soil, rather than a hot and dry one, and is often benefited by a little pruning, not, as might be supposed, to shorten in the principal shoots, but to remove any weak and exhausted branches, in order to allow the more vigorous ones

to develop themselves. Most of the *Spiræas* are greatly benefited by this treatment, the blossoms being in all respects finer than when the old exhausted shoots and small attenuated twigs are allowed to choke up the centre of the plant. The *Spiræa* under notice is one of the easiest of all hardy shrubs to force into flower, as it may be had in bloom in a few days, but though remarkably pretty, the flowers do not last long in this way.—H. P.

THE ALPINE ROSE.

(RHODODENDRON FERRUGINEUM.)

THIS little alpine shrub, which grows wild on the pasture lands of the Alps and Apennines, and furnishes the shepherds there with their only fuel, is a charming shrub for a garden, different from most of the other hardy *Rhododendrons* both in growth and flower. It forms a low, spreading bush, clothed with small Box-like leaves, rusty coloured on their under surfaces. In early summer it produces its rosy pink blossoms, generally in profusion. It is perfectly hardy, and, being an Evergreen, it has an additional value, particularly for dotting here and there on the margins of dense masses of common *Rhododendrons*, for in such a position it tends greatly to relieve the monotonous appearance of heavy masses of the common kind. It is also a capital shrub for the rock garden; indeed, it never looks so thoroughly at home as when falling over the ledge of a great boulder, and so arranging its dense, cushion-like head in a natural way. In short, this alpine shrub and its congeners are not half known enough in gardens, and it is only in old-fashioned places that one can find big bushes of them. They are easy to grow in any soil, though, like others of the race, they prefer peat. It succeeds in all parts of these islands, but seems to thrive best in the north; for instance, it can be seen in no greater perfection anywhere than in the Edinburgh Botanic Gardens, where the late Mr. McNab planted some isolated groups of it on one of the lawns. When speaking of *R. ferrugineum*, the rest of the species of the European Alps belonging to the ferrugineum section may be included, for they are all similar in growth and appearance. There are but few, and botanists seem to differ among themselves as to which are species and which are varieties. The names are *ferrugineum*, *hirsutum*, *intermedium*, said to be a hybrid between the two former, and *myrtifolium*. All these are very old garden shrubs, some introduced a couple of centuries ago.

The Judas tree (*Cercis Siliquastrum*).—The Judas tree has much to recommend it. It is crowded with bright flowers; then as the leaves make their appearance their distinct shape and peculiar hue attract attention, while an old specimen is generally a most picturesque object. It is well suited for planting as a lawn tree, especially in gardens of limited extent, for it does not soon outgrow its allotted bounds and encroach on weaker neighbours. The Judas tree generally forms a spreading flattened head, but occasionally it branches close to the ground, so that there is then no clean trunk. As the foliage is not dense, the clusters of large seed-pods are very conspicuous during the summer. It is a native of the south of Europe, and, according to Loudon, was introduced into this country as long ago as 1596.—H. P.

SHORT NOTES.—TREES AND SHRUBS.

Tree protectors.—For the protection of newly planted trees I have found it to be a good plan to stick sprays of Gorse around each, and daub them with coal tar, or run a line of Cocoa-nut fibre yarn round the new plantation about 6 inches from the ground. This should then be given a thick coat of coal tar, which should be renewed three or four times every season. Few rabbits or even hares will venture to cross such a barrier.—SUL-AGENT.

THE PRICKLY-CONED PINE.

(PINUS MURICATA.)

THIS distinct, though inelegant, Pine can hardly be recommended either in an ornamental or profitable sense, although at the same time we feel justified in saying that from its rather unusual appearance it is well worthy of a corner in the pinetum. Being perfectly hardy, not at all fastidious as to soil or situation, and of the easiest culture, are all points in its favour; while the low, semi-spreading habit of growth renders it to some extent valuable for planting in high-lying breezy situations either as game shelter or for the ornamentation of such bleak districts. At 600 feet altitude in Carnarvonshire and on rather poor, rocky soil, and partially sheltered by a Scotch Fir clump, I have seen this Pine doing well; and although in such situations it never attains to a large size, yet its bushy habit of growth makes up to some extent for lack of height; indeed, in such places its true nature is, perhaps, better shown off than it could be under more favourable circumstances. It is a peculiarly distinct Pine, the generally irregular appearance of its branches and clustered prickly cones being different to those of any other which I know. The leaves are in pairs, 5 inches long, stiff, and of a dark green or bluish tint, and usually sparsely arranged on the branches; cones usually clustered around the stem, remarkably persistent and hard to remove, and covered on one side at least with sharp-pointed prickles. The inner side of the cone is usually smooth and of a reddish brown colour, while the outer is of an ashy grey and with the scales terminating in sharp, slightly hooked spines. They are 3 inches long by about 2 inches diameter at the thickest part, and quickly taper to a rather blunt point. At altitudes ranging from 3000 feet to over 4000 feet on the Californian mountains, more particularly along the coast range, it is found in some quantity, but varying much in size, from that of a 12 feet high bush to a small tree of 30 feet or 40 feet. It was introduced into England in 1846, and is perhaps better known under the name of *P. Edgeriana* than *muricata*. A. D. WEBSTER.

Buddleia globosa.—I am pleased to find that "Alpha" succeeds with this grand old plant so near to London (see p. 312). I have tried it frequently in East Anglia, and never succeeded with it off a conservative wall. I note that "Alpha's" soil is light and sandy, and no doubt this assists in securing his success. It is impossible to overpraise the beauty of this grand old plant. My richest treat on my first visit to Devonshire some years since was the profusion and size of the *Buddleias*. I went primarily to see the orchards of the county and the *Coniferae* of Bicton, but confess the *Buddleias* and *Hydrangeas* charmed me more than either. The orchards, writing of them in the mass, were the mere ghosts of departed glory or of possible profit. The *Conifers* were, of course, in such a climate beautiful; but the *Buddleias*, throwing their tall branches over the high walls of suburban gardens and contrasting their curious masses of semi-golden flowers against the blue sky, were things of beauty to be seen by many of us only once, but to be treasured in our memories for ever. The foliage as thus seen is almost as strikingly unique as the flowers, and the two form a mass of grace and beauty impossible to any other plant. Those who have only seen *Buddleias* grown in pots or trained on walls can have no idea of their true grandeur and magnificence as luxuriant standards, 10 feet to 15 feet high and almost as much through, crowned with bloom. Still, they are well worth a wall in sites, soils, or climates where they cannot be otherwise grown; and while making earnest appeal for wall space for Tea Roses, even to the clearing off of not a few flowering plants that not seldom rather encumber than adorn them, I should assuredly preserve such striking plants as the *Buddleia*. It forms a most useful and striking plant for furnishing the piers between the panels on walls of Tea Roses. Few flowers would form a more striking contrast to those of Roses, while the large leaves would form capital

break-winds to the tender Roses in the panels. This may seem rather hard on the *Buddleia*; but though the latter is somewhat tender as against the frost, the leaves are of sufficient texture to bear a large amount of wind with comparative impunity.—D. T. F.

Cydonia japonica.—Now that this old-fashioned shrub is in bloom one can judge of the merits of the several varieties of it now in cultivation. For the two best I should select those named *princeps*, in which the blooms are of a rich deep crimson, and *navalis*, whose blossoms are pure white, without the pinkish tinge that most of the so-called white varieties assume after the flowers have been open a few days. This latter is at all events a comparatively new kind, but as the *Cydonia* is by no means difficult of propagation, it should ere long be much better known. To increase the *Cydonias* a good way is to layer the branches, or at times rooted suckers can without difficulty be detached from the parent plant. They are usually trained to a wall, and in such a position are most showy, but this by no means exhausts the purposes for which they may be employed, for grown as an open bush they will flower well, and usually continue to bloom till summer is far advanced.—ALPHA.

Cassiope tetragona.—Throughout the long spell of cold weather that we have experienced this year, one of the brightest tufts of green has been a mass of this pretty diminutive shrub, which retained the freshness of its colouring at a time when most other Evergreens were browned and unhealthy looking. It is a pretty Heath-like plant, with the leaves closely packed in four rows, this circumstance giving rise to the name *tetragona*. The drooping solitary bell-shaped flowers, which are borne during the spring, add yet another feature to the plant. This little shrub is a native of the northern parts of Asia and America, so that our winters have no effect on it. The principal point to be observed in its cultivation is to choose a spot where it will not suffer from drought during the summer months. Planted in peaty soil on a moist part of the rockwork, it will succeed perfectly. Another pretty little species is the *Himalayan C. fastigiata*, which among other points differs from the last named in its more upright habit of growth.—T.

Cephalotaxus pedunculata fastigiata.—It is only within the last few years that this has been recognised as a *Cephalotaxus*, it being at one time looked upon as a *Podocarpus* under the specific name of *koraianus* which was given to it by Gordon; indeed, this latter title is still in common use. It forms a shrub as upright in growth as the Irish Yew, but with much larger leaves. That it is a *Cephalotaxus* has been several times proved by the ordinary fastigate form pushing out shoots that grew in a nearly horizontal manner, and had the leaves arranged in two rows instead of being scattered, thus differing in no way from *Cephalotaxus pedunculata*. This case is about analogous to that of the common and Irish Yew. The upright *Cephalotaxus* is quite hardy, but it succeeds best in a sheltered rather than exposed position.—H. P.

Choisya ternata.—"W. B. H." (p. 296) tells us that *Choisya ternata* blooms freely in a cool house, and recommends it for its usefulness as a greenhouse shrub. He does good service in calling attention to it, for it is well worth growing, and does not seem to be much known. I saw it last week in the Exminster Nursery at Exeter. There was a fine row of it which had withstood the winter unscathed, though planted right out in the open. The plants were quite bushy, about 4 feet high, and 4 feet or 5 feet through, and fully set with flower-buds. As an evergreen, *Choisya ternata* is most attractive in winter, because of its fresh-looking glossy leaves and thickly tufted branches; while in summer, when it is covered over with its white, Orange-like blossoms, there are but few shrubs which will at all compare with it as regards either perfume or beauty.—ISEA.

The Dogwood (*Cornus mas*).—This shrub, common as it is, is a welcome feature in the shrubbery in early spring when the tiny clusters of bright

yellow flowers clothe the leafless branches. In autumn, again, the bright red berries are conspicuous, but unfortunately they are not always freely produced, owing to the absence of female blossoms. This *Cornus* grows into a large shrub or small tree about 12 feet or 15 feet high, and is especially suited for planting in small or medium gardens, as its rate of progress after the earlier stages are passed is very slow. It will thrive in dry sandy soils better than the generality of shrubs. Of varieties, Loudon gives one under the name of *fructo cæra coloris*, and describes the fruit as of a wax colour. This I have not met with, but we have here a couple of variegated varieties, one in which the leaves are narrowly edged with white, and the other (*aurea elegantissima*) in which a broad golden band encircles the green part of the leaf, and an additional feature is afforded by a rich rosy tint that overspreads the exposed portions of the foliage. —H. P.

GARDEN AND PARK FENCES.

IRON is a material which has during late years come into pretty extensive use for fences. It may therefore be of interest to supplement the account of a wood park fence which recently appeared, by some remarks upon the employment of iron under similar circumstances. There can be no doubt that the primary reason why iron is so much more seen than formerly is the low cost at which it is now produced. Whether the manufacture is remunerative or not, is a matter for those concerned in the work. What we have to do with is its cost in the market. To make a comparison between the actual figures at which a wood or an iron fence could be erected is a somewhat difficult matter, as with iron the strength of material and the form in which the fence is designed vary almost in every instance. The most common style of iron park fence is probably that with the rectangular standards and four or five horizontal bars. These bars may be either round or rectangular, according to taste and the use to which the fence is to be put. A plan sometimes adopted is to have a round top bar and the remainder of the bars rectangular. For a 4-foot or 4-foot 6-inch fence of this description the cost would generally be, taking the present price of material, some twenty per cent. less than that of a close-paled Oak fence of the kind described a week or two since. There is, however, this difference, which is important in weighing the respective merits of wood and iron. The wood is close, and constructed with the rails in the form suggested, practically unclimbable, whilst the iron with the horizontal bars is as easily climbed as an ordinary stile or gate, and only prevents the ingress or egress of large animals. With regard to making it rabbit-proof, so far as such a thing is possible, the wire netting which in the case of the wood has only to be placed beneath the soil, must be carried to the third or fourth bar from the ground.

In looking into the pros and cons of the subject, there is the question of ease of removal to be considered. On this point the iron certainly has the advantage. A wood fence of the character spoken of, when once fixed, must practically remain where it is placed until it is worn out or discarded; but with the iron the case is different. This, if the necessity arises for a change of plans or a re-arrangement of the line of fence, can be lifted and re-erected to any reasonable extent. When, however, this is done, the precaution should be taken to clean and re-varnish with tar or some other suitable composition the feet of the iron standards to prevent them from rusting away. This, as with the portions of the wood posts underneath and at the surface of the soil, is the weak point in iron fencing, and, therefore, requires the most care.

Another point which has sometimes been thought of in deciding between a wood and iron

fence is its effect in the landscape. When a fence, whether of wood or iron, cuts park lands in the foreground, the result must be inevitably to mar their beauty, and to produce a more or less ugly effect. This, however, cannot be dwelt upon here, but may be spoken of when touching upon another class of fence by which the difficulty is overcome. Where, however, the distance is considerable and the component parts of the iron fence cannot be distinctly seen, or where it is so great that it is entirely invisible, there can be no doubt that the iron is preferable. Round the margins of woods or plantations, where it is desired that these should preserve the idea of continuity, and insensibly blend with the park lands, the invisibility of the iron is most important. With a wooden rail fence this result is partially gained, but with a close-paled fence it is certainly lost. On the other hand, there are points which it may be desirable to hide and to terminate the view; when this is so the close fence will have its value.

With regard to the ease of climbing iron fencing, this, of course, is only true where the bars are placed horizontally. If it is determined they shall be placed vertically and of the proper height and sufficiently close together, they will be as impassable as the wood. They will, however, naturally be more costly.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 13.

THIS was a great day for the Daffodil growers, who filled half the conservatory with their flowers, besides a committee-room full of choice varieties, new or uncommon. In addition to these there was a capital gathering of other plants, and notably Orchids, which were more numerous than at any previous meeting this year. Nor was there a lack of new plants submitted to the committee, and of these the following were awarded first-class certificates:—

MYOSOTIDEUM NOBILE.—This is the most remarkable plant that has been exhibited in London for a long time. It is a native of New Zealand, and was introduced many years ago, but has been rarely seen in flower. On this occasion Mr. Loder, of Floore, Weedon, exhibited some half-a-dozen fine flowering specimens, and, judging by the appearance of these the requirements of the plants are well understood at Floore. The heart-shaped leaves, like those of *Lilium giganteum*, measured on some of the plants a foot across; several leaves are borne on each plant, and above them rises a flower-stem about 2 feet high, terminated by a dense cluster of flowers, each about the size of a sixpenny-piece, of a most beautiful turquoise-blue, shading off to pure white at the edges. It is indeed a lovely plant, and one that was admired by everyone who saw it. It is a Boragewort, a near neighbour of the Forget-me-not (*Myosotis* and *Omphalodes*).

ANTHURIUM DEVANSAYANUM.—An extremely handsome variety, obtained by intercrossing the scarlet-spathed *A. Scherzerianum* with the white-spathed variety. It is similar to but finer than *A. Rothschildianum*, also a hybrid obtained in a similar way. The spathe of Devansay's variety is long and narrow, while that of the other is broader; the colour too, is different. In *Rothschildianum* the spathes are covered with minute specks of red on a white ground on both sides, while those of *Devansayanum* are bright red on one side and heavily blotched on a white ground on the other side. A fine plant of it was one of a group of *Anthuriums* shown by Sir Trevor Lawrence, Burford Lodge, Dorking.

ODONTOGLOSSUM PESCATOREI (Knox's variety).—Pending the decision of Reichenbach, this plant, an extraordinary form of *Pescatorei*, will be known provisionally as Knox's variety, it having originated in Mr. Knox's garden, at Caversham, Reading. It may

be best described as a yellow-flowered *Pescatorei*, but probably it is a natural hybrid between that species and another. The flowers are above the usual size of *Pescatorei*; the sepals and petals are broader and the lip is larger; the sepals are pure white in the middle, broadly edged with canary-yellow, and are heavily blotched with cinnamon-red. The lip is white with blotchings of cinnamon-red. This variety must be placed in the same category as *O. Pescatorei*, *Veitchianum*, *Schröderianum*, *excellens*, and *Shuttleworthæ*, as it may never turn up again.

CYPRIPEDIUM WALLIS. This South American Lady's Slipper is similar to *C. caudatum*, though it differs materially from it both in growth and flowers. The foliage is stiffer and more erect; the flowers are about the same size as those of *caudatum* and have the same tail-like sepals, but the colour is greener, and the interior rim of the pouch is ivory-white, and much more conspicuous than in *caudatum*. It is extremely rare, and it has seldom if ever been exhibited. A fine specimen of it was shown by Mr. Lee, of Downside, Leatherhead.

ODONTOGLOSSUM MULUS COURTAULDIANUM.—This is one of those hybrids that are so difficult to describe, as the points of difference from others of a similar type are so minute. The present variety has long pointed sepals of a pale yellow spotted with reddish brown, and the broad lobed lip is very bright yellow. It is a handsome plant, and well deserved the distinction accorded it. It was shown by Mr. Sydney Courtauld, of Bocking Place, Braintree.

MASDEVALLIA RACEMOSA (Crossl).—This superb little Orchid was shown by Sir Trevor Lawrence in a condition better than it has yet been exhibited in this country. The spike, however, bore but two flowers, but these were so large and so brilliantly coloured that it afforded sufficient material for judging the value of the plant. The flowers are triangular in outline, of a glowing vermilion marked with veins of a deeper colour. It appears to be a strong grower, different in growth from most other *Masdevallias*, being decidedly rhizomatous; as many as twenty flowers are shown on dried specimens of this *Masdevallia*.

LYCASTE SKINNERI GLORIOSA.—Although the reason for certificating this plant as a distinct variety was not very apparent, the specimen which Mr. Pickersgill showed was such a fine one, that had a medal been awarded him for cultural skill it would have been more appropriate. The plant represented a large-flowered variety, not remarkably distinct, but such as could be matched in any large collection of imported plants. The colour of the flowers was a delicate rose-pink, stained with a deeper hue. The plant was fairly smothered with flowers, which must have numbered some scores.

PRIMROSE ALICE WILSON.—A superb variety differing from the ordinary run of Primroses in the colour, which is a bright plum-purple, with an eye of crimson and gold. The flowers are of circular outline, the size of a florin. It was shown by the raiser, Mr. G. F. Wilson, of Heatherbank, Weybridge, who obtained from a similar variety Scott Wilson, which possesses the same peculiar hue. These will be the forerunners of a distinct and beautiful race of hardy Primroses.

AMARYLLISES PRINCESS OF WALES AND CROWN PRINCESS OF GERMANY.—Two splendid varieties, the best of a group of new seedlings exhibited by the raisers, Messrs. Veitch, of Chelsea. The first has flowers of the largest size, of an open shape and symmetrical outline. The colour is a sort of carmine-crimson, clouded and flushed with brighter hues. The second is extremely showy, the sepals being pure white, broadly banded with crimson-scarlet.

NARCISSUS BARRI CONSPICUUS.—One of the most beautiful and distinct of all Daffodils. It possesses the boldness of flower of the largest among the incomparabilis group, with the brightest colours yet obtained in a Daffodil. The flowers are large, with broad petals of a clear yellow. The cup is an inch across and of a rich orange-crimson. It will always be among the choicest of Daffodils. Shown by Messrs. Barr and Son, Covent Garden.

Orchids.—Among these there were several of exceptional interest. The greatest display was made

WOODS & FORESTS.

DIFFICULTIES OF TIMBER CARRIAGE.

THE discussion which has lately been taking place on forest roads indirectly shows some of the difficulties which surround the question of timber transport. The fact that this matter of transport is one of the most vital in the whole business of forestry is so clear to all, that it does not need emphasising here. In lessening the cost of this necessarily heavy charge, the state of the roads by which the products are removed will tell largely. Everything, therefore, which can be done in the direction of keeping them in passable order will tend to remove a difficulty out of the way. From the nature of the case, however, the sum which can be expended on purely forest tracts is necessarily limited, otherwise in avoiding one evil another will be run into.

I see the point of light against heavy loads has been touched upon, and that the views of the writers are apparently conflicting. In reality they are not so, as, so far as I understand it, "D. T. F.," in speaking of light loads, does not mean to imply that the wood should be carted away with waste of horse power, *i.e.*, that four horses should only do the work of two, but that where possible two horses should be used in a team in preference to four. With this I entirely agree. I shall probably be told that with heavy carriages if only two horses are used, the strength of one will be used up in drawing the vehicle, and that virtually only a one-horse load will be removed. My answer to this is, that lumbering timber carriages are a mistake. As bearing this out, my observation shows that the professional timber carter does not use habitually such heavy tackle as that generally found upon estates.

Where very large timber predominates, it will be necessary to have the carrying apparatus of a heavier type, but where trees of moderate size form the bulk of the woodland a carriage suited to a load of, say, 50 cubic feet and a couple of horses will be far and away more convenient than one where the normal load would be twice the weight. I do not say it lightly, but as the result of a somewhat wide experience, that two teams of two horses each, with suitable carriages, would perform more work in a given time than five horses upon a single team.

There is always a great disadvantage attending the work of a single team, unless the spot is perfectly level—which is not very often the case—and that is that when climbing hills the same number of horses have to perform the work as when being drawn upon the level. This either means, that when upon the level road a loss of power is being entailed, or that in rising the hills the horses are unduly strained. When two teams of say two horses each are working together, the third, or if necessary the fourth, horse can be attached to the load. In theory, the same may be true if teams of four horses were substituted. In practice it is not so, as with six or eight horses on a load the same ratio of tractive force is not maintained.

With coppice trees the evil does not exist so much, as generally there are not so many large branches to be contended with, but in the removal of field timber, what is apparently a small thing, but one which often increases the difficulty, especially in the matter of loading, is the careless and slovenly way in which the trees are lopped and hewn. According to the use to which the timber is to be put, or the market to which it is to be sent, the extent of the hewing will vary considerably, but whatever may be its destination, the bole of each tree should be perfectly cleared of its branches, and

each knot or snag be pared off smoothly with the axe. When the work is done by the regular man on the estate this is mostly attended to, but when let by the load, or at per tree to occasional hands, it is often loosely performed. This should be seen to at the time the felling is going on, as a buried snag not unfrequently causes a loss of time, and is a source of danger.

Loading, as has been pointed out by one or two writers, almost always tells up to a large proportion of the day's work. Having but little knowledge of the tripod system of loading, I cannot well judge of the facility with which the work is done, but on the face of it it would appear that it entails greater complication than the use of skids, which is common here. With these when the carriage has been brought alongside the tree or trees to be loaded, the chains and skids adjusted, provided no hitch occurs and the horses are steady and strong enough, all of which points should be determined before the work is set out upon, the actual business of loading does not occupy above a couple of minutes for each tree. It is not always that enough horse power is used to raise the load by a direct pull, as the snatch-block can be used for loading by means of the skids as well as in any other way. When a tree is at hand to which the block can be fixed, the trouble is less; but when this is not so, an anchor is carried, to be made fast in the ground, and the block in turn to this.

"Yorkshireman" (p. 340) speaks of 5d. per foot for taking to the sawmill. As, according to figures which he has given from time to time, prices of haulage are higher with him than here, such a figure is not unlikely. Yet as it amounts to, perhaps, two-thirds of the initial cost of the timber, it supplies food for reflection. Can the sum which has to be sunk in carriage be materially reduced? There is one way in which I think it can, and that is by encouraging merchants to bring their portable mills to the spot where the timber grows. For 5000 cubic feet to 10,000 cubic feet of wood it would generally answer a merchant's purpose to send a portable mill to the estate. Where this is done, the saving in carriage would probably amount to 30 per cent. For certain manufacturers, where special machinery is required, it is obviously necessary that the wood should be taken to a fixed mill if the distance is considerable, but for the great bulk of uses, trees could be cut up with equal facility at the portable mill. This is a thing upon which people's eyes are beginning to be opened. Timber growers and timber buyers are conservative bodies of men and averse to innovations. When the air is thick with doubtful schemes, there may be reason enough too; but upon this particular question of the employment of portable mills to lessen the difficulties of transport there is room for advance. When the hand is forced by competition, new means of meeting the altered conditions must be devised, and among these I have considerable faith in the more general adoption of mills which can be transferred from place to place. There are other reasons for this beyond the mere saving of the cartage of sawdust and waste material. Many of the mills as at present constituted are not contiguous to a railway station; therefore a second cartage is incurred. Where they are near the stations, the chances are that it will not be the nearest point of rail to where the timber grew. With mills on the place, the sawn product can be despatched to any point of the compass without necessitating the covering of miles and miles of country to no possible purpose.

Lyneham, Wilts.

D. J. YEO.

Larch tree insects (C. H. D.).—The insect you sent is the chrysalis (inclosed in a cocoon) of a large moth, one of the Bombycidae, but I cannot say of what species.—G. S. S.

NOTES.

WYCH ELMS BY STREAMS.—Anent the remarks on tree grouping and thinning (p. 318), I have recently noticed some very effective groups of Wych Elm by watercourses. Whether these trees occur by accident or design I cannot, of course, say, but in a valley near here, along which a somewhat tortuous stream runs, there are a number of groups of these trees scattered over a distance of perhaps half a mile. Poplars and other trees also grow here and there. The Poplar is generally looked upon as the tree for fringing watercourses, and rightly enough, too, in the main. In this instance, however, the Wych Elms are decidedly more picturesque. A very noticeable feature is that there is scarcely a tree growing in a perpendicular position, and barely two with the same degree of inclination. In trees with long stems and situated on level or elevated ground this habit of leaning in all directions would be a drawback. Here it is not so. The direction of the stems though at once remarked upon is balanced by the amplitude of the heads of the trees and the character and conformation of the branches. Seen from the towing path, as this is the nearest vantage ground, they are at a lower level than the observer. In whatever way these Elms came in the position they occupy, although the surroundings are pretty much in harmony, it is obvious they were never placed for the sake of effect, as they occur in a purely agricultural district where no care is or has been exercised with regard to the landscape. If these groups could be lifted bodily into the heart of some demesne where similar depressions and streams occur—and of these there are plenty—their value would be immense; but situated where they are they probably do not attract the attention of one in a hundred. With regard to planting, the Wych Elm is a tree which in its younger days is less objectionable than some others, as it does not assume the broom-like habit which is so fatal to the appearance of many young trees. For situations such as that here sketched it is well worthy of consideration. It is a tree which would also harmonise well with the Birch.

THE SUNK FENCE.—This fence, which is to be found in most places which have any pretensions to size or age, proves that past generations had an eye to what is now too much lost sight of, *viz.*, the continuity of the view from the house across parks and ornamental grounds. Taking the present cost of fencing material, and also the cost of labour, there is no doubt that the Ha-ha style of fence is the more expensive so far as regards the first outlay. Where, however, the situation is such that the landscape is thought of at all, this difference cannot be enough to cause the sunk fence to be discarded. Much will, of course, depend upon the nature of the ground, the soil, and the subsoil. Where stone is abundant the expense is necessarily much curtailed. The excavation would serve well to fill up times when other work is slack or, from the weather, could not be proceeded with. There is one thing which detracts from the value of these fences, and it has, I think, been referred to before, and that is the difference in the character of the sward forming the lawn and that of the park lands. Although the fence cannot be seen, this difference gives a clue to the break and suggests its existence. Where the park lands are being grazed during the season this tufty and brown appearance may be materially modified by the occasional use of the scythe or the mowing machine. Where the idea has been carried so far as to construct the fence, this simple thing certainly should not be neglected. In some of the modern Ha-ha's I have seen the whole idea marred by the lawn being raised to a higher level than the surrounding grounds; in fact, virtually a terrace instead of being what it should be—a part of the grounds themselves.

TREES FOR EARLY LEAFING.—Our situation here, some fifty miles inland, and at a considerable elevation above the sea level, is not favourable for the early development of foliage. Most of the trees of the fields and hedgerows are of hardy deciduous kinds. There is, however, a wide dif-

ference in the time of their breaking into leaf, as of course there would be in other situations. The tree which always first dons its coat of green is a large Crack Willow. This is growing in a slight depression between two low hills, and is as I write (April 8) covered with foliage of the most exquisitely delicate tint. Since the beginning of the year there has scarcely been an appreciable change in its buds, but now a few hours have effected what has been described. The stream which runs along this slight valley—and on its margin the tree stands—is, as nearly as I remember, a continuation of the stream upon which the Wych Elms to which I have referred grow. This Willow, therefore, as its whole growth is very graceful, would be another very suitable tree for such places. Its habit of breaking into leaf earlier than many of our common trees would make it especially valuable in early spring.

LARCH PLANTATIONS IN THE LANDSCAPE.—At the time of writing, so far as masses are concerned, the Larch plantations appear brown and bare. A close inspection, however, reveals the fact that the time is close at hand when their appearance will be entirely changed. The little fascicles of leaves are breaking out at a million points, and are only awaiting a short spell of genial weather to hide to the distant view all the stems and branches of the trees. In an agricultural district like this, where a comparatively small portion of the land is occupied by woods and plantations, the Larch is mostly relegated to filling up odd corners. For this it seems a tree peculiarly suited. Where woods occur here they are mostly Oak, but it is seldom, if it is attempted, that the Oak does well in very small colonies. With the Larch it is different, as, providing the situation and soil is at all suited, it is a tree which in out-of-the-way corners soon runs up to a usable size. As well as this, in the springtime before the bulk of deciduous trees are in leaf, the foliage of these small plantations of Larch here and there in the landscape are very grateful. The effect is more observable when they do not occur at too near intervals.

THE OUTLINES OF WOODS.—The difficulty of dealing with these is well illustrated by glancing at a wood which is situated partially on the level and partially on the hillside. The portion which is growing on the level, whatever the form of its outline, seems to blend well with the surrounding country, but directly the margin begins to ascend it becomes more harsh. Looked at from the level ground and directly up the rising ground, this is of course not seen, as the hillside itself is hidden by the trees and the opposite margin is below the line of sight. It is when viewed obliquely that the want of harmony is seen. How this can entirely be got over is a knotty problem, but I have seen cases where the harsh outline has been materially softened by the introduction of tree groups along the margin and in the line of the rising ground. When this plan is adopted, the groups are better when somewhat loosely arranged.

ORCHARDS FOR SHELTER.—It is no doubt necessary that orchards themselves should not be planted in too exposed positions, as it is difficult to establish them on such sites. When, however, it is determined to plant an orchard in the vicinity of the house and premises, a little thought should be given as to the possibility of making it a wind-break. If such positions are available, an orchard of moderate extent to the north or north-east, and one to the west or south-west of the house will serve to screen it from a vast amount of wind to which it would otherwise be exposed. Sometimes, of course, the character of the situation would render the plan impossible or unnecessary, but there are several places I know where the Apple orchards form capital screens. For this purpose they need not be planted so near the house as to curtail the space for garden and other purposes which it is desirable to have, as their object is not so much to absolutely cut off the wind as to minimise its force. There are several farm homesteads near

here, two in particular, which are situated on slight eminences, and was it not for their orchards—which by-the-by will soon want replenishing—they would have absolutely no shelter from the prevailing winds. There is less thought of this question of shelter by some than it deserves. Not long ago I saw a thriving plantation of Oak which stood on the windward side of a large farmhouse cut down because a portion of it made an awkward corner to a large ploughed field.

VALUE OF WOODLAND BELTS.—There are in some parts of Sussex, which as is well known is a thickly wooded county, a system of small shaws or belts of woodland between the pasture fields. The worst feature about these seems to be their tendency to encourage the breeding of rabbits and game which will attack the crops. The rabbits are probably the chief sinners. Admitting this objection, these belts, on land which seems to produce wood naturally, are very valuable for shelter. There are many I know who would prefer—i.e., if the views they express are sincere—to see this country a howling wilderness and denuded of trees except in forests and large woods. To such as these it will be useless to speak a word in favour of woodland belts. A knowledge of similar situations with and without the wood, however, leads me to my conclusion as to its value. What high lands and wind-swept valleys without a vestige of protection from trees mean nobody knows but those whose lot it is occasionally to be in such places. What similar places are when the force of the wind is broken or diverted by trees it is easy to divine, but not thoroughly appreciate unless both conditions have been experienced.

PLANTING VILLAGE GREENS.—There is a good deal said just now about the enclosure of commons and similar places, but into the rights or wrongs of the question I must not here enter. The desirability or otherwise of tree planting in such situations is, however, outside of the matter of who the owner should be, and is worth a word of mention. In the village from which I write there is a green or common of a considerable area which flanks the sides of three roads which converge on its centre. Some forty or fifty years ago this land was planted with trees by the then lord of the manor. I do not, of course, mean that it was formed into a plantation, but that trees were interspersed at intervals over the green sward. Whether the trees were disposed in the best possible way it will be no use to discuss. The plan apparently was the formation of open avenues by the roadside, but at a sufficient distance from it to escape any danger of excluding sun or air. If this was the object it has been to a great extent successful, as the trees have now grown to an imposing height and size, and in the summer time especially have quite a noble appearance. Near the centre where the roads converge there is a colossal Elm, which is seen as it is approached through either of the open avenues. The cost of this work at the outset could not have been very great, and is one of the best instances of a comparatively quick and good result from planting common hardwood trees that I know of. There are many such spots, the appearance of which could be enhanced by a little planting in this way, but it would be for the planters to decide whether rows of trees or properly disposed groups would be the most desirable.

THICK AND THIN PLANTING.—This is such a very much discussed question, that to touch upon it is almost sure to mean the rousing of somebody's susceptibilities. Yet it is hard to be oblivious to the fact that the bulk of planting, whether for profit or ornament, is executed too thickly. When this is done by persons who have an interest in packing as much as possible on a given space there may be some excuse, but nevertheless where trees are expected to thrive it is a serious matter. I know large groups of young trees now, which cost big sums of money to plant, where the trees are literally smothering each other. It is a pity, but since the planter left his work no heed has apparently been paid to what the outcome will be. If it is true that "a stitch in time saves nine," it

is equally true that a little care in the early years of plantations or groups will save an enormous amount of trouble later on.

RAMELER.

WOOD-PAVED ROADS.

PUTTING aside the cost of these and other considerations for the present, allow me to point out how erroneous the assertions of "T. B." (p. 271) are on the lasting qualities of wooden blocks when laid in the soil. To read the "instances" in support of his views that have come under his notice one would think that he had never heard of such things as railway sleepers, which last for many years though placed under the most unfavourable conditions, for timber lying half in and half out of the soil always decays soonest; hence the reason why Oak and other stakes always rot at the surface of the soil, while the buried part remains sound. At the Edinburgh Forestry Exhibition, two years ago, sleepers of common Spruce were exhibited in a sound state that had been down some ten years; but that is nothing to the time sleepers of Larch and Oak and some Firs will last. In setting out a private siding the other day on one of the main railway lines, I had occasion to survey an old and disused tramway, in company with the chief engineer of the railway, and I could not help remarking on the good state of preservation the sleepers were in, although they had been down twelve or thirteen years, and that they were old, second-hand railway sleepers when put down. I cannot exactly state the average age of wooden sleepers, much depending on soil and situation and the quality of the timber, but it is much greater than your correspondent "T. B." seems to imagine, and the old sleepers are always turned to good account after they are taken up. The cost of wooden roads is another thing; but there are cases in which wooden pavements may be used with good results, and with the prospect of their lasting nearly a lifetime. Where Oak is abundant and cheap, as it is now, it may be used for pavements without any misgivings as to its lasting powers. YORKSHIREMAN.

—The additional remarks which "Wilts" makes on this subject (p. 317) do not require much further comment. But if he thinks that the fact of Elm, when so used, being quite rotten in the way I described at the end of half a dozen years, and that in a place where the ground was exceptionally dry and the paving subject to no wear worth naming, says anything in its favour, I fail to see it. No matter what the facilities in the shape of steam-driven machinery for cutting up the blocks may be, even if the wood was to be had for nothing, the labour connected with the whole proceeding would cost too much, considering the short time such a road would last, to admit of the work being as economical as where the usual materials are employed. It rarely happens when any novelty is suggested that there is not someone ready to try it, and very likely wood paving on private roads may be attempted. But I think whoever tries them, if the work is carried out in a way that will admit of its being at all serviceable, it will be found that the cost is very great.—T. B.

Thinning plantations.—I saw the other day a small plantation of Beeches that showed how much the shape of a tree is influenced by situation and circumstances. It was only a small wood, but the trees were thick on the ground, as straight as arrows, and proportionately tall. They would be, perhaps, fifty years planted, occupied a poor knoll on an exposed situation about 800 feet above the sea, and could hardly value less, I estimated, than £150 per acre, and probably more. The trees had never been pruned and were straight and clean solely because they had not been overthinned, and were proportionately bulky in the trunk, and useful. It is well known that no tree is more given to a spreading habit than the Beech when it has room at the top, as it then produces a broad branching head and short trunk, with far fewer feet in it than might be; but grown pretty rank by itself, it shoots up to a great height and the trunks are as straight and round as could be desired.—YORKSHIREMAN.

by Sir Trevor Lawrence, who, as usual, showed grand specimens of various kinds. The most attractive plant among these was a huge mass of *Oncidium Marshallianum*, carrying four long branching spikes crowded with large yellow flowers, which one of the visitors aptly remarked resembled a swarm of golden butterflies. There is certainly no lovelier Orchid than this; its flowers, which are clear chrome yellow, look as if suspended in the air. Another superb specimen from the Burford collection was *Epidendrum Wallisi*, perhaps the largest plant in cultivation. It bore five tall and slender wand-like stems, each terminated by a cluster of flowers, in one case as many as a dozen. Those who know this beautiful Orchid may imagine what a graceful object this must be. Then there was a plant of *Odontoglossum vexillarium roseum*, a good dark variety with four spikes; a huge mass of *Maxillaria Turneri*, with myriads of flowers; a grand variety of *Cattleya Mendeli* having an intensely deep lip, besides *Masdevallia Crossi* and those two singular *Dendrobiums*, *D. Brymerianum* and *Harveyanum*, both with curiously fringed labella. *Cattleya Lawrenciana*, *Saccolabium curvifolium album*, a chastely beautiful variety, and *Maxillaria Buchaniana*, a near ally of *M. Harrisoniæ*, if not but a variety of it, made up this choice group, to which a silver-gilt medal was awarded.

Mr. Lee, of Downside, Leatherhead, sent several flower-spikes of *Cattleya speciosissima*, one of the grandest of all *Cattleyas*, but, unfortunately, not the easiest to cultivate successfully. These spikes represented two or three distinct forms as regards colour, some being much richer than others. Added to these were four flowers of that gem among *Cypripediums*, *C. Godefroyæ*, which Mr. Lee's gardener seems particularly successful in flowering. These flowers represented both heavily blotched and lightly spotted forms, but all were beautiful. Mr. Lee also showed a fine plant of *Epidendrum Stamfordianum* and an extremely pretty variety of *O. Phalaenopsis* with the lip wholly white. An exceedingly choice group of hybrid varieties of *Odontoglossum* from Mr. Pollett's garden at Fernside, Bickley, was a great attraction; there were about a dozen plants, each representing a distinct and, in most cases, a rare form. The finest of the group was the famous *Pollettianum*, of which Mr. Pollett is the sole possessor. It may be described as intermediate between a heavily spotted form of *O. Alexandræ* and *O. Andersonianum*. Another great beauty was *O. Ruckerianum* insignie, characterised by its large flowers and heavily blotched sepals which have a pale yellow ground flushed with rose-purple. The most remarkable of the others were *O. mulus*, *O. Wilckeanum*, with a fine spike bearing fourteen flowers, *O. Andersonianum*, and the rare *O. Schillerianum*, a near neighbour of *O. crocidipterum*, and, like it, the flower is minutely speckled with a fawn-brown tinge. A medal was deservedly awarded to this group.

Messrs. Veitch showed a plant possessing great interest for orchidists. It was a hybrid *Phalaenopsis*, the first ever flowered in Europe. It was a cross between *P. amabilis* and *P. rosea*, and, singularly enough, it turns out to be identically the same as *P. intermedia*, which was introduced years ago. It therefore proves that *intermedia* is a natural hybrid between *amabilis* and *rosea*, and it is singular that the Messrs. Veitch should have selected these species and produced the same result as Nature's hybridising. It is a very beautiful variety, the flower being 2 inches across, with white sepals flushed at the bases with rose; the lip is of a splendid amethyst, a tint intensified by the white antennæ of the labellum. Mr. R. B. Lemon, Moat Lodge, Beckenham, showed a plant of the rare *Oncidium tetracopsis*. It belongs to the seriatum section, having large flowers with bronzy yellow sepals, and with broad lateral petals transversely barred and mottled with brown and gold. Mr. Ingram, of Elstead House, Godalming, showed a fine hybrid *Odontoglossum* named *elsteadensis*, and a dark rose variety of *Phalaenopsis Sanderiana*.

Mr. B. S. Williams included in his group of choice plants a plant that attracted the visitors by its delightful perfume, resembling that of Violets. This was *Houlletia odoratissima*, a rarely seen Orchid, but a most desirable one. It has large and curiously-shaped flowers of a reddish brown colour, produced

in a longish dense spike. Mr. Williams also showed a plant of the rare *Odontoglossum cuspidatum*, recently described in these columns, and a plant of *Masdevallia Harryana lilacina*, a delicately-coloured variety. Mr. Buchan, of Wilton House, Southampton, sent a very handsome *Odontoglossum* bearing the name of *O. liliflorum*. It has close affinity to, if not identical with, *O. ramosissimum*, the flowers being of similar form and produced on the same tall, branching spikes. They, however, materially differ in colour, which is a delicate rose-pink, spotted with a deeper colour. The plant was a fine one, having a spike some 4 feet high. Mr. Smee's garden at Wallington contributed a group of *Cattleya citrina*, *Warszewiczella discolor*, and *Scuticaria Hadweni*, the two latter being out of the ordinary run of Orchids. Messrs. Pearson, of Chilwell, sent several forms of *Dendrobium*, among them being a very pale *D. Wardianum*, a white crassinode, and *D. Wardianum magnificum*, a fine broad-petalled, high coloured variety.

Silver medals were awarded to Messrs. Barr & Son, Covent Garden, for a group of *Narcissi* comprising all the sections; to Mr. Ware, Hale Farm Nursery, Tottenham, for *Narcissi* and other spring flowers; to Messrs. Collins and Gabriel, Waterloo Road, for *Narcissi*, *Freessias*, *Anemones*, &c. The most remarkable varieties of *Narcissi* were submitted to the *Narcissus* committee, the report of which is below. Bronze medals were also awarded to Mr. Walker, of Whitton, for a group of admirably grown *Daffodils*, consisting of select varieties; and to the New Plant and Bulb Company, for *Daffodils*. Messrs. Lane, of Berkhamstead, took a silver medal for a grand group of forced *Rhododendrons*, which added much to the brightness of the meeting. Among other miscellaneous exhibits were some grand new *Amaryllises* from Messrs. Veitch. Besides those certificated, the sorts named *Compton*, *Pioneer*, *Eclatante*, and *Etoile* were the most remarkable. Messrs. Veitch also had a large basketful of *Heloniopsis umbellata* and *Daphne Blagayana*, alluded to elsewhere. Mr. Williams showed in his group some of his new *Himantophyllums*, those named *Ambrose Verschaffelt* and *aurantiacum* being the best. Mr. Bealby, of Roehampton, showed a lovely new double *Azalea* named *Sacountala*, of which we shall doubtless hear more in future.

The only fruit exhibits was a basketful of *Gros Colmar* Grapes, fine bunches and well kept, from Mr. S. Castle, West Lynn, and a large collection of late Apples and Pears from Mr. Smee, The Grange, Wallington. There were about fifty dishes, and among the Apples were such good sorts as *Wellington*, *Ord's*, *Stone*, *Lord Burghley*, *Ribston* and *Norfolk Beautifin*. Among the Pears were *Catillac*, *Bezi Mai*, and *Duchesse Tardive*. A silver medal was awarded to Mr. Smee.

A sample of an improved stage for Orchid houses was exhibited by the inventor and maker, Mr. J. Gray, Danvers Street, Chelsea. It consists of a double stage, the upper one trellised, the lower one solid, for receiving a layer of shingle, ashes, or small coal. The stage rests on iron standards, and as the lower stage consists of such lasting material as Elm, Oak, or slate, it is very durable. It is made in sections for convenience of removal, and has a neat appearance.

Scientific committee.—Mr. Llewelyn exhibited from the neighbourhood of Swansea various *Rhododendrons*, all grown out of doors except *R. Edgeworthi*. The species and varieties included *R. Shepherdii* (?), *R. ochraceum*, *R. barbatum*, *R. Thomsoni*, *R. ciliatum*. Many of these are as hardy as the common Oak, provided they do not make their growth too early in spring. Most of the sorts mentioned by Mr. Llewelyn were raised many years since from Himalayan seed, and have now attained a height of 25 feet to 30 feet.

Sparrows and Crocuses.—Mr. Boulger gave his experience as to the mischief effected by sparrows. Unlike Mr. M'Laoblan, he had found that the birds principally attacked the edge of the corolla and not the tube. It was remarked that Crocuses in masses were less liable to injury than when in lines.

Primroses.—Mr. Boulger exhibited various forms of *Hose-in-hose* Primrose, in which the calyx was

petaloid like the corolla, and a malformation in which the stamens were all united into a tube.

Fungus poisoning.—Mr. W. G. Smith read an account of the injurious effects produced on himself by partaking of *Agaricus dealbatus*. The species is capricious in its action, as it does not always, and under all circumstances, produce the effects described by Mr. Smith, and which consisted in a sensation of heat and excessively profuse perspiration. No other ill effect was produced; others who ate the fungus at the same time were not affected.

Weevil on Orchid bulbs.—Mr. O'Brien showed pseudo-bulbs of *Cœlogyne cristata* injured by a beetle which was referred to Mr. Pascoe for identification. A conversation ensued respecting *Isozona* and other insect pests imported with Orchids, and it was suggested that any suspicious-looking plants should be destroyed, but it was pointed out that the damage was probably done in a young state of the insect, and that destruction of the perfect insect or of the affected bulbs might be of little avail. Mr. Llewelyn alluded to certain longicorn beetles imported with timber from the Baltic, and which were illustrations of life under untoward circumstances, the beetles being found in the timber used in the mines after a long period of use under ground.

Outdoor Orchids.—Mr. A. H. Smee showed a plant of *Cattleya Trianae* in bloom. It was placed in the open air, exposed to full sunshine from June 24, when the entire growths were made, and taken in again on September 24. The flowers were of a richer colour than those formerly produced on the same plant under glass. A plant of *Cypripedium insignie* was also shown which had been out of doors all winter with only the protection of a broken hand-glass. The plant had been exposed in a similar way for two or three years, and this year had been subjected to 22° of frost without injury.

Narcissus committee.—A meeting of this committee was also held, when a large number of specimens were exhibited, including, amongst others of special interest, seedlings from Captain Nelson and Mr. Engleheart, and a great many wild varieties of different types. There was not sufficient time to go thoroughly into all the collections which were received, but the following is a brief account of what was submitted for inspection and the decisions taken:—

1. *N. incomparabilis*, from Messrs. J. Dickson, of Chester, not known but apparently a form from the Pyrenees. Particulars requested of its history.
2. A variety named *nobilis*, from Dr. Wallace, Colchester, collected by Mr. Maw. Deferred to another year.
3. *Golden Spur*, from Dr. Wallace. Correctly named.
4. A form of *N. pseudo-Narcissus*, from Mr. H. Collins. Not considered worthy of a distinctive name.
5. *N. calathinus*, of Redouté, from Mr. Barr. True to the figure.
6. *Tom Thumb*, Mr. Barr. Deferred.
7. *Automedon*, a good variety of pseudo-*Narcissus*, from Mr. Tyerman. Name registered.
8. *Henry Irving*, a spurious of Dutch origin, from Mr. Barr. Name registered.
9. *Challenger*, a strong growing variety with foliage resembling the rugelobus variety, from Mr. Llewelyn. Name registered.
10. *N. pseudo-Narcissus*, from Mr. Tyerman. Not considered worthy of a name.
11. Some small forms collected in the Maritime Alps, and ranging from deep yellow and lemon self-coloured shades to yellow trumpets with white perianth. From Mr. Scrase-Dickins. Accepted as varieties of *N. minor*.
12. White variety of the *Ajax* section, from Miss Owen. Identified as *Colleen Bawn*.
13. Irish form of *N. cernuus*, from Miss Owen.
14. A small straw-coloured *Daffodil*, from Miss Owen. Named as *minor citrinus*.
15. A flower from Mrs. W. B. Hartland, similar to the last in shape and size, but white. Named as *minor albus*.
16. A *Polyanthus Narcissus*, *N. Tazetta*, from Mr. Archer-Hind, collected in woods near Ostia. Not recognised.
17. A form of *N. pseudo-Narcissus*, from the Rev. Mr. Wilks, described by him as the earliest, strongest, and most floriferous sort he has ever met with. Named *Troilus*.
18. A seedling from *Tottenham Yellow*, more robust in form, from Mr. Wilks.
19. A seedling from Captain Nelson, in appearance like a white *Telamonius*.
20. A seedling from Captain Nelson, like a pale form of the variety *Exquisite*.
21. A seedling from Captain Nelson of a deep gold colour.
22. A short crowned *moschatus*, from Rev. Mr. Engleheart. Name registered as *Niobe*.
23. Some forms, single and double, found growing between *Telamonius plenus* and wild pseudo-*Narcissus*, which

had been planted in concentric rings round the stems of trees, showing strong evidence of being hybrid seedlings between the two (Rev. Mr. Engleheart).

24. Specimens of *N. pseudo-Narcissus* of various forms and colours, from Rev. C. Wolley Dod.

25. *N. Bulbocodium* (*Corbularia*) *nivalis*, from Mr. Corder. true; triandrus pulchellus and some other forms of triandrus.

26. A collection of forms of *spurius* from Mr. A. E. Barnart, including Golden Spur, *spurius coronatus*, and Henry Irving, and several others not recognised by distinctive names.

27. A collection of Italian Trumpet *Narcissus*, from Mr. Morse, of Epsom.

28. A report, with dried specimens of *N. triandrus*, was presented to the committee from Professor Henriques, of Coimbra.

29. A collection of white varieties of the Ajax group was brought by Miss White. One large variety, known sometimes as *tortuosus tenuifolius*, was registered under the name Leda. It had the peculiarity of being strongly scented like old Oak.

30. Bishop Mann, a very tall growing *moschatus* from Mr. W. B. Hartland. Deferred.

31. Minnie Warren, a small *moschatus*, from Mr. W. B. Hartland. Name registered.

32. Gladys, another small white form. Name registered.

33. A very interesting collection of forms of *incomparabilis*, from Mr. W. Godolphin Osborne, collected by him in the Pyrenees, varying considerably in the colour of the crown and perianth.

34. *N. muticus* and *juncifolius*, and a *Corbularia*, from the same source.

35. A white form of the Ajax section with buff-coloured trumpet, very distinct, and a variety of Sir Watkin, with deeply stained crown, were shown by Mr. J. Walker.

36. A collection of various sorts from Mr. J. H. Krelage, for verification of names.

37. Some flowers were shown by Mr. Ware, which were accepted as true *nobilis* variety. The roots were collected in the Pyrenees, and had been in cultivation in England for two years.

38. A number of single and double *N. pseudo-Narcissus* and *Telamonius* from various sources, sent in reference to the question of the conversion from single to double.

ROYAL BOTANIC.

APRIL 14.

THIS, the second spring show held by this society this year, was not so large as April shows usually are here, but there were several bright features about it. There was a conspicuous absence of Orchids and new plants, but this was in a measure compensated by attractive groups of such things as *Narcissi*, *Roses*, *Amaryllises*, *Rhododendrons*, *Azaleas* and *Cinerarias*, and *Pelargoniums*. There were prizes offered for collections of most of these flowers, but few classes were represented. *Roses*, always one of the chief attractions, were shown admirably by Messrs. Paul, of Cheshunt, who had large and well-flowered specimens of such well-known favourites as *Caroline Kuster*, *Souvenir d'un Ami*, *Beauty of Waltham*, *Gloire Lyonnaise*, *Alba rosea*, and *Innocenti Pirola*, all of which force well. Besides these the group contained those two lovely white *Roses*, *White Baroness* and *Merveille de Lyon*, both unsurpassed as yet among white Hybrid Perpetuals. The new American Tea variety *Sunset* was likewise shown admirably by Messrs. Paul. This group took the first prize.

AZALEAS were much better at this show than at the one previous, which contained scarcely a creditable specimen. On the present occasion Mr. Turner, of Slough, sent a fine group of six specimens in the nurserymen's class. Among these the brightest sorts were *Roi d'Hollande*, *Mons. Thibaut*, *Duchesse de Nassau*, *Jean Vervaene*, *Baron de Vriere*, and *Madeleine*, all first-rate sorts, the two latter being probably the best whites grown. In Mr. James' second group was a fine white sort named *Abydos*, with bold, well-shaped flowers, and in Messrs. Cutbush's third group was a remarkably fine plant of *Flambeau*, one of the brightest coloured of all *Azaleas*. The amateurs' class was not so well represented, Mr. Wheeler's plants being the best. The group of *Azalea mollis*, from Messrs. Lane, of Berkhamstead, was a great attraction, and as they were arranged in an informal way amidst the greenery of the conservatory plants, they had a most beautiful effect. There were several colours among the dozen plants, some clear yellow, and intermediate shades to bright salmon-red. Among the best sorts were those named *Consul Pecher*, salmon-red; *Alphonse Lavallée*, bright orange-red; and *Ebenezer Pike*, delicate salmon. The *Rhododendrons* from Messrs. Lane, which, like the *Azaleas*, took the first

prize, made a brilliant group, all being large bushes, densely flowered. The sorts most conspicuous were *Sigismund Rucker*, *Blandyanum*, *Limbatum*, *Marchioness of Dorchester*, *Leviathan*, *Hendersoni*, *Estandard de Flandre*, and *Favourite*, all of which force admirably.

PELARGONIUMS were not remarkable for large size, but a creditable group was shown by Mr. Phillips, of Langley, Slough, who had moderate-sized specimens well flowered considering the early date. The sorts included *Rosetta*, *Mad. Thibaut*, *Jeanette*, *Duchess of Edinburgh*, *Reamie Poiteau*, and *Harlequin*. *Cinerarias* were shown best by Mr. Little's gardener (Mr. Hill), Hillingdon Place, Uxbridge, who had a dozen plants, each about 2 feet across the flower-heads. Mr. Phillips showed a pretty white variety called *Snowflake*. It has large well-shaped blooms, ivory-white with a purplish centre. It is, moreover, compact in growth.

AMARYLLISES were shown admirably by Messrs. Paul, of Cheshunt, who took the first prize with a dozen fine sorts, several of which were unnamed seedlings, the named kinds being *Gongoli*, *Dr. Masters*, *Pulchella*, and *Darkness*, all first-rate. Some of the seedlings were also of high merit, and well deserve names. Mr. Turner was the only exhibitor of *Auriculas*. He had a dozen plants of alpine and show varieties, the latter including such favourite sorts as *Charles Perry*, *J. Simonite*, *Beauty*, *Mrs. Smith*, and *Ruby*.

ALPINE PLANTS were shown chiefly by Mr. Ware and Messrs. Paul. The former took the first prize for a collection, which included among a crowd of others such bright things as *Primula denticulata*, *P. marginata*, *Anemone stellata fulgens*, *Saxifraga diapensoides*, *Cyclamen repandum*, *Soldanella Chisi*, and various *Orchises*. Messrs. Paul's collection was a large one, and abounded with choice kinds. A large panful of the white *Primula nivalis* was one of the chief features of the group, and other gems were *Androsace ciliata*, *Saxifraga caesia*, *S. marginata*, *S. oppositifolia*, and others, *Primula pubescens*, *P. viscosa*, *Draba bruniifolia*, *D. botica*; and Messrs. Paul took the first prize for a dozen hardy herbaceous plants which made a fine group, among them being *Primula acaulis* *Crossii*, a double purple *Primrose*; *Anemone nemorosa pallida*, *Anemone fulgens*, *A. Pulsatilla*, *Megasea Stracheyi*, and *Muscari botryoides* *pallidum*.

MISCELLANEOUS CLASS.—This constituted as usual about half the show, the bulk being made up chiefly of large collections of cut flowers of *Narcissi*. An extensive collection came from Messrs. Barr, consisting of a selection of the numberless sorts they grow. Mr. Ware also had a large group, as did also Messrs. Collins & Gabriel, and to each of these a silver medal was awarded. Mr. B. S. Williams contributed a large group of miscellaneous plants composed chiefly of *Orchids*, *Amaryllises*, and fine-foliaged plants, the most noteworthy among which were *Araucaria Vervaeiana*, *Rudgea macrophylla*, *Ochna multiflora*, a stove shrub, having bright red fleshy fruits studded with purple seeds, and a new *Rhododendron* named *Koenig Albert*, which bears a dense truss of bell-shaped flowers of waxy whiteness copiously spotted with deep purple. Among the *Amaryllises* were several new sorts, two of which received certificates; a large silver medal was awarded to Mr. Williams for this group. Mr. Hill, gardener to Mr. Little, also took a silver medal for a group of *Orchids*, which proved an attraction. It included numerous plants of *Lycaste Skinneri* of various varieties, several *Odontoglossums*, hybrids and others, and a very fine mass of *Cattleya Trianae*, bearing over thirty flowers on fifteen spikes.

CERTIFICATED PLANTS.—The following, though several of them by no means new plants, were awarded botanical certificates: *Adiantum fragrantissimum*, from Messrs. E. G. Henderson; *Tillandsia tessellata*, from Mr. B. S. Williams; *Dentaria polyphylla*, from Messrs. Paul & Son; and *Cypripedium macranthum*, from Mr. Ware. Floricultural certificates were awarded to *Amaryllises* *Pioneer*, *Perdita*, and *Crown Princess of Germany*, from Messrs. Veitch; and *Amaryllises* *Joseph Broome* and *Marshalli*, from Mr. B. S. Williams. Among other new plants shown

were the following: *Pelargonium* (*zonal*) *Queen of Whites* and *Princess of Whites*, both excellent sorts from Mr. P. Ladds, Bexley; *Anthuriums* (*hybrid*), *Archduke Joseph* and *Reine des Belges*, from Messrs. Henderson; *Pelargonium Volonte Nationale* album from Mr. Perkins, Leamington; and from Messrs. Paul some new *Carnations*, those named *George Paul*, *Jean Naturelle*, and *Souvenir de François Labuyere* being the best.

A list of awards is given in our advertising columns.

National Chrysanthemum Society.—On Monday evening last a meeting of the general committee of this society was held in Bishopsgate, Mr. E. Sanderson, president, in the chair. The hon. sec., Mr. Holmes, informed the meeting that the society now mustered 322 members. Letters were read from the Dartford District Chrysanthemum Society and the Henfield Society expressing their desire to become affiliated, and their applications were granted. A question as to the proper definition of the term large flowering varieties was raised; considerable discussion ensued thereon, and as a result it was agreed that all Chrysanthemums not Pompons could be included in that category. The schedule for the present year was then submitted to the attention of the committee and met with general approval.

The Siberian Squill is a delightful hardy flower, but it is only seen to the best advantage in the form of large clumps, which, when lit up by the bright spring sun, have quite a brilliant effect. I saw this spring, in the garden of an amateur, a large clump of this Squill, which came into existence in the following way: Half-a-dozen bulbs were planted in the centre of a circle formed by a hoop buried to the rim in the ground. Increasing by means of offsets and self-sown seedlings, and being quite secured against the disturbing influence of the spade, the whole of the space within the hoop became filled with bulbs, which, when in bloom, had quite a charming appearance. There is no doubt that bulbous plants of moderate growth would all be the better for some kind of protection such as that afforded in this instance. Hardy bulbs begin to make new roots early in autumn, and continue to do so throughout the winter—just the time chosen for digging over flower borders; and although labels or sticks serve to guide the operator, it frequently occurs that they become lost, or that carelessness brings the spade too near the roots. Ordinary iron hoops are open to objection; how would galvanised iron do? Has any reader of THE GARDEN tried this material for the purpose just mentioned?—C., *Byfleet*.

QUESTIONS.

5484.—**Lemon wine.**—I should be particularly obliged if some reader of THE GARDEN would kindly favour me with a recipe for making this wine.—W. M.

5485.—**Carpet bedding.**—Can any of your correspondents recommend a handy book on gardening giving plans and designs of carpet bedding and of flower beds in the Italian and other styles, with suggestions as to the selection of plants and the arrangement of colours?—R. L.

5486.—**Gloxinias.**—Is it good practice to pinch *Gloxinias* back in order to make strong plants of them? A few which I have in 6-inch pots have each from three to five shoots, and are now just showing flower-buds. I am anxious to grow them into good specimens. Would it be well to shift them into 8-inch pots? and would it do to give them a little weak manure water? For any advice on this matter I should feel greatly obliged.—AN AMATEUR.

LATE NOTES.

Seedling Carnation (*A. Barker*).—An excellent variety, very similar to, if not identical with, one called *Dr. Raymond*, which is also the colour of the old crimson *Clove*. It is decidedly worth propagating, but you should see how far it differs from others of a similar colour before you name it.

Names of plants.—*J. A. E.*—Common double *Daffodil* (*Telamonius plenus*).—*A. Jenkins*.—*Oncidium macrolepis*.—*C. H. F.*—Not *Compactia* *macroplectron*, but the finest variety of *C. falcata* we have seen.—*G. H. Mounslon*.—Double variety of common *Daffodil*.—*J. Arncliffe*.—True. *Odontoglossum Andersonianum*; but not the best form.—*C. Scott*.—1, some kind of *Carex* (*Sedge*); 2, *Polygala Chamebuxus*.—*H. E. For.*—*Primula denticulata cashmerensis*.—*W. Payson*.—*Anemone apennina* (not more Irish than English), *Corydalis bracteata alba*.—*Subscriber*.—*Bornia megastigma*.—*G. E. M.*—*Teucrium canum*.

No. 753. SATURDAY, April 24, 1886. Vol. XXIX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

THE PRIMULA CONFERENCE.

MUCH interest was attached to the show of Primulas held at South Kensington on Tuesday and Wednesday last. Such a gathering of this class of plants had never before been assembled in one place, and though many of those in pots represented but feebly their beauty as seen on their native Alps or in a good rock garden, some idea of the great diversity of size, form, and colour now to be found in this one genus, so extremely valuable from a garden standpoint, could be formed. It was interesting to see side by side representatives of the genus from every country in which Primulas are found, an extensive region or rather zone running across the northern hemisphere, a range extending from California to Japan. What is not a little singular is the fact that the same little Bird's-eye Primrose that is tolerably common in some parts of Britain is found also in North America. The comparative narrowness, so to speak, of this Primula zone is one of the reasons why almost every known Primula is hardy enough for outdoor culture in this country. The headquarters of the genus are Central Europe and the Himalayan region, both of which contributed largely to the show on this occasion, especially the former. Indeed, varieties of Primula from the European Alps seem to be endless now that hybridising is being carried on both by Nature and art. At this conference one had the whole of the Primula family marshalled before one's eyes, and the beauty of most of them was abundantly apparent. There was the time-honoured Auricula, which has been in captivity, so to speak, for centuries, side by side with the most recent captives from the host of wildlings to be found in the Alps of Europe and Asia, but yet unknown to the majority of cultivators. It was fortunate that the chief national garden collections were so well represented. Kew contributed the largest group, and it was, perhaps, beyond all others the most valuable, comprising as it did so many new species. From the Edinburgh and Glasnevin Botanic Gardens also came collections, that from the Scotch garden being particularly bright, the majority of the plants which it contained displaying that richness of colouring which southern growers can hardly hope to get in their flowers. The chief of hardy nursery collections, too, were admirably represented, but there was a conspicuous absence of exhibits from amateur alpine growers, whose name, even within fifty miles of London, is legion. Perhaps this may be accounted for by the fact that few of them care to grow Primulas in pots; they like rather to see them growing in a free way in their rock gardens, not restricted, but spreading out into dense masses, which when in bloom alone show their true beauty. There was nothing absolutely new in the exhibition, and few, if any, examples of exceptionally good culture. The committee were wise in certifying some lovely new seedlings of *P. viscosa* shown in the Edinburgh group, but their judgment in certifying a pigmy North American species simply because it was new was questionable. Anyone who would buy this little *P. mistassinica* on the strength of its having received a first-class certificate would, unless they were enthusiasts, be

disappointed. One could hardly expect to see many new additions in the way of species, but there was a conspicuous lack of new sorts in the way of garden Primroses and Polyanthuses. The Auriculas were much the same as in former years, but, owing to the season, scarcely so fine as usual, and they were quite devoid of novelty.

There was much information to be gleaned from the papers which were read on Wednesday and the discussion which followed, but it could be wished that instead of having two papers on the Auricula, someone could have given a paper on growing alpine Primulas, describing all their little peculiarities, and giving hints that would help the lover of these plants to attempt their culture with a better chance of success than hitherto. One good result has already been derived from the conference, and that is a complete list of all names that have been applied to Primulas whether species, variety, or hybrid. This list has been compiled by Mr. D. Dewar, who superintends the hardy plant department in the Royal Gardens at Kew, and who therefore possesses exceptional advantages for such work. The list contains some 700 names, including synonyms, which are printed in italics.

HARDY PRIMROSES.

THE common Primrose has been very plentiful this season and also very beautiful. Large patches of it by woodland walks or peeping out here and there from among bushes in our copses are always welcome. The double reds and crimson in borders are also charming. The Oxlip and Cowslip might likewise find a place even in the smallest of gardens; both are easy to cultivate, and, associated with self-coloured finely-laced Polyanthuses, would keep our borders gay and interesting all through the early spring months. Some, like the Hose-in-hose, are very curious too, and in others may be found various deviations from the normal structure. The common alpine Auriculas, now in flower, also do well on rockwork, and amongst them are many striking colours; they are easily raised from seed, and invariably flower the second year. *P. viscosa* and its various forms, notably *ciliata* *purpurea* and *nivalis* or *nivea*, are very beautiful plants, which may be grown with the greatest ease in any garden. *P. glaucescens* or, as it is now named, *calycina* is also a charming plant. *P. integrifolia* at times is a shy flowerer, but when grown well it is a charming little Primrose. It thrives best in low or rather damp situations in full sunshine, being benefited apparently by being scorched during summer. *P. marginata*, of which there are now several good forms, *densiflora* and *cœrulea* being amongst the best, is easily grown in the common border, with a few stones set firmly round the plant's neck and filled up with soil as the stem elongates. *P. minima*, a charming little alpine species, has given rise to a great many hybrids, several of which are real acquisitions. The type makes an excellent plant for rockeries, especially where limestone is abundant. *P. Palinuri* is well named the Cabbage Primrose, owing to the enormous size which the leaves on robust specimens attain. It is scarcely hardy, generally requiring the protection of a frame; the flowers are golden yellow and very handsome. *P. farinosa*, *scotica*, and *Warei*, the latter a cross between the two first, belong to a section of bog-loving plants which are always happiest when their toes are in water. They do well on little raised mounds on the bog bed, where they simply require to be kept clear of weeds. *P. longiflora*, when well grown, is a charming plant, and the same may be said of *involucrata* or *Munroi*. *P. rosea* is a bog-loving plant, but grows robustly on a damp shady north border. It is easily raised from seed; the flowers emit a perfume unequalled by that of any other Primula. *P. sibirica* is nearly allied to the above, and may yet turn out to be a mere geographical form of it. *P. denticulata* and its forms, *pulcherrima*, *cashmeriana*, *Henryi*, *ero-*

soides, &c., are indispensable in gardens; and *P. erosa*, a Himalayan species nearly allied to the above, has delicately-coloured flowers, and leaves more like those of forms of *capitata* than the kinds just named. It does well in the open. *P. sikkinensis* is a charming plant, which loves shade, and flowers freely the second year after sowing. It wants a deep, rich soil, with plenty of peat worked into it. Parry, a North American species, bears large heads of purple yellow-eyed flowers. It does best in a swamp in the coldest part possible, and, if possible, near to a stream. *P. cortusoides* and its variety *amœna*, &c., make grand border plants, and flower freely and well with but little attention. L.

ORCHIDS.

ORCHIDS ON TREE FERNS.

MR. GEO. SYME is mistaken in saying that Orchids will not grow on Tree Ferns. *Zygopetalum maxillare*, indeed, only grows on the stems of *Alsophila ferox* in its native habitat. It was first discovered by Mr. Gardner on the Organ Mountains in 1828, and always upon the stems of Tree Ferns. In Mr. Sander's nursery at St. Albans *Alsophila ferox* is specially grown for the purpose of placing this *Zygopetalum* on its stems. Its English name is the Tree Fern *Zygopetalum*. It is figured in the *Botanical Magazine*, tab. 3686, under that name. Mr. Syme would do good service if he would give the names of such epiphytal Orchids as he found growing on Orange trees. It would be easy enough to try the culture of Orchids in this way, although I would doubt very much if it would be successful. There does not seem to be anything on which the plants can lay hold. In the case of old trees of large size matters might be different, but there would not be room for such trees in ordinary Orchid houses. Many Cattleyas succeed well on Tree Fern stems. When I first began to cultivate Orchids I failed with *Cattleya superba* grown in pots in the usual way. By chance I called upon Mr. Pilcher when he had charge of Mr. Sigismund Rucker's collection at Wandsworth, and there I saw *C. superba* flowering freely suspended from the roof of the warmest house. It had merely been tied to short lengths of Tree Fern stems. I had subsequently conclusive evidence that this was the best method of cultivating this *Cattleya*. I had lost four out of six plants at that time, but came home and planted the remaining two at once as I had seen them in Mr. Rucker's garden. The two plants in question started to grow freely, and flowered well for many years. They became firmly attached to the Tree Ferns, and required no other support. I have also grown the lovely golden yellow *Cattleya citrina* on Tree Fern stems, to which this species takes kindly. *C. gigas* will also grow freely and flower well attached to short lengths of these stems, but it will refuse to flower, though it will grow freely enough planted in pots with a peat and Sphagnum compost. I do not say *Cattleya gigas* will not flower in pots. It is, however, notoriously shy; but some varieties flower much more freely than others do. —J. DOUGLAS.

— Mr. Syme (p. 341) is a little in doubt as to the wisdom of my recommending *Ansellia* to be grown on Date Palm stems, and more pointedly does he doubt the possibility of *Zygopetalum maxillare* growing on the stem of a Tree Fern. The facts of the case, I believe, are these. When Ansell first discovered the Orchid which now bears his name he was ill at Fernando Po after the Niger expedition, and the plant was growing on the stems of the Oil Palm (*Elaeis guineensis*) (see *Botanical Register*, 1846, t. 30). This Orchid naturally, therefore, does not dislike Palm stems. As to *Zygopetalum maxillare*, it is a historical fact that "Mr. Gardner found it on the Organ Mountains in April, 1828, growing upon the stems of Tree Ferns" (see *Walper's Annales*, vol. vi., p. 660; or *Botanical Register*, vol. xxx. (1844) misc. 15). When I wrote, on p. 328, these facts were floating in my mind, and I also had some

memories of an Orchid grower, Mr. Douglas, who failed to grow *Cattleya superba* until he tried it on Tree Fern stems instead of in pots or on blocks. At Clapton a year or two ago I saw great masses of *Zygopetalum maxillare* most luxuriant on Tree Fern blocks and living *Sphagnum*.—F. W. BURBIDGE.

A high-priced *Odontoglossum*.—Another extraordinary Orchid has been sold during the week. That sold last week at Stevens' was a variety of *O. Pescatorei*, and fetched 165 guineas; and on Monday last Messrs. Protheroe and Morris sold at their City rooms a variety of *Odontoglossum Alexandræ* from Messrs. Sander, of St. Albans, for the high sum of 160 guineas, which, we believe, is the highest price ever given for a form of *Alexandræ*. It is a marvellous variety, having the characteristic round and broad-petalled flowers of the St. Albans type. The flower measures 3 inches across, and the petals and sepals are overlapping. They are purplish-white, the outer three being flushed with deep rose-purple. On the centre of each petal is a heavy blotch of rich plum-purple, inclining to crimson, not brownish, as is usually the case. It is a fitting companion to such varieties as *Veitchianum*, *Sanderianum*, *Cooksoni*, and others of the select few. It has gone, we believe, to enrich Baron Schröder's collection.

***Cypripedium concolor* *Regnierianum*.**—This is another addition to the introduced forms of *C. concolor*, which is apparently a very variable species, especially if we include under it the closely allied *C. niveum* and *C. Godefroyæ*. In the colours of the flowers, their size and shape, and in the size and markings of the foliage there are often wide differences observable in a batch of *C. concolor*, and in addition to these we have now a deviation from the usual one-flowered scape to varieties with three and even four flowers upon the same stalk. This valuable character belongs to the form named *Regnierianum*, which has been introduced within the last month from Cochinchina, and has been sold by auction in the London sale-rooms. In some of the older forms of *C. concolor* it is not unusual for two flowers to be borne on the same stalk, but these rarely open together; whereas in *C. Regnierianum* the whole of the flowers are expanded at the same time. The foliage also in this variety differs from that in the commoner forms in being broader and longer. We have now a very pretty quartette in *C. niveum*, with ivory-white, cinnamon-spotted flowers; *C. concolor*, with flowers pale yellow and more or less spotted; *C. Godefroyæ*, with large white heavily spotted flowers; and *C. Regnierianum*, which has three or more flowers on a scape.

***Phaius maculatus*.**—This is the mottled-leaved terrestrial Orchid usually named *Bletia Woodfordi*, and, if we are not mistaken, it finds favour because of its variegated foliage rather than as a handsome flowering plant. When well grown, however, it proves itself exceptionally distinct and beautiful in flower; indeed, we had no idea that it was so fine a plant until we saw a specimen of it in flower at Kew last week, of which the following is a short description: Pseudo-bulbs perennial, clustered, large as walnuts, depressed and striated; leaves long, Calanthe-like, bright green, thickly mottled with large yellow spots, which are not as ornamental as they are singular among Orchids; flowers on erect spikes 18 inches high, stout, the upper half bearing about a dozen blooms as large as those of *Cattleya intermedia*, and coloured canary-yellow, except the crisped margin of the labellum, which is red. The Kew plant bears six of these spikes. It is grown in a cool house along with *Odontoglossums*, &c., where it thrives much better than when treated as a tropical plant, which it is usually considered to be. Those who grow those sturdy old Indian *Phaiuses*, *P. grandifolius*, *P. Wallichii*, and *P. bicolor*, should add to their collection this really beautiful kind, which is a native of Northern India, and also Japan.

***Odontoglossum nebulosum pardinum*.**—There are several distinct and beautiful varieties of the typical *O. nebulosum* as figured in Bateman's grand monograph, and one of the best of them is that above named, in which the flowers are very large, cupped, of good substance, pure white, except for the numerous large spots of brown which are placed thickly about the base of the sepals, petals, and lip. Panther-like in its copious spotting this variety certainly is. There is a plant of it now in flower at Kew. Near to this variety, in regard to the markings of its flowers, is that named *guttatum*, but the spots in this are a paler brown, and the flower is not so distinctly cupped. A third variety, viz., *candidum*, is a very handsome, large-flowered albino, which was represented at Kew a week or two ago by an exceptionally fine form. *O. nebulosum* is not as popular as it deserves to be, not only because of the large size and beauty of its flowers, but also because of its thriving well from year to year in a cool greenhouse, and never failing to flower in the spring months. There are a good many popular Orchids of which we could not speak so favourably.—B.

A new *Disa*.—Some eighteen months ago I received from a firm at Haarlem three small tubers, each about the size of a Marrowfat Pea, which were supposed to be *Disa cornuta*, figured in the seventieth volume of the *Botanical Magazine* (plate 4091), but when the foliage appeared, it was at once evident that they could not be that variety, as the leaves were thin and Grass-like, and totally unlike those depicted in the plate just referred to. One of these tubers has just produced its first flower, which proved to be of a deep shade of rosy purple with a maroon lip of most curiously protruding form, and altogether an exceedingly pretty little flower, borne on the top of a stem 5 inches in height, with eight or nine grassy leaves surrounding its base. On coming to maturity the flower was cut and sent in a box to the Royal Herbarium at Kew, where Mr. N. E. Brown, who has made a special study of the *Disa* family, after comparing it with the dried specimens from the Cape, pronounced it to be a very rare species, known as *Disa atropurpurea*, which has not yet been figured in any work. A portrait of this pretty little terrestrial Orchid is, I believe, being prepared for the *Botanical Magazine*, when doubtless full particulars concerning its native habitat will be furnished in the accompanying letter-press.—W. E. GUMBLETON.

Royal roads to gardening.—There is always a class of would-be gardeners and amateurs who are on the outlook for what we know as short and easy, i.e., royal roads to success. Royal roads in any branch of learning are rare, simply because royal teachers are few! "All roads lead to Rome," we are told, but Mr. Lowell turned the tables on the old saw by pointing out that the converse was true—the self-same roads led one way from the city celestial—that is, unless the traveller was firmly convinced as to the direction in which he intended to go. This fable is true in gardening—there are many ways to good results, but one must be first quite sure of what we are aiming at. This is one of the best aids to good gardening. Either the gardener or his employer must decide exactly what shall be done, and then all one's strength must be devoted to the accomplishment of the desired end. The main drawback to gardening success may be traced to one of two causes, viz., either too much is attempted, or there is a want of decision as to what shall be done. Between these two stools it is easy to come to the ground. But above all in gardening is it necessary to let Nature decide as to the capabilities of your soil and climate. If she decides to grow Daffodils or Primroses, then grow these; but if your soil or climate is unsuitable for any class of vegetation, it will break your heart to grow it, and you will never be able to grow it well.—F. W. B.

INDOOR GARDEN.

FERNERY AT WADDON HOUSE.

THE construction of a fernery similar to that represented here is so charming, yet so simple, that one may reasonably wonder why the walls and dark corners in greenhouses and stoves are not covered in this way, instead of being left naked, or perhaps only half screened by an ill-thriving climber. A straight flat wall may be made uneven by building against it here and there a few jutting points, or by piling up at intervals a few stones. Against these, or rather 3 inches or 4 inches away, the wire netting or iron lattice-work is fixed by means of upright supports, which should be fastened firmly to the wall. Rough peat, loam and Moss (not necessarily *Sphagnum* if it be but alive) are then used to form a face between the wall and the wire, and they should be pressed in very tightly, so that when frequently watered they will not be washed away. Any one with a little skill and taste can in this way turn an ugly blank wall into a beautiful curtain of foliage, for upon this lining of soil there are hosts of pretty and graceful plants which will live and grow luxuriantly if properly watered. Some gardeners syringe heavily once or twice a day, and so keep the soil sufficiently moist, whilst others prefer an arrangement which admits of their pouring water upon the top of the wall and soil in sufficient quantity to ensure its saturating the soil down to the bottom.

In selecting plants for positions of this kind care must be taken that the temperature of the house, as well as the amount of light that reaches the wall, will be suitable for them. In the fernery at Waddon House the temperature is an intermediate one, and this admits of a very large number of popular garden plants being used for planting upon the walls. Amongst Ferns we have hosts of all kinds, from the graceful and ever useful Maiden-hairs to the creeping *Polypodiums*, *Acrostichums*, *Nephrolepis*, &c. The tufted *Aspleniums* and *Aspidiums* may also be used, whilst here and there, in positions which will favour the use of a large growing kind, such plants as *Blechnum brasiliense*, *Lomaria gibba*, the large *Acrostichums*, *Drynariads*, and even *Platyceriums*, may be planted and will grow well. Besides Ferns we have the *Begonias* of the *Rex* family, whose leaves assume a large size and much more beautiful tints than when grown in pots. *B. scandens*, a shining-leaved climbing species, is also specially useful for planting against these walls, and even the common flowering sorts, such as *B. semperflorens*, &c., are both happy and picturesque when planted upon a jutting corner or stone in such a position.

It would be easy to swell this list to an inordinate length, and then not include all the plants which would be perfectly at home when grown against soil-lined walls. To make these remarks useful, however, we must confine ourselves to the plan itself, and leave the filling in of details to the taste of those who have themselves to please, and perhaps only a few plants to select from. The point to be remembered is this, that only very few Ferns refuse to establish themselves and grow freely upon walls when prepared as above recommended, and almost as few soft-wooded stove or intermediate plants, and that plenty of water during summer, a moist atmosphere about them, and a subdued light, will do all that the plants require to make as pretty a picture as is here represented. Mr. Crowley's garden here is also remarkable for other beautiful features particularly as regards the plant houses. B.

ALLAMANDAS BEST PLANTED OUT.

THERE are several serviceable and beautiful plants available for furnishing the roofs of either stove or conservatory, but Allamandas, and notably *A. Hendersoni*, are the most easily grown and most effective—at least, such is my experience. Unfortunately, they must be given a stove temperature ranging from 60° to 70° by night, and from 65° to 80° by day, or varying according to the time of year in each case; therefore they cannot be said to be everybody's plants. They are not generally grown as roof plants, being more often seen at exhibitions, trained on globe or balloon-shaped trellises, sometimes in good condition as to health and floriferousness, but more often in anything but a presentable condition. No matter how well they may be grown and exhibited, it is only when treated as roof plants that their best qualities become apparent, and it is in these positions that they ought to be more generally seen.

Not many, if any, trained plants can be had in bloom from May till February, yet this is the period during which our Allamandas remain in flower, and during this long season thousands of grand blooms have unfolded themselves, hundreds having been open at one time. The growth must be made near the glass or it fails to bloom satisfactorily, liberal rather than starvation treatment being in this case both safe and wise. At one time we grew several Allamandas in large pots, believing that by this means we should secure

more bloom, and, further, that by starting at different times a longer succession would be the result. However, we have discovered that a single strong specimen, planted out in a small brick pit, far exceeds anything which we achieved with four pot plants.

PLANTS FROM CUTTINGS.—We commenced with one poor old plant. This we started into growth early in the year, and directly the young growths were about 5 inches long they were cleanly cut from the parent plant so as to have a small heel attached to them; these we dibbled singly into 2½-inch pots and plunged them in a fairly brisk bottom heat; we then covered them with a hand-glass and shaded them, and under this treatment they soon became rooted. Before becoming root-bound they were shifted into 6-inch pots and kept growing in a stove temperature, no stopping being resorted to. The strongest of them were eventually shifted into 10-inch pots, the soil

employed consisting of two-parts of turfy loam to one of leaf soil, plenty of sharp sand being added. This compost was used rather fine for the cuttings and coarser for the shifts. These young plants were eventually trained thinly immediately under the roof of a low forcing house, and they flowered the same season. During the early part of the winter water was gradually withheld from them in order to ripen the stem without its shrivelling or the loss of many roots. Early in the following January they were cut down to within 12 inches of the pot, and soon afterwards soaked in a tub of water and started into growth. When the young breaks were about an inch in length, the plants were turned out of their pots; much of the soil was removed from their roots and again re-potted in 11-inch or 12-inch pots, according to the size of the ball of soil reserved, a liberal sprinkling of bone-meal and old cow manure being added to the compost.



The fernery at Waddon House, Croydon.

The potting was done firmly, and plenty of room was allowed for top-dressings of manure later on without interfering with the space, say the depth of the rim, always required by plants that need much water. The largest of the batch was eventually shifted into an 18-inch pot, and this is now the only plant we have kept, the remainder being dispersed among other admirers of the Allamanda.

LOOSE BRICK PITS FOR ALLAMANDAS.—These are easily formed, and not unsightly, or, at any rate, not more so than large pots, and they suit Allamandas so well, that one wonders so few of them are to be seen. Properly keyed together, the weight of the single walls of bricks makes them perfectly strong, and no mortar being used admits of the soil inside being examined to any depth at any time without injury to the roots; the operation of replanting in fresh compost after that exhausted has been removed in the

spring being also much simplified, while top-dressing can be added as required. At the present time there are hundreds of strong old plants all over the country breaking afresh after the usual resting and pruning seasons; instead of placing such plants in large pots, some at least of them should be planted out in loose brick pits, these being placed at the front of the house, or, if preferred, at the back or end, only in this case rather more time will elapse before the glass is reached and blooming commenced. These may be about three bricks square and five bricks deep, or larger if the plants are extra strong, and there is much roof space to cover. If this pit is formed on a grating or staging, there is little or no need of any space being taken up with drainage; indeed, I am of opinion that too much drainage is often given to various moisture-loving strong-growing plants, though care must be taken to provide a proper outlet for the water, but if it

did not escape so rapidly, there would be fewer waterings necessary. After forming a bed of good compost as above described, in which large pieces of turf are prominent, much of the old soil may be forked away from the roots, and the latter, having been lightly trimmed, may be spread out and carefully covered with more fresh compost, the whole being well rammed and finished off neatly, the centre being rather the lowest, so as to admit of the old ball being moistened occasionally without unduly saturating the new soil. Growth has thus but little check, and the plants soon be-

come well established. We rarely find it necessary to stop the young shoots in order to obtain more leading material, as the well-ripened wood usually pushes out more shoots than are required, and disbudding has more often to be resorted to than pinching back. The leading shoots, which are spread thinly, soon divide and sub-divide whenever a flower-spike is formed, so that many of these shoots must also be removed, otherwise they become much too crowded. At what distance apart these branches should be trained should depend upon circumstances. If shade-loving plants, such as Ferns, Asparagus, Gloxinias, and Eucharises, are grown underneath, then the branches may be trained about 6 inches apart; but if various flowering plants, Crotons and other plants, requiring more light are underneath, then they must be trained about 12 inches apart. A single leading branch properly disbudded of side shoots may in one season reach a

distance of 20 feet, and will form flower-spikes at short intervals throughout its length. These should not be cut away, as they will continue to lengthen and flower till the end of the season, and when hanging from the roof in all directions are very attractive. When I pruned our plant in February I measured some of these old flowering-spikes, and found many of them 2 feet in length, each having produced about forty blooms. As the plant was trained rather thickly the flower-spikes were not more than a foot apart each way.

WATERING AND OTHER DETAILS.—When Allamandas are rooting strongly in pits they require liberal supplies of water and liquid manure of some kind frequently. Soot water, farmyard liquid manure, Standen's, Clay's and Beeson's manures, sulphate of ammonia and guano have all been tried, and all benefit the plants provided they are not used too strong. If Allamandas are flowered in pots, then much more water than when planted out must be given, though not till the plants get well rooted; when in full growth twice a day is not too often. A top-dressing of loam and manure, preferably old cow manure, is soon taken possession of by the hungry roots, and should be given, and a surface sprinkling of Thomson's Vine manure or bone meal is not thrown away. Although they require plenty of light to insure sturdy floriferous growth, fierce sunshine soon injures them; they must, therefore, be shaded, blinds that can be run over the roof when required being preferable to any kind of permanent shading. At one time we were under the impression that plenty of air was needful whenever it could safely be given, but although the plants do well under this treatment, they succeed still better when no air at all is given. Our ventilators were not opened during the whole of last year, but the blinds and plenty of moisture in the house prevented burning or the existence of a very high temperature and dry atmosphere, and the Allamandas and other plants, including Dipladenias, simply luxuriated in the Turkish bath which they naturally often received. Frequent syringings overhead also served to keep them free from thrips and mealy bug, which also thrive on Allamandas, but these pests do not make much progress under the syringe. Very little rest is needed. Our plants receive much less water during winter, especially in January, but they rarely flagged, and a box of blooms was cut from them early in February. At the end of the latter month we cut hard back to well ripened growth, and this season our plants are growing more strongly than ever. One plant would, I have no doubt, cover a roof 40 feet by 15 feet.

SPECIES AND VARIETIES.—Unless I am much mistaken, *A. Schotti* is only slightly inferior to *A. Hendersoni*, and this is synonymous with *A. Wardleyana*. I have tried *A. nobilis* and *A. grandiflora*, but for my purpose none answers so well as *Hendersoni*, and that is the only variety now retained. Although we do not cut the flower-spikes, we still make good use of many of the flowers; gathered with or without their short stems and placed with a frond of Maiden-hair Fern singly in small fish globes, they are most effective on the dining-table, and we use them in other ways for dinner-table decoration. Ladies also wear them, while a wreath formed wholly with them and Maiden-hair Fern is not only uncommon, but most beautiful. The blooms travel, if carefully packed, better than might be expected; we frequently send a quantity of them to town by both rail and post. They must not be packed with other flowers, or they are almost certain to get bruised. We form a bed for them with *Selaginella Kraussiana* (better known as

Lycopodium denticulatum); on this we place a row of blooms and fix them with a piece of cane or strip of wood stretched across the stems and fitting tightly to the sides of the box. On these we put more *Selaginella*, then another layer of bloom, and so on till the box is filled. A thin layer of tissue paper is laid on the top, and on this the lid closes. No complaint has been made as to their being in bad condition when unpacked, and, therefore, I feel justified in asserting they may be packed and sent safely to a distance, this in our case being upwards of one hundred miles.

W. I. M.

THE CAPE JASMINE.

AMONGST sweet-scented plants grown for market as well as in private gardens, the Cape Jasmine (*Gardenia radicans*) stands in the foremost rank. Its flowers, when cut, are largely used for button-hole and other bouquets, and they may be had early in the year, as it is a plant that stands forcing well. It strikes freely from cuttings put in any time in spring in 3-inch pots. The latter should be well drained and filled with finely sifted peat and nearly half its bulk of sharp silver sand, to keep the whole light and open. The pots may either be placed in a propagating house, or upon a hot-bed of manure and leaves, where the cuttings will soon root if a steady bottom heat can be maintained for a time. If at hand, place a bell-glass over the cuttings, which will be a means of inducing them to form roots. Plunge the pots up to their rims in the heating material. As soon as the cuttings are rooted, pot them off singly into small pots, using a compost of rich fibry peat and a small portion of sandy loam and leaf mould, with a good amount of sand. After potting, place them in a temperature of about 65°. Some prefer placing the pots upon a bed slightly heated, but I have found the plants to make more short-jointed and firm wood if placed upon a firm bottom without bottom heat, provided they are in a healthy, growing temperature. The best materials for setting the pots upon is coal dust about 2 inches in thickness. Wet it with water, and beat it down until it becomes firm. If the young plants are kept growing sharply during the summer, a crop of flowers will be produced the following spring. If flower-buds are produced on very young plants, they must be picked off to encourage vigorous growth, except a small plant or two are required with one or two open flowers on them for some special purpose. Flowers cut from such plants are worth more than the plant itself. The point to keep in view in cultivating this plant is that it requires a moist and rather warm temperature when making its young wood and forming its flower buds. Fine plants are often crippled by removing them from a stove or warm pit to a cool house, where they are frequently left until late in autumn. Under such treatment the plants seldom recover; their foliage turns yellow and falls off, leaving the shoots naked. When the plants have borne their crop of blossoms and just commencing to form their young growth, they should be shifted into the next-sized pot, using a compost of fibrous peat mixed with about one-fourth of good rich loam, and a small portion of leaf mould. After potting, place the plants in a house or pit in which there is a night temperature of 65°, rising to 70° or 75° during hot days. Keep plenty of moisture round the plants, syringe them morning and evening, which will keep them free from insects, which often attack them if this is not attended to. Liquid or artificial manure may be given them with good effect during the spring, when they are coming into flower. When they get large, and a convenient house or pit is at command, fine crops of flowers may be obtained by planting them in borders of prepared soil, such as that recommended for those in pots, only let the peat be in large pieces. The best plan is to form mounds for them large enough for the ball of the plant. Mark out as many spaces as there are plants, and build a wall of sods consisting of good peat, 9 inches wide, round each plant, fill in be-

tween the wall and the ball of the plant with potting soil, and in the following season add another addition to the mound, continuing the same until the mounds all join together. Great care should be taken to keep the plants free from insects; they both spoil the foliage and blooms.

W. C.

AZALEA MOLLIS FOR FORCING.

THIS Azalea is now extensively grown for forcing, and no wonder, for it is most amenable to this treatment, and withal very showy, while as an outdoor shrub, handsome though it be when in bloom, the spring frosts often greatly mar its beauty. Great numbers are now imported yearly from the Continent in the shape of little dwarf bushes bristling with flower-buds, that only need potting and assisting with a little heat to have them in full bloom during the earlier months of the year. Where employed for forcing, this Azalea readily lends itself to pot culture, and grown in this way it may be forced every year with perfectly satisfactory results, while most hardy shrubs will need a season in which to recoup themselves. Our plants, as well as those of the evergreen *A. amœna*, are after flowering kept under glass and encouraged to make good growth till they can be safely moved out of doors, for, though hardy enough, the young foliage that is produced in the forcing house would be at once injured if exposed to cold wind and frost, and the plants be greatly weakened thereby. Under protection they complete their growth without a check, and ripen off earlier than those started at the normal season. Consequently they are more readily forced into bloom the following year. There are now several varieties of this Azalea, varying from pale yellow to bright salmon-red, but these more prominent varieties have all received special names, and consequently command a higher price than those sold simply as *Azalea mollis* of various mixed shades. Where there are sufficient means at command to purchase a fresh supply for forcing each year, the plants may, after their first season, be employed for permanent planting in beds or shrubberies. By this mode of proceeding all will be utilised, but, when such practice is followed, the plants must, after blooming, be protected, as has just been stated, till all danger from frost is over. Where facilities exist, this Azalea may be propagated in any quantity at home, as seeds ripen readily enough. In this way I have a great number of young plants in various stages. The seed was gathered when ripe, and laid in a sunny place for a few days in order to allow all the capsules to open; then it was sown in pans of sandy peat just covered with a pane of glass, and placed in a frame. The seed germinated readily enough, and, when necessary, the young plants were pricked off into pans of the same compost, and after a while potted into small pots, whence they were planted into prepared beds in the nursery ground. There is a good deal of variation among the seedlings, but I have not obtained any with so pronounced colours as are to be found among the named kinds. A striking point of difference in a bed of seedlings is the great variety in the colours of the decaying leaves in autumn, some being of so rich a crimson-scarlet hue as to vie with their relatives the *Vacciniums*; others assume a bright golden tint, and many simply turn to a dull brown of no particular beauty. ALPHA.

Arum Lilies.—There seems to be an ever-increasing demand for white flowers, and among them none are more useful than blooms of *Arum Lilies*, especially for church decoration, a purpose for which their large, bold, pure white spathes are particularly well adapted, and when set in vases produce striking effects. At one time the plants used to be dried off and rested, but that is by no means the best way of treating them, as they lose much of their strength, and although it is necessary to allow them a short cessation of growth, water should not be withheld long enough to cause a severe flagging of the leaves, which ought to be kept fresh all through the year. The system

of management that produces the most satisfactory results is that of setting the plants out, which should be done about the end of May, when they may be partly shaken out of the pots, if they are large, and divided. As they require a great quantity of water during the summer, it is advisable to prepare a trench for them similar to what is done for Celery, but not so deep, and dig in some rotten manure, after which the plants should be carefully placed about 18 inches apart, and then have a thorough soaking to settle the soil about the roots; this done, the next thing is to mulch with some half rotten manure to shade the ground and keep it uniformly cool and moist—a condition under which they delight. At the end of September, if kept wet, they will have finished their growth and made fine strong crowns, when they should be taken up and potted in rich soil and well watered; and if then placed close under a wall in the shade, or in a pit, where they can be screened from the sun and kept frequently syringed, they will not flag, but quickly become re-established. Although Arum Lilies do not like artificial heat, they will bear slight forcing, and if flowers are wanted early, plants may be placed in any warm house about Christmas, but they should be kept with their heads well up to the glass, to prevent them from drawing. Those who have any plants to spare will find it a good plan to turn them out of their pots, and plant them by the sides of ponds or streams, so that the water just covers the crowns, or drop them as they are into basins, where they are quite at home and look well.—J. S.

BORDERS FOR CLIMBERS.

THE vigour of conservatory climbers, compared with the small space frequently allotted to their roots, has often surprised me. This is especially remarkable in the case of Tacsonias and Passifloras, both apparently subjects that do not require a large space for their roots, or very well prepared soil. With regard to other climbing plants, they are perhaps more particular as to soil; but I am quite satisfied, from many years' observation, that, unless required to cover an unusually large area, they keep healthiest when the roots are somewhat confined for space, and this is especially the case with such plants as Bougainvilleas, Kennedyas, Lapagerias, and Tecomas. These do not want rich and deep borders. What I consider a very important condition in the preparation of borders for climbers is that each plant should have a separate compartment if possible for its roots; unless such an arrangement is carried out, strong roots quickly invade all parts of the border, and the result is that the plants to which they belong flourish, while weaker ones make but little progress. To prevent this, prepare a separate space for each, and in order to securely confine the roots of each plant to the space allotted to them, a division, consisting of a 4½-inch brick wall, or stone slabs, is the only satisfactory way of effecting the object. This is simple enough, as the borders generally are narrow spaces, running parallel with the walls and the floor of the house; therefore it is only necessary to divide the border into as many compartments as there are different sorts of climbers. This arrangement also enables one to give to each the particular kind of soil which it requires. Borders are often either too wet or too dry, but generally too wet. In many cases they are much shaded, and the air cannot reach them in sufficient force to dry up the surface quickly. The consequence is, that in cool conservatories the soil about the roots, especially during winter, is cold and damp, and such a condition is not conducive to healthy and vigorous growth. Therefore particular attention should be paid to the condition of the borders with regard to watering. Where much watering is necessary for the other occupants, the surface

appearance may be very misleading. It may be sufficiently moist on the top, while a few inches below the soil may be quite dry. Where such climbers as Lapagerias, Bougainvilleas, &c., have plants growing in pots placed over the borders in which they are planted, the drip will keep the soil too wet. The proper thing to do in such a case is to temporarily remove the plants on to the floor and water them, allowing them to remain on the floor for a few minutes to permit the surplus water to drain out of the pots. The fertility of such borders may be kept up for several years by a judicious system of annual surface dressings and by the application of some stimulating manure. In my own practice I make this an established rule, and we are able by this means to keep the strongest-growing plants in vigorous health for several years. The way in which to proceed is to remove some of the surface soil to the depth of 2 inches or 3 inches. In the case of delicate-rooted plants this work has to be done carefully, so as not to injure too many of the roots. If, after the removal of the surface soil, the border is dry, we give it a good watering. We then sprinkle over the surface some concentrated manure, at the rate of a large tablespoonful to every square foot of border; as much fresh soil is then spread over the surface as is required to bring it up to its original level. Then the border receives a gentle watering, but only sufficient is given at this time to dissolve the manure. If a deluge of water was given, the best of the manure would probably be washed down out of the reach of the principal roots. In our case we make no difference as regards what plants we are dealing with; all have the same treatment, and all seem to succeed equally well under it.

AS REGARDS NEW BORDERS or renewing old ones, it is very desirable to study the requirements of each individual plant, that each may have the kind of soil which suits its best; but in a general way none of the kinds of climbers here alluded to require an elaborately prepared compost. Half turfy loam and half peat will suit the majority of them, and also such as Acacias, Mandevillas, Plumbago capensis, and Tecomas. There is nothing better for Tacsonias, Habrothamnuses, and Bignonias than good turfy loam. The three last-named subjects should have 2 feet in depth of good soil; for any of the others a border 18 inches deep will be ample. The kind of climbers to be planted depends on the size of the house, and whether it will be heated above the temperature of an ordinary greenhouse during winter or not. These conditions must decide what to plant. For large structures, kept up to and above 50° during winter, Passiflora princeps and P. quadrangularis and Tacsonia insignis may be selected to cover such portions of the roof as it is desired to see draped. The last-named (although not often met with) is singularly beautiful in such a situation, and Passiflora princeps is well known to be a graceful climber; while P. quadrangularis is remarkable for its beautiful blossoms and imposing foliage. For large conservatories, which are only heated to keep out frost, and in which there are rafters and other spaces to be draped with greenery, there is no sort of climber that will do it so effectually as the Tacsonias. The best of these are T. Van Volxemi and T. ignea, the latter a vigorous grower, and one which produces innumerable quantities of long tube-shaped flowers. T. exoniensis is also a very desirable variety; it grows with great freedom, but in the majority of cases the two first-named will suffice; and, although the form of growth of these is very much alike, they are quite distinct as regards their flowers and the way in which they are attached to the growth. Bougainvillea glabra is a beautiful subject when a suitable position can be found for it;

but if it has to be stiffly trained, it will be shorn of much of its beauty. The best position for it is against a wall where a fair amount of light can reach it, and where the young growth can be allowed to grow in its own way, and remain so until the flowers fade. For covering back walls that are somewhat shaded and dark, there is nothing better than Camellias; they do not object to the diminished amount of light, and if the foliage is kept clean, they present at all times a bright green colour. Some of the strongest growing Acacias are also suitable for training against walls and high pillars. For cool houses, where it can have a light and airy position, and where there is much space to cover, Clematis indivisa is a charming plant. It flowers in the greatest profusion in spring, and the individual blossoms hang with so much grace and elegance when the growth is allowed a fair amount of freedom, that among climbers of vigorous growth bearing white flowers I know of nothing to surpass it. For those who can provide a somewhat shady wall in a warm house, the charming Luculia gratissima must not be forgotten, for its highly fragrant Hydrangea-like flowers are always appreciated. For covering the roofs of rather small houses, Lapageria alba and rosea are eminently suitable when their growth can be allowed to grow in a vertical direction. The Habrothamnus is a vigorous plant, and if not well attended to, shuts out a great deal of light. It is therefore only suitable for large houses.

FOR PILLARS AND RAFTERS in houses maintained at a warm temperature during winter I may name the following as desirable plants, viz., Stephanotis floribunda, Allamanda Hendersoni, Beaumontia grandiflora, Bougainvillea spectabilis, Dipladenia amabilis, Combretum purpureum, Hoya carnosus, and Jasminum hirsutum. When preparing the soil for these last named, let it be equal parts of peat and light turfy loam broken into lumps the size of a hen's egg, and it should be rather dry when used, so as to enable one to press it together pretty firmly without its running together in a compact mass. J. C. C.

Gardenias.—Two of the best of these are florida and intermedia, both of which are free bloomers, but, like other Gardenias, they are very liable to be infested with mealy bug, a most troublesome pest, which gets into the buds and injures them sufficiently to cause them to drop in great numbers. Syringing with clear water I find keeps it in check. Three-year-old plants after flowering should be destroyed, i.e., where two-year-old ones are at hand to take their places; but if retained, they should be shortened back to promote young growth. Cuttings should then be made of the portions removed and inserted singly in 2½-inch pots, in a compost consisting of equal parts loam, leaf soil, and silver sand. By placing these under bell-glasses or in a close cutting frame, they will strike root in the course of two to three weeks, and speedily grow into good plants.—HENRY GADD.

Bougainvillea spectabilis.—It must have surprised cultivators to read (p. 347) "T. B.'s" statement that this Bougainvillea differs from B. glabra, inasmuch as it "flowers from the ripened wood," while B. glabra flowers "from the current year's growth"—that is to say, one flowers, like the Peach, on the last year's wood, and the other on the young wood. As a matter of fact, the two varieties differ only in the one being a stronger grower than the other, no more difference existing between them than there is between two sorts of Apples or Pears. Under ordinary treatment both bloom on the current year's shoots. The finest example of B. spectabilis I have seen was grown by Mr. Dick, now of Phoenix Park, when at Wimborne. The plant grew in a warm house, but the roots were in a

border having access outwards as well as inwards; the top having the unlimited scope of the roof. The current year's shoots were green with leaves and laden with long floral bracts, large quantities of which were sent to London every week.—S.

EVILS ATTENDING POT CULTURE.

GARDENERS, and especially amateurs, are so much accustomed to growing plants in pots, that I daresay the idea is a common one, that that is the best way in which to grow them. It is not the best way, however; on the contrary, except under a few exceptional circumstances, it is the worst way. Very many of the ills which afflict plants are directly or indirectly traceable to their culture in pots. It is an acknowledged fact that greenfly, thrips, red spider, mildew, and not a few other pests and diseases which attack plants are encouraged and aggravated by culture in pots. How is this? someone will ask. And in answer, it may be said that the idea is not a new one, or broached for the first time. Lindley gave the subject his attention, and so did Knight; and inventors have devised pots that were said to overcome or mitigate the evils complained of, but owing either to the price, or inconvenience of using such articles, they have never become popular, and for mostly all purposes the common flower-pot is still in general use.

One of the greatest disadvantages connected with the use of pots is the necessity of standing them in places exposed to the air and sun, and the great fluctuations of temperature and moisture to which the roots of the plants growing in them are thereby exposed. It is very bad for any plant to have its roots in a medium that is liable to be alternately wet and dry, or cold and warm, and these are just the conditions to which pots expose them; hence experienced gardeners are always casting about for some means of protecting the pots, and resort to plunging, shading, sprinkling paths, and devising shelves and ventilating processes, so as to prevent these agencies from working mischief as much as possible. When a plant is newly potted in abundance of soil and freely watered, the roots are not so much affected; but when they reach the sides of the pot, which they soon do, and there is nothing between them and the sun and air but about an eighth of an inch of porous earthenware, they are liable to serious injury if not watched attentively. When the soil becomes parched in the pots, it shrinks away from the sides, leaving a space between the two; active evaporation begins from the tender roots, which, instead of absorbing moisture, as is their function, part with it, and the consequence is that they are either killed or injured, and the branches suffer in proportion. Where large collections of plants exist, or where those in charge have not time to attend to the wants of the plants, this is quite a common occurrence, and many a plant is irretrievably ruined thereby. Regular attention to watering and shading can only prevent such things happening, and in the case of pot-bound plants a good deal of attention is required, because the soil in the pots soon dries up. To fully understand the condition of a plant situated in a pot as described, it must be remembered that in a natural state, when a plant grows in the ground, the roots have unlimited scope, and do not experience such conditions at all, whereas in a pot exposed on all sides, evaporation is constantly going on from the roots, the porous earthenware pot acting like a wet cloth put round a bottle of water to keep it cool. As regards temperature, the roots of all plants are naturally subjected to far more uniform conditions than the tops, that is to say, the temperature of the ground does not vary nearly so much as that of the air, and it is found that the nearer

these conditions are imitated in artificial culture the better do plants thrive. This is why Pine-apple plants in pots are invariably plunged in a bed up to the rims of the pots, and they cannot be grown and fruited successfully in any other way. Orchard house trees are also always plunged when practicable for the same reason, and so are many kinds of select plants that are found difficult to grow in the usual way.

The remedies for the drawbacks of pot culture are various. Many kinds of plants have of necessity to be grown on stages and shelves in glass houses, where they cannot be plunged, and the cultivator must then do the best he can under the circumstances. The main points to attend to in such cases is not to water the plants during the driest and warmest time of the day, when evaporation is most active, but say in the morning or in the evening. Next, ventilation or air should be given gradually, so as to dry up the moisture slowly, and the pots should be so placed as to shade each other as much as possible. Plants standing with their pots touching each other thrive much better than when the pots are placed widely asunder, and hence close ranking should be the rule, provided the tops have room at the same time. Under other circumstances, the best plan is to plunge the pots up to the rim whenever possible or convenient. Plunging obviates many evils, and it is often a good practice to plunge the pots of favourite subjects in another and larger pot, filling up the space between the sides with ashes or soil. Double-sided pots have been made to meet this end, but they are too cumbersome for general use. A dry cloth, a piece of frigi-domo, for example, or a piece of stout brown paper tied round a pot answers almost as well. The object in any case is to prevent radiation and evaporation, or the escape of heat and moisture from the soil in the pot, and so preserve the roots in an equable medium. J. S.

WATERING WITH COLD WATER.

ANYONE who read what I had to say about giving cold water to plants grown in a high temperature could, I should have thought, had no difficulty in seeing that my statement related to what was done at Hackney, and now followed by Messrs. Low in the case of Orchids at Clapton, and by Mr. Ladds in that of plants grown at Bexley Heath. I did not advise the use of cold water to plants grown in heat, but merely suggested that anyone who had an opportunity of testing the matter by using cold water for a few examples of the different kinds of plants grown in heat, and noting the result as compared with such as receive the usual treatment, would find the experiment both useful and interesting. No one requires to be told that many Orchids need little water in winter when the difference in the temperature of the house in which they grow and that of water under ordinary conditions when applied by a hose-pipe is much greater than in summer; but there are also many Orchids that need to be kept moist at the roots in winter, and where water from the water companies' mains is alone used, the plants necessarily get it much colder than the temperature in which they are growing. Mr. Ladds' stock of Niphetos Rose is kept at something like a temperature of 60°, and the foliage is as tender as anything well could be; yet though subjected to cold-water treatment, the plants afford sufficient evidence that there is more importance attached to using water at a temperature equal to that of the house in which they are grown than is in any way necessary.

For my own part, I have always endeavoured to give the plants which I grew water at a temperature something like that of the house in which they were grown. But, nevertheless, I am not so wedded to old opinions, however plausible they may appear to be, as to shut my eyes to evidence

such as that afforded by the firms named, and which, so far as they go, are directly at variance with the opinions that have been so far held. I should, however, advise anyone who is disposed to test the matter, by using cold water to plants grown in heat, to be cautious, and only go so far as to apply it to a limited number of the various things cultivated, and to notice carefully how different kinds are affected by it. If the use of cold water to plants cultivated under glass did not effect a saving in labour, the matter, however interesting, might be looked on as not worth testing; but in these times when there is such an inclination to reduce expenditure in gardens, everything that bears upon the labour question is worth taking into account; and, as I have on several occasions shown, the matter of a water supply that admits of its being applied by the hose pipe to plants indoors as well as out plays an important part in the working of extensive gardens; and if it should turn out that water from an open pond, such as in many places exists already, or that might at little cost be constructed so as to give the requisite pressure, is found not to be injurious to the generality of plants in winter, something worth while will have been ascertained.

"J. S. W.'s" instance of the injurious effects of cold showers on farm crops is outside the mark. Cold rains are accompanied by cold weather, which is the cause of crops in the open air suffering; whereas plants grown in warm houses and which have cold water given them are not subjected to a low temperature; if they were, there would be no difficulty in arriving at what the result would be. T. B.

Rhododendron fragrantissimum.—This, in my opinion, is one of the best of all the greenhouse Rhododendrons. It comes naturally into bloom at this season without any forcing. It also flowers in quite a small state, and in purity and fragrance nothing can surpass it. We have lately had some plants of it in bloom in 7-inch pots; one about 20 inches high produced fifteen trusses. They were as white as snow, and the individual blooms measured from 5 inches to 6 inches across. When at their best they quite put Azaleas in the background. All who wish to possess choice Easter flowers should grow this Rhododendron in quantity.—J. MUIR, *Margam*.

Jasminum gracillimum.—I consider this to be the best of all the stove varieties of Jasmine. It is not quite so agreeably scented as some of the others, but the flowers are borne in handsome clusters, are very enduring, and of a clear and pure white colour. The plant grows freely too. Not long since we began with a mere mite of a plant in a 2½-inch pot; but, given root room and top room, and allowed to run out on the extension system, its habit seems to be to flower *en masse* as ours has done. I advise growers to give it a trellis in the stove near the glass, to prune once a year when the wood is ripe, and let the branches run out till they bloom.—J. S. W.

SHORT NOTES.—INDOOR.

Coronilla glauca.—When well grown this is a useful plant in winter, and the variegated variety is even better. They are both very old plants, but none the worse on that account. They are easily propagated from cuttings of half-ripened wood, and easily grown in sandy loam and peat. They make excellent cottage window plants, being nearly or quite hardy.—E. H.

Habrothamnus elegans.—Planted at the bottom of a pillar in a greenhouse, this has formed a bush with over one hundred shoots, each from 18 inches to 3 feet long, and every one of them has carried large clusters of bloom of a beautiful crimson colour. It is a capital subject for flowering in winter; it does not require any great amount of culture to have it in perfection, and nothing more useful in the way of a greenhouse pillar plant could be grown.—CAMBRIAN.

Chrysanthemum La Petite Marie.—Among early flowering Chrysanthemums this is quite a little gem, and very useful for conservatory decoration. If struck early it forms good bushy plants in 5-inch or 6-inch pots, masses of pure white very double flowers, which, besides their value as decorative subjects, are very useful in a cut state, as they are borne in great numbers and stand well after being cut. This and Madame Desgrange are, in my opinion, the two best white-flowered summer Chrysanthemums.—H. P.

FLOWER GARDEN.

TWO CHOICE ALPINES.

THE annexed illustration represents two choice alpine plants rarely seen in perfection in the majority of gardens devoted to the culture of this class of plants. They are, however, not difficult to manage, provided proper care is taken to establish them thoroughly at first. The Catchfly (*Silene Elizabethæ*), the plant shown on the right-hand corner of the illustration, together with *Hookeri*, *pennsylvanica*, *Pumilio*, and *regia*, form a group of plants difficult to match, if we exclude the alpine Pinks, for the decoration of rockwork. *S. Elizabethæ* is figured in the *Botanical Magazine*, tab. 5400. Many times, to our knowledge, has this plant been lost from over-coddling; growing it in pots, under glass, &c., subjecting it to the most undignified treatment while in the open border, with no more attention than is given to most plants in a mixed collection, it forms fine healthy specimens, with flowers as large, or larger, than a florin, and, being bright rose, they are very effective during the months of June and July. The soil in which it grows should be mixed with small stones, rich and light; the position should be open, and attention should be paid to the watering, &c., during the spring. In winter, especially when fogs are prevalent, alpine plants of this class suffer from damp more than from cold, and we find squares of

quite a colony, if need be. It may also be increased freely by means of cuttings, which, put in pots or merely stuck in the open ground, will be ready to transplant in spring. K.

FINE-FOLIAGED BEDDING PLANTS.

AMONGST white-leaved plants suitable for bedding, the *Centaureas* are undoubtedly the most useful, and of these *C. ragusina compacta* is unquestionably the best, being well adapted for a variety of purposes. Plants raised from cuttings in autumn are best for associating with *Calceolarias* and strong-growing *Pelargoniums*, or for forming centres, or in any other position where solid masses of colour are required. When small plants are wanted for marginal lines I find it best to raise them from seed sown in February. The seedlings should be grown on in heat until bedding-

grow them on in 4-inch pots for one year; then they are large enough to cover a good space when planted out. Being a nearly hardy plant, our stock of it stands out-of-doors all summer, and in winter the plants have the protection of a cold frame. This plant is wiry in growth, and to look at it one would think it was rather difficult to increase, but we do not find it to be so. The points of the young growth, put in sandy soil and placed in a close frame, strike readily in autumn, but if propagated in spring, the cuttings root more freely if the pots stand on a gentle bottom heat.

The foliage of *Gnaphalium lanatum* is greyish white, and the plant, being of vigorous growth, is a capital subject with which to edge large beds. In mild winters where the soil is inclined to be dry it is hardy, but it cannot always be depended upon in that respect. It submits to being pegged or clipped, but,



Linaria alpina and *Silene Elizabethæ*.

out time, but to make an even line they require to be planted pretty close together. If such plants are taken up in autumn and potted they make useful material for the conservatory during winter, or for keeping over the winter to fill prominent positions in the flower garden next year. *C. gymnocarpa* is a stronger grower than the preceding, frequently reaching, in strong soil, a height of 2 feet, and therefore valuable in any position in which fine-foliaged effect is required. When it is necessary to curtail the growth of these *Centaureas* it is a good plan to plunge them in the ground in the pots in which they are growing. If the pots are buried 2 inches under the surface the roots will soon find their way over the rim and get all the nourishment required to enable them to make a moderate growth.

LEUCOPHYTON BROWNII has white silvery growth, and for forming broad bands or masses of white it is a useful plant, but its growth is, in my opinion, too stiff and formal to form satisfactory lines as an edging. We use it with good effect for carpet bedding when we want to form a mass of white colour, as it submits to being pegged down to any extent; in fact, it submits to being pegged down better than to being clipped; clipping leaves it with a rather rusty appearance. Nevertheless, there is no other plant that I know of the same colour that is so suitable for forming masses of white from 4 inches to 6 inches high. In a young state this plant does not fill out fast enough to be of any value if immediate effect is required; for that reason I do not advise anyone to put out very small plants, or disappointment will be the result. We always strike our plants in spring, and

like many other plants used for edgings, the less it is clipped the more effective it is; with moderate pinching it looks best when kept to about 6 inches in height. It strikes readily from cuttings made of the young tops in autumn. If a wide band is required it is best to put out a double row of plants, which should be 6 inches apart each way. *Stachys lanata* is quite hardy, but being rather coarse in growth it is not suitable for small beds or for intricate designs, yet when judiciously used as an edging to large beds its white, woolly-looking leaves are very effective. It is readily increased either by cuttings or by dividing the old plants. *Cerastium tomentosum* is too well known to be a suitable edging plant to require any description further than to say that it is probably the best of all white-leaved plants for that purpose. When practicable it should always be planted in March. It is a common practice to increase this plant by dividing the old roots, but much more satisfactory results are obtained from cuttings put in in autumn. If the young tops are dibbled in on a warm border and handlights placed over them they lift with good balls of roots in spring, and such plants bear clipping late in the season without showing any disfigurement. *Cineraria maritima* is a useful plant where a white-foliaged subject about 2 feet high is required. In a poor soil it may not grow quite so high, but the foliage is better in colour in a poor soil than in a rich one. The plants are best raised from seeds sown early in autumn, and then they take on their natural colour early in summer. Seedling plants raised in spring remain greenish white for several weeks after they are put out. *Artemisia maritima* does not appear to have been widely distributed, for it is not often seen. We grew it here for several years, and as a white-leaved bedding plant the only fault it had was that it was rather unruly in growth, but when grown in a mass there is no plant more effective or more easily managed. It is quite hardy in a dry soil, and if wanted for summer bedding the

glass raised above them useful in the way of protection. They should, however, be removed when the weather is open. The plant shown on the left-hand corner of the illustration is the alpine Toadflax (*Linaria alpina*), figured in the *Botanical Magazine*, tab. 205, under its old name *Antirrhinum alpinum*. It is a very old inmate of gardens, having been cultivated as long ago as 1570, and being as far as we know the only hardy perennial Toadflax we have, *L. origanifolia*, its nearest ally, invariably gets killed outright even in comparatively mild winters. *L. alpina*, though quite hardy, is not made use of so much as it should be for embellishing rockwork. Trailing or hanging over a ledge, as seen in the illustration, it makes one of the finest pictures possible, the contrast between the glaucous leaves and stems and the pretty purple flowers being most striking. When well established it never wants replacing; it ripens seeds, and these germinate and soon form

old stools may be taken up and divided in spring; they will then be in good condition as soon as the more tender plants are at their best. It makes a capital centre mass for a large bed if a wide band of *Coleus Verschaffelti* is placed next to it, and this edged with Golden Feather.

AMERICAN BLUE GRASS (*Isolepis gracilis*), when seen under conditions that bring out that strong tone of blue for which it is so remarkable, is very pretty. When I first saw it as an edging plant to a long border of summer bedders, where the soil was poor and the position dry and exposed to all the sun's power, I certainly thought it a charming plant. But when I brought it home and planted it in our rich soil, it grew too vigorous, and was altogether deficient in colour, compared with the examples I had seen growing on dry banks and other not very kindly places along the Devonshire coast. There are, I am sure, many gardens that can afford this Grass just the conditions which it requires. It evidently does not want a rich soil, nor does it require very much root moisture, but a sunny position appears to be essential. *Dactylis elegantissima* is as handsome a Grass as we shall find amongst edging plants where both soil and situation suit it and when properly blended with some opposite colour. But a strong rich soil not only reduces the amount of variegation, but appears to be the cause of some parasitic fungus attacking it, and then it loses much of its beauty; but when grown in a rather poor medium in the full sun there is no plant that surpasses it. Although it is hardy, the stock for summer bedding is best protected in a cold frame in spring. I like to pull the old plants to pieces early in March and select the young side pieces for stock; I then plant them out in a bed of sandy soil in a cold frame, and when properly hardened they may be transferred to the beds without injury.

POLEMONIUM CÆRULEUM VARIEGATUM, or variegated form of Jacob's Ladder, is really a beautiful plant with which to edge small beds; its Fern-like leaves, which are margined with creamy white, are very effective. It is somewhat tender, although an offshoot from the green form, which is a hardy herbaceous plant, but damp is, I think, a greater enemy to it than cold. Like many other variegated plants, a rich soil causes the variegation to run out and become green. It is well worthy of being kindly dealt with. It is best increased by dividing the old plants early in spring, and then growing them on in pots until they are wanted to bed out. *Eunymus radicans variegatus* is a capital plant to form a permanent edging to beds of medium or large size, as the variegation is bright and clear where the soil is not too rich. To form lines round beds of hardy plants, or to plant in front of shrubberies where few other things will grow, this *Eunymus* is most useful, as it does not require a rich soil nor near so much root moisture as many hardy plants. *Coprosma Baueriana* is an exceedingly handsome plant, with golden variegation, and well suited where a choice piece of colouring is required from a low-growing plant. It is not a vigorous subject, so that all the attention it requires is to keep it pegged down, i.e., if an even growth is required. Its only fault is that it cannot be increased rapidly, unless one has a large stock of old plants from which to obtain cuttings. Cuttings strike quickest when put in in August and treated to a steady bottom heat. In the following spring they should be potted off. On the merits of *Mesembryanthemum cordifolium variegatum* I need not dwell, for it is well known to be eminently well suited for forming lines or bands, and its creamy-coloured leaves associate well with low-growing subjects of an opposite colour. With regard to the growth of this plant, the inexperienced may be told that plants propagated in spring always make much better growth than older ones. The reason of this is that old plants quickly flower, and then they form seed-vessels which appear to exhaust the plants so much, that they cannot make any growth, but young plants do not flower until they have made considerable growth. J. C. C.

Ramondia pyrenaica.—This plant grows well in a rather shady part of the rock garden in the York Nurseries. It is stated (p. 342) that it is not very fastidious as to its likes and dislikes,

but I feel sure that it very much dislikes being exposed to sunshine, that is on a bank facing the south. It will do very well on a bank facing the north, but if not freely watered on the south side it will die outright. It is a long-lived plant if it gets the treatment which it likes. Mr. Backhouse found a pure white variety growing in its native habitat high up in the crevice of a rock. This grows well as a pot plant. I had not tried to grow it in peat, and so failed with it in the rather hot loam of our garden, but we have had it for years as a pot plant. —J. D.

DOUBLING OF DAFFODILS.

HEREWITH are three Daffodil blooms which came to me from a lady in this neighbourhood, with the following note: "Do you remember our conversation about Daffodils becoming double when planted in garden soil? Two years ago our gamekeeper brought me two roots of Daffodils which he had found in his son's field; he brought them to me because of the paleness of their colour, which was very striking in a whole field of the darker shade. I had them planted in the garden, and last year was rather cross to find symptoms of doubling; this year it is more decided, and I send you three for your inspection. They were perfectly single when they were given to me, and now you see what they are." The flowers have been gathered now some five days, but have changed little. In colour they are white, slightly creamy, but no shade of what may fairly be called yellow in trumpet or perianth, and notably the outside base of the trumpet behind the perianth is green. The flower is some little shorter and less tapering in the trumpet than a yellow Lent Lily with which I compared it, and the perianth segments are hooded forward and much twisted instead of being plain, as in the common Lent Lily. These characteristics make the blooms like the Spanish white Daffodil *cernuus*. As evidence of doubling under cultivation the three blooms are most interesting. In one, five stamens are nearly normal in shape, except that the anthers are twisted a little and bear no pollen; the sixth stamen is thicker throughout, and, dividing where the anther should commence, one half of it becomes petaloid in a falcate form. The next flower exhibits all the stamens become petaloid, but, except one narrow thick one which is equal in length to the trumpet, they crowd together half-way down it, with narrow prolongations which represent anthers advanced somewhat further. The third bloom is altogether a shorter flower, the trumpet intact, but completely filled up with petals, and is a very pretty double Daffodil. The resemblance to *cernuus* detracts somewhat from the value of this as evidence of the doubling of the pseudo-Narcissus; but we shall doubtless, even this season, hear some instances of doubling in the case of the bulbs distributed last season by Mr. Wolley Dod. DUDLEY DOCKER.

King's Norton, Worcestershire.

The large-flowered Christmas Rose.—This, the *Helleborus niger maximus*, is so much superior to the typical form, that it ought to find a home in every garden where the Christmas Rose is valued. Not only are the blooms finer, but they come a month or more earlier, and are therefore out by Christmas, whereas the commoner kind does not, in a general way, bloom much before March. Where white flowers in winter are a necessity, the large early-blooming Christmas Rose should be well cared for, as, with the protection of a cold frame, an abundance of good white flowers can be had from the end of November onwards. Many fail to obtain a good yield of bloom because their summer culture is not generous enough. Christmas Roses require a large amount of moisture and an abundance of food when making their growth; therefore, if grown in the open ground the soil before planting should be deeply stirred and its goodness maintained by an annual top-dressing of rich manure. If grown in pots, they should be plunged to the rims, and receive abundant supplies of liquid manure in

summer, not only when in growth, but later on, so that the buds then forming may be well nourished.—J. C. B.

CASTOR-OIL PLANTS.

THESE, in the way of ornamental-foliaged plants, are probably the easiest of all plants to cultivate, yet they are not always so effective as they are capable of being made when they receive treatment which suits them properly. It is a common mistake to sow the seeds too early, as in that case the plants have to be kept in small pots for a length of time, and as a consequence they get into a stunted state, from which they never properly recover. In commencing to cultivate these plants, we must first recognise the fact that as soon as they unfold their seed leaves they begin to grow rapidly, and that if they are to assume their best character they must not receive any check in their early stages of growth. Defer sowing, therefore, until such time as there is likely to be sufficient space and a suitable temperature in which to bring on the plants rapidly. Those who have plenty of houses slightly warmer than an ordinary greenhouse may sow in the middle of April, but in a general way I am satisfied that better results would be obtained if sowing was deferred until early in May, because Castor-oils, being rather tender subjects, ought not to be planted out until the beginning of June, thus giving a month in which to raise the plants. This is as long as most cultivators can afford room for them, and it is long enough to obtain plants of a suitable size to plant out for effect. Castor-oil plants are naturally such rapid growers, that, when raised in a warm temperature, they attain a good size in a short time, and I have found that late-sown seed under such conditions produces plants that, when carefully hardened off and as carefully planted out, start at once into active growth, and make very striking objects early in the summer. The best place in which to raise the plants is a low span-roofed house or a brick pit heated, as at first they require a warm close structure, and as they increase in height they want a moderate supply of fresh air. The seeds should be sown singly in 3-inch pots; any sandy soil will do at first, but they require a strong rich compost when put into larger pots, as they must be kept growing steadily. They should be shifted into larger pots as soon as the roots well reach the sides of those in which they are growing. If carefully watered and syringed on the evenings of warm days, they ought to be in 8-inch pots when the time comes to plant them out, and then such varieties as *Obermanni* will, in the course of the summer, attain a height of 10 feet, and be a mass of foliage a yard or more in diameter. *Sanguineus*, which usually reaches a height of 8 feet, is a very striking variety with red foliage; *Bourbonensis* grows about the same height, and has purplish foliage; *Gibsoni* averages about 6 feet, and has dark foliage, and makes a striking variety as a single specimen. As to the uses to which these plants can be put in ornamental gardening, they are such noble subjects when well grown, that they are admissible in any position in which foliage effect is required. J. C. C.

Border Auriculas.—Immediately after the annual southern show of the National Auricula Society, and also the proposed Primula Conference, it may be worthy of remark that in an open field and in stiff clay there have come no plants so fresh and vigorous as a quantity of border Auriculas. Even Daisies, Pansies, Violets and similar undoubtedly hardy plants close by have suffered terribly. In one batch planted out as partially-bloomed seedlings from a cool house last spring not a plant has been lost, and all have long, robust leafage, such as I have never seen on outdoor Auriculas previously. Big trusses of bloom are coming up also, and the floral display will be very fine, even though the flowers may be wanting in florists' qualities. Those, however, who want hardy Auriculas must not expect to find them amongst show strains or choice alpins, but amongst rejected seed-

lings. It is best to obtain seed of some good, robust strain, and sow that. Another batch consisting of some 200 or 300 plants were very small when put out in the autumn, so that during the winter, with the customary loss of the outer leaves, it seemed as if all had disappeared. Spring, however, has told its own tale, for the rows are now distinct enough, and I doubt whether a single plant has died through frost. It is interesting to find that these Auriculas take so kindly to a stiff soil, which, whilst becoming dry in summer, is exceedingly retentive of moisture in winter. It would seem as if in their case the conditions usually so favourable to hardy plant life, of moisture in summer and dryness in winter, were not so acceptable as the reverse. Probably, as an alpine plant, the Auricula exists in its native habitat pretty much in that state, and that it has to endure much more of moisture during its period of rest than during its term of growth and bloom. Those who want a good show of hardy border Auriculas should obtain seed at once, sow it under glass, and an ample stock of plants will be the result.—A. D.

The white variety of Everlasting Pea is, it must be admitted, a charming plant for supplying cut flowers of the purest white, and with the desirable quality of not fading quickly in the hottest of summer weather. Those who have to supply cut flowers cannot do better than get up a stock of this useful plant. I find that it succeeds admirably by the side of a low wall or fence, and, once planted, it gives no further trouble, for it comes up annually all the stronger for being left alone a few years. Like most varieties of the Pea tribe, the closer the expanded blooms are gathered the more plentifully are successional ones produced.—J. G., *Hants.*

Twin-flowered Snowdrop.—I have two medium-sized clumps of a selected form of *Galanthus plicatus*, and this spring on each of these I discovered six fasciated stems, each carrying two flowers, the upper one in every case being larger and more perfect than the lower. As these clumps were growing in different parts of my garden and under somewhat different conditions, I was much struck with both having the same number of twin-flowers. I have no recollection of any similar sports in this or any other kind of Snowdrop that I grow. I have marked these with red wool, hoping to get seed, and, peradventure, raise a race of twin-flowered Snowdrops. Mr. Melville's cases appear to have occurred in *G. nivalis*.—JAMES ALLEN, *Park House, Shipton Mallet.*

Seedling Carnations.—Our seedlings have just pushed through the ground, and as soon as possible they will be pricked out into boxes 2 inches or 3 inches apart. I would like to remind those intending to grow seedlings that there is yet time to sow in order to produce strong blooming plants for next year. For border culture seedlings are much superior to named sorts, and seedling plants will stand out of doors during a severe winter like the past uninjured. Out of several hundreds of plants we have not lost one this season; all of them are in vigorous health, and promise to flower abundantly. The right treatment is to set the plants out in the open ground in June in rich and deep soil; planted thus early they get thoroughly established, and grow to a large size before the winter sets in.—J. D.

SHORT NOTES.—FLOWER.

Rocket and branching Larkspurs.—These afford great variety, as they may be had both tall and dwarf, and of many shades of colour. The best way is to get a packet of mixed seed of each of the two kinds, and, after preparing a bed, to sow thinly and cover slightly with soil. Sow now, and as soon as the plants are up they should be thinned out, so as to leave them standing about 6 inches apart.—D.

Helichrysums.—These are more useful for growing to cut and dry for the embellishment of rooms than for garden decoration, although they look well in borders, and may be grown there with good effect, dotted here and there in patches among other things. The seed should be sown now where the plants are to remain.—S.

Chrysanthemums.—*Coronarum* and *carinatum*, of which there are many kinds, both single and double, are very showy annuals that do well in a hot sunny situation, and may be sown where the plants are to stand; but, as most of them grow about 2 feet high, they require plenty of room.—D. S.

NOTES.

FINE TREES.—The flowers of the garden are brilliant and ephemeral, but the trees very often exist for generation after generation. If painting be represented by blossoms, then is statuary or good building to be represented by fine trees. For one real admirer of trees you may find a hundred florists or more, just as painters exceed in numbers the architects and sculptors, and yet to trees must we look if we want really satisfying and permanent beauty in the garden. England is, after all, the very home of trees, and nothing strikes the eye of the traveller more forcibly than the trees and hedgerows as he lands in this country, either for the first time or on his return from other parts of Europe. Trees are ever beautiful, always changeable and interesting all the year. I think it is Oliver Wendell Holmes who says that years are but as days in the life of trees—days measured off by Nature, the dear old nurse, who ever faithfully dresses them and undresses them like children, as the morning and evening of each year comes round. No doubt the advent of half hardy Conifers and shrubs having a few paltry splashes on their leaves gave an impetus to a kind of toy gardening which led to the neglect of really hardy deciduous trees, just as the fashion of painting the ground with scarlet Geraniums or coloured leaves led to the exclusion or neglect of many beautiful hardy flowers. We are not a nation of tree planters; the impetus of *Sylva*, however, remains here and there, but we have no school of forestry, no treemonger of Walpole's stamp; the only periodical especially devoted to forestry is dead, but, notwithstanding all this, we hope for a revival of the genuine old English love for fine trees.

PEAR BLOSSOM.—The Pear trees are once more becoming snowy pyramids, and those on walls are opening out their big clusters of flowers again once more. There is a fine old specimen of the Jargonelle variety planted in the area and growing up the front of the house, once that of the late Sir Philip Crampton, in Merrion Square, Dublin, and that tree is now a picture as seen in flower. This tree is quite historical, and was figured and described in *THE GARDEN*, Vol IV., p. 417. Mr. Hamilton there described it as making in spring a most beautiful display, being covered with a sheet of white blossoms, arranged in many parts in bunches like so many wedding bouquets. This tree is at the present moment most lovely, so striking, indeed, as to make one wonder that the Pear is not more generally grown in front of town houses in this way. In 1873 1700 Pears were gathered from this tree, and during the past seven years it has fruited fairly well, even if not so abundantly as in the year named. Its roots have access to a drain; they are, moreover, manured every second year, and certainly I never saw so fine a specimen against a wall anywhere. When it is in full bloom contrasted with red Tulips or Hyacinths in the window boxes below this tree is worth a long journey to see.

WALL SHRUBS.—Nothing is now finer than the rich clusters of *Cydonia japonica* blossoms nestling among the tenderest young leaflets of spring. This shrub is slow at first and really fine specimens are quite the growth of years, but even in a small state it is very beautiful. Near it the old yellow-flowered *Kerria* (*Corchorus*) *japonica* lights up the wall with its golden rosettes, and *Nuttallia cerasiformis*, although out of flower, gives us a vivid batch of the richest green colour for contrast. Both the *Forsythias* are clothed with their golden bells; the *Clematises* are everywhere budding freely into growth; and the pale pink buds on *C. (Atragene) alpina* promise

us a beautiful crop of its soft blue flowers. The garbled old *Wistarias* are always shy, and never venture forth until they think the time of May is really come. Their old spurs are bristling with soft grey buds, however, which bring to mind the rich clusters of purple *Laburnum*-like blossoms which are to succeed them by and by. The glossy leaves of the great flowered *Magnolia* have passed the winter unscathed, and so one may expect a few of its great scented flowers during the next Indian summer, if not at an earlier date. One of the brightest of all leafy shrubs on the walls just now is *Pittosporum undulatum* (or is it *P. Colensoi*?) with soft greyish green leaves, which glisten in the sun. *Mahonia fascicularis* and *M. japonica* are also showing clusters of yellow flowers, and the bronzy-leaved *Ivies* are yet showy, though less brilliant than earlier in the year.

CHOICE NARCISSI.—Amidst Narcissi, many and varied, there are some worth a place in the most select collections of hardy flowers. Such are *N. Horsefieldi*, *Empress*, *bicolor maximus*, *N. Emperor*, and the true *N. bicolor*, for the sake of its lateness of blooming. For a really distinct and chaste form of *N. bicolor* take that named *J. B. M. Camm*. Of the yellow kinds none as yet surpass the true *N. maximus*, after which comes *N. spurius coronatus* (true). One must add true because other kinds of *spurius* are being sold for this really fine thing. Among the whites select *Colleen Bawn*, *Leda*, *moschatus* (of the Dutch) and *William Goldring*, which is a most distinct and graceful variety, quite unlike any other. *N. incomparabilis* is headed by Sir Watkin (James Dickson), and among the other single kinds take *Mary Anderson*, *C. J. Backhouse*, *Stella*, and *Princess Mary*. The Barri section contains one or two good things, such as *Barri conspicuus*, *Sensation* and *Beauty*. *N. Nelsoni* major is the best of its set. Among the Poet's commend me to *N. ornatus*, *N. grandiflorus*, *N. poetarum*. *N. Leedsii* is a distinct group, and none are finer than *Beatrice*. Of all the seedling Daffodils for rough-and-tumble culture there is none equal to *N. Horsefieldi*, but *N. princeps* is also very fine sometimes when at its best, as at Wisley, and for sturdy persistence of flower *N. obvallaris* is worth a place. Of course there are dozens of fine Daffodils and Narcissi other than those above named, but those who grow the above to start with will at least have made a good beginning.

ERICA CARNEA.—This is one of the best of all the dwarf hardy Heaths, and that it blooms profusely during winter and early spring is perhaps an advantage. It grows freely on any good loamy soil, and great breadths of it on sloping banks, amongst stones and rocky boulders, are just now very effective. On sunny days the least touch sets the pollen flying in clouds from its pink bells, and the bees seem very fond of it also, but whether their quest is for pollen or nectar I am not quite sure; but, remembering how soon the hives grow heavy when the bees are taken to the moors during the heather season, I suppose honey is plentiful in this as in the native kind. Hardy Heaths scarcely receive the attention they deserve. On good fresh turfy loam or peaty soils they grow freely, and they are presentable at all seasons, forming soft masses of various shades of green even when not in bloom. They vary in height, and are of nearly all shades of colour between white and dark crimson. Wherever wild Heather grows naturally these exotic kinds also grow well, forming good edgings to beds of *Rhododendrons* and other evergreen shrubs.

PROPAGATION.—If I were asked on what particular point all good gardening revolves, I should say on propagation, since this is one important,

even if not the most important of cultural phases in all good gardens. If hardy flowers are grown one must have a stock of fresh young seedlings or cuttings to replace plants past their best or to give away in exchange. If the specialty is fruit, it is most important to have ready to hand a stock of young trees to replace failures through accident or old age. All large gardens should have a department set apart for the rearing of young stock from well-trying kinds of fruits most suitable to the locality. In country gardens where space is no object, seed-sowing should go on all the year round, and by careful observation and selection, even the best strains of flowers and of vegetables may be obtained. By sowing seeds one sets in motion afresh all the infinite potentialities of plant life; no one can be sure of the result, it is true, yet the chances are that in the long run, some desirable improvements will be secured. Seeds give us new life, while cuttings or grafts give us a new start with old sorts only—a new beginning on old lines. It is a good plan to save seeds of all hardy plants, sowing half in open-air beds as soon as ripe, and keeping the other half to sow in the spring.

ORNITHOGALUM NUTANS.—Fifty years ago this plant was quite as common in old-fashioned borders of country house gardens as it is now, but it was never very highly valued at a time when taste decreed that a flower must be either large or brightly coloured in order to be beautiful. Now that any distinct and well shaped blossom is valued for its own sake, this elegant species with its spires of silvery grey flowers is appraised at its true worth. You may take a good handful of its green-backed flowers and place them in a glass with any grassy leaves and they form a quiet little picture. Once when I went to see Mr. James Walker's Daffodils, he had on his table a great jar or bowl of these blossoms contrasted with the dark green foliage of the Portugal Laurel. The effect was very striking, but its flowers harmonise best, as I think, when arranged along with grassy leaves somewhat like its own. It is figured at p. 168 of Johnson's edition of Gerard's "Herbal, or Historie of Plants," published in 1633, and is therein called the "Neapolitan Star Floure." Parkinson (1629) calls it *O. neapolitanum*, the "Starre flower of Naples," and alludes to its natural growth "in the meadows," from which one might be led to try a few of its bulbous roots in the outskirts of a grassy lawn. Other species of this genus are very silvery as seen in blossom on a sunny day. *O. umbellatum* is one of the best for naturalising on the Grass of banks, or on sunny mounds near the boles of trees. *O. pyramidale* throws up spires of white stars a yard high, but none pleases me better than does this ash-green and white "nodding starre floure" from the wild places of sunny Italy.

GARDEN BOTANY.—It seems a pity there is not a more intimate touch between the gardener and the botanist, a warmer co-operation between the practical observers of plant life in the garden and those who may organise and systematise these observations into law and order. The time seems to have arrived when some sort of union should be effected as far as is possible between the one and the other. The labours of isolated workers can never be complete. To the separated labours of the botanist we may trace the multitude of systems and of synonyms which to-day render botanical studies a puzzle rather than a pleasure. So also are the bare observations made by the gardener in a limited area often fraught with errors that prove most misleading; true, they may be as simple facts, but most misleading if used alone as a foundation for general principles. It seems clear to me that the days of autocracy

as relating to the naming of plants or their culture is past, and that it is a wider labour than any one man can ever hope to successfully perform. So, too, in the garden Nature is so broad and far-reaching, that no gardener or practical observer can ever record more than a tithe of the facts every day occurring around us in the garden. Hence, it seems to me that some union of the observers in the garden with the botanist pure and simple would be likely to lead to a conservation of energy and the forwarding of progress in botanical science, as well as in the practice of gardening. It seems to me that some sort of centralisation is most desirable in this way. In gardening especially the point is not the exhibition of fine plants or fruits, but the diffusion of such certain knowledge as will enable a majority of gardeners to grow them equally fine.

OLD IRISH GARDENS.—The rich luxuriance and variety of the flora in some of these old gardens is very wonderful, and one is continually coming across plants growing most vigorously in them which speedily die out elsewhere. The Irish climate affords a genial home for Primroses, and many other alpine plants and bulbs which though rare in England exist plentifully in these Irish gardens. Primroses, especially the double-flowered kinds, *Dianthus alpinus*, *Gentiana verna*, *Dryas octopetala*, and some few other specialties, have for years been imported by English dealers, and these enterprising people have at last woken up to the fact that the old gardens of the Emerald Isle are rich in choice Daffodils. The white Daffodils are especially abundant, and the variety called *princeps* by Mr. Barr and varieties of *N. spurium* are naturalised here and there in Irish fields by the thousand. Our old friend Butter and Eggs is one of the most abundant of all the naturalised kinds, and here and there *N. obvallaris* (Tenby Daffodil) has also been found. The soil and climate of Ireland suit these plants, and the number of white varieties found here is rather perplexing. Fancy such a pretty little albino as is Minnie Warren (a sort of white *N. nanus*) having existed by the thousand here while unheard of in England. How did all these forms originate? Did the monks long ago introduce them from other parts of Europe? Were they brought by the Huguenots, or are they chance seedlings from plants long ago brought into cultivation? The problem is an interesting one for the narcissophiles to solve.

STONES IN THE GARDEN.—Stones in the garden may be either a curse or a blessing, whichever you will. White statuary contrasted with dark Yew hedges, for example, is both a costly and a ghastly way of using a good bit of limestone or marble, reminding us of the spotty effect produced by whitewashed stones which are even yet used on the margins of carriage drives. So also one may waste much money, and make an ugly garden by using artificial stones or bricks in terrace walls, especially in positions where the land does not render the use of terraces essential. A garden should be a home for plants, and stones are never better employed than when used for their benefit. We can make edgings of them, or rock gardens for the choicest of Primulas, *Gentiana*, *Iris*, or other gems from Alps or Apennines. We must never forget that stones are simply earth in a naturally hardened form, and so they afford a more suitable nidus for plants as used in walls or edgings than do bricks. One may recognise the convenience of brick as a good substitute for stones, but that they are substitutes—soft earth artificially hardened by fire—should not be forgotten. One good use of stones in the garden is in layering, for we find that shoots and branches of all plants, shrubs, and trees root much more quickly if placed in the soil and covered with a

large stone than if pegged down in the usual way. Even for many hardy plants we find this plan of stonelaying very successful. A few good boulders half sunk in the turf make a fine position for clumps of *Yucca flaccida* or of *Acanthus*, or, if carefully grouped and fringed with any small-leaved creeping forms of Ivy, they make very beautiful groups, and add variety to flat surfaces.

VERONICA.

GARDEN FLORA.

PLATE 541.

ROSE WILLIAM ALLEN RICHARDSON.*

AFTER the brilliant novelties sent us by the French raisers in 1877-8, when, among many others, our acquisitions included A. K. Williams, Madame Gabriel Luizet, Marie Verdier, and Madame Lambard, all first-rate Roses, the new Roses which arrived from abroad in the following season of 1878-9 seemed likely to prove somewhat flat and uninteresting. But there was among them one variety at any rate which was destined to make the season memorable, a Rose that may fairly be allowed the Frenchmen's favourite description of "possessing all the merits"—except perhaps one: it is not large. Nevertheless, in William Allen Richardson, Madame Veuve Ducher was fortunate enough to be able to send out a Rose which was at once vigorous, a profuse and perpetual bloomer, of brilliant and novel, not to say unique, colour, a plant of excellent habit always handsomely furnished with dark glossy foliage, and at the same time very fairly hardy. Of this latter qualification we shall know more certainly next summer, for the recent (and present!) winter will have been a very fair test of any plant's constitution. As far as can be seen at present, plants of this beautiful Noisette do not appear to be much damaged by the cold, and probably, in spite of the French growers' caution that it must be protected from frost, it may be ranked among the hardiest of its class, the fact of its not being so precocious as some of its family, such as *Maréchal Niel*, for instance, being a great point in its favour in regard to escaping spring frosts.

William Allen Richardson appears to advantage in whatever form it is grown. It makes a handsome and floriferous standard, and it is effective as a large unpruned bush, worked on Brier cutting or seedling, or on its own roots. But undoubtedly it is most decorative as well as most prolific when grown as a climber against a wall or fence. For this purpose it is especially well adapted for two reasons: in the first place, unlike some of the rampant-growing Tea-scented Roses, which have a tendency only to break towards the ends of their immensely long shoots, leaving the lower part of the tree bare, this variety keeps well clothed to the very base; and also, having very short-jointed wood, the laterals very soon completely cover the entire surface of the wall. A plant five years old budded on a seedling Brier, growing on the end of a wooden toolshed 12 feet square and facing south-west, completely hides the woodwork during the summer from within 6 inches of the ground to the roof, and the central stem of the plant is 3 inches in circumference 3 feet from the ground. The growth being thus sturdily vigorous rather than rampant, the wood gets well ripened, and produces flowers in the greatest profusion on stiff, short-jointed stems, each of which therefore carries plenty of attendant foliage while causing the flowers to remain erect when cut and rendering wires unnecessary.

* Drawn in Messrs. Paul's nursery, Cheshunt, in July.



ROSE WM ALLEN RICHARDSON

The flowers are usually from three to five in a bunch, and are of a brilliant and intense orange colour, paler towards the edges of the petals, and with an occasional sun-painted blotch of brownish crimson on the exterior. But description is hardly necessary in view of the excellent portrait provided by the accompanying plate, which represents all phases of the flower, with one exception. When in the bud stage the petals have each a distinct and clearly-defined margin, which, by contrast with the rich colour of the flower, appears clear white, though this edging becomes merged in the general colouring of the petals as the flowers expand, the colour seeming to run up from the base, unlike many other Roses, whose petals on opening are self-coloured and become paler towards the edges as the flowers get older.

William Allen Richardson is admirably adapted for florist's work as a subject for bouquets and decorations, being by far the best Rose of its colour, and it is likely to prove a formidable rival to Madame Falcot and other varieties of that class. It makes an admirable companion climber to plant with (the unfortunately rather tender) Lamarque, with whose snowy flowers its orange buds make a charming contrast; and bouquets composed entirely of the buds of these two Noisettes prove an exceedingly popular combination.

One of the prettiest classes at the Crystal Palace Rose Show last year was that devoted to William Allen Richardson, and its inclusion in the list of varieties thus selected to be shown in quantity is a reliable indication of its already wide popularity, which is certain to increase on more intimate acquaintance, for wherever it is exhibited it is always a centre of attraction: the ladies revel in it for cut flowers and bouquets; the gentlemen admire it for button-holes; and as it is also an eminently decorative garden Rose, and has fortunately been endowed with a name which people in this country can at any rate articulate without fear of dislocation, even though it be not a very picturesque one, it is no doubt destined before long to become a household word, and William Allen Richardson will, with Marechal Niel and Gloire de Dijon, complete a noble triad of "everybody's climbing Roses."

T. W. G.

WORK DONE IN WEEK ENDING APRIL 20.

APRIL 14.

OCCASIONAL light showers are still the rule, but the season is advancing, and to keep pace with the work we have now began to disregard a slight shower, which if it hinders us during one job is no detriment to the prosecution of another; as, for instance, when fine in the morning we staked Peas and planted out Cauliflowers, but showers commencing we mowed with scythes round trees and flower beds and other parts of lawn that could not be done with lawn mower. Sifted soot, and wood ashes have also been scattered over turf in flower garden, a dressing that quickly changes the Grass from a yellowish to a dense green. An annual dressing of this description is necessary, for all turf over which there is much traffic and showery weather is the best time to apply it, because the unsightliness of the dressing quickly disappears, and there is no loss of manurial properties as there must be when it lays a long time exposed to the drying influences of the atmosphere. Thinning early Muscat Grapes; the border, an inside one, having had no water since a week or ten days before they were in flower, a regular drenching was to-day given, of course heated to a temperature of 90°; no manure water was given, as there is over the border a mulching of good manure, and the washings from this we considered would at present be ample stimulant for the roots. The temperature will now be kept as equable as weather will allow; 65° on cold nights and 70° when mild will not be exceeded, and a very little higher by day, except with sunshine,

when the temperature, accompanied by abundance of atmospheric moisture, may run up to 90°, or even more, when the house is closed up for the day. Early Peaches, apparently now at a standstill—stoning—are kept at about 60° by night and from 65° to 70° by day, and to keep the foliage clean the syringe is freely applied twice a day. The long littery mulching that we always keep over the inside borders is a great economiser of labour in respect of watering, and, perhaps I ought to add, to the inexperienced deceptive, as it often makes the border appear wetter than it really is, a word of caution that should lead to examination of borders deeper than their surface. Planting out Lobelias and Verbenas in pits, and, being short of the scarlet *Lobelia cardinalis*, they are once again being increased by division, each portion being potted separately in small pots; intermixed with Heliotrope and yellow and white Marguerites in the summer bedding of last year, the arrangement arrested attention, and begat the approval of all.

APRIL 15 AND 16.

Winter dies hard; hail showers and bright sunshine still alternate, but the wet has not been much, and we have been able to keep continuously at outdoor work. Finished dressing lawn with soot and wood ashes, and once more rolled the new ground recently laid down as lawn; cut turf edgings and b-gan trenching up beds for sub-tropicals; a couple of layers of manure are given as the work proceeds, and the soil is thrown well above the surrounding turf that the heat of the sun may act directly on it. There is here a striking instance of the benefit derivable from the soil being thus thrown up. In some beds that are planted with Hyacinths and Tulips, some of the beds are on the ordinary level and others raised, and though both are planted with the same varieties, the raised beds are already in full flower and very vigorous, whilst those on the level are not nearly in flower, and much under the mark of the others in respect of robustness. I do not attribute the great difference entirely to sunheat, for it is little of that commodity we have had, but partly to the warmth imparted by the additional depth of porous soil—virtually greater drainage. Large plants of *Phormium tenax*, planted on turf, have got a little browned by the severe weather, and these leaves we have cut off and given a dressing of rich soil to the crowns, there being a large quantity of surface roots; not a leaf of the variegated variety is hurt, a rather singular circumstance, as it is usually supposed to have originated from the common variety. All the so-called hardy *Dracenas* are killed; they were not protected; but the variegated *Yucca aloifolia* variegata is not injured, and therefore we shall increase our stock of this, as there are few tender sub-tropicals even that excel it in effectiveness for a group on the turf, or as an outer line for a bed of taller plants. The plants of *Ferula communis* and of *Acanthus lusitanicus*, both of them first-rate turf plants for grouping with sub-tropicals, are throwing up extra strong new growths, that show they have not suffered at all. The young growths of the former are susceptible of injury by frost, and it is necessary to place a few evergreen branches round them for protection till danger from frost is past. *Bambusa Metake* and *Fortune's Bamboos* are also not really injured, except that the outer foliage is browned, and this we are having cut away, and to one or two old plants the turf is being rolled back and a rich top-dressing of new soil given. The whole of our time of indoor hands has now to be devoted to preparing summer bedding plants and to fruit forcing, Strawberries, perhaps, causing the most labour, there being so much watering, shifting them from one place to another, picking off surplus fruit, and getting in fresh relays of plants. Figs, Peaches, and Nectarines require almost daily attention as to stopping and training out of shoots. Finished the thinning of early Muscat Grapes, did final disbudding to late Hamburgs; potted a few more *Chrysanthemums*, and pinched the tops out of those intended to be grown as bush plants, *Pompone* varieties being those we most prefer.

APRIL 17.

Fine, and a bleak north-east wind has, rather than otherwise, aided us in our work, for the men were

obliged to keep on in order to keep warm. Continued the trenching up of sub-tropical beds, and trimming up plants having dead leaves, *Pampas Grass* clumps among the number; the winter has been rather hard on them, for a few of the smaller plants look as if they could hardly recover, but the top-dressing of rich soil that we are now giving them may aid renewed growth. Rolled all walks and made a start at machine mowing; the Grass was not long and mowing might have been deferred a week or more, but it would have been at the cost of the lawn presenting a yellowish green appearance for a long time to come, hence our preference for early mowing. All the houses have had the usual weekly re-arrangement of plants and clean-up, all forced flowering plants being taken out of heat and put in the coolest places to keep them in flower as long as possible, and more Roses and *Spiræas* put in heat. Potted off Sun-flowers, seedling Cannas, Hemp, Eucalyptus, and *Wigandias*, and planted out some *Pelargoniums* in cold frames. They are planted in a compost of half leaf-soil and light loam, to which the roots adhere so tenaciously that they move to the beds without any perceptible check in growth.

APRIL 19 AND 20.

Our work these two days has been the completion of trenching of sub-tropical beds, the ridding of hardy fine-foliaged plants of dead leaves, and top-dressing the same, and the commencement of digging up of hardy plants from the terrace flower beds preparatory to digging and manuring for the summer bedders. We have a number of large vase or basket beds that are filled with mixtures of many kinds of flowering plants, single *Dahlias*, *Fuchsias*, scarlet *Lobelias*, *Heliotropes*, and *Marguerites* being amongst the number, and as all these enjoy rich soil, heavy dressings of well decayed manure are given and trenching done as deeply as it is possible to do it. Staking and earthing up Peas; made another sowing, and sowed the main lot of Beet and Parsley. Sowed under handlights on a south border *Carnations*, *Foxgloves*, *Canterbury Bells*, *Aquilegias*, *Primroses*, *Wall-flowers*, *Sweet Williams*, *Antirrhinums*, and *Pentstemons*. They are sown on the surface which was made fine, and afterwards were slightly covered with very fine soil and watered with a fine rose pot. The lids of handlights will be kept on till the seeds germinate, when air will be given and gradually increased till the seedlings can be fully exposed. Work in the houses as per usual; no end of potting and boxing of bedding plants, pricking off seedlings, and of keeping abreast with the growth of Peaches, Vines, Figs, Tomatoes, Melons, and Cucumbers in the way of pinching and tying. Sowed Vegetable Marrows and ridge Cucumbers, shifted into larger pots tuberous Begonias and a few *Gloxinias*.

HANTS.

FRUITS UNDER GLASS.

PINES.

If any of the early starters have not been divested of superfluous suckers and gills, this work must now receive attention. Queens that have received a severe check through the resting season generally throw up a great number, but it rarely happens that more than two from each plant are wanted for stock, and as the others can only be regarded as robbers, they should be carefully twisted out as soon as they can be caught with the hand or a pair of pinchers. As Pine plants are not improved by frequent disturbance, it is a good plan to remove the suckers and put in sticks for supporting the fruit at one and the same time, when a few pieces of fibry turf packed tightly round the collars of the plants will keep them right for the remainder of the season. As days increase in length and the sun gains power, the plants will take more water through the syringe overhead occasionally when the house is closed on bright afternoons, but more frequently beneath the foliage when a little warm diluted liquid forced into the axils of the lower leaves and over the surface of the bed will stimulate the roots and greatly assist in swelling up the fruit. Time being an object in all early Pine houses, the night temperature may now stand quite 70°, or a degree or two more with the blinds drawn down to prevent loss of heat and moisture, and it may range from

76°, when air should be admitted to prevent scalding, to 86° during bright sunshine. Early in the afternoon, the weather being as yet very treacherous, reducing should be commenced before there is any sign of a drop from that figure, and the house should be finally closed in time for the temperature to run up a few degrees more or less above 90°. As few people now care to grow more Pines than they require for their own use, gluts at all times should, if possible, be avoided. Where the old-fashioned system of fruiting all the plants in one house is still practised, this is sometimes a difficult matter, but by potting up suckers and shifting on in small batches, and, further, by growing them in small compartments, the maintenance of a continuous supply is by no means impossible. To carry out this system the second batch of fruiterers will consist of Queens which have made a growth this spring, Smooth Cayennes, and a few Rothschilds. These, like the earliest Queens, should, if convenient, be kept in or transferred to another separate compartment, which they will occupy until late in the season. This concentration of all the most forward plants admits of the preparation of a third pit, which may be filled up with still later plants, including a few of the best of the spring-potted successions. By adopting this plan, instead of devoting a week twice a year to potting and plunging, and by judicious attention to lifting out ripening fruits and retarding, a good English Pine from a small stock can generally be had when it is wanted.

Successions.—Young stock having been potted later than usual, growth owing to the advanced period will be extremely rapid; it will therefore be necessary to keep a sharp eye on the plants, not only to prevent them from becoming crowded and drawn, but also to see that a matted condition of the roots is not unexpectedly produced before preparations are made for the next shift. Plants of all ages, young ones in particular, should be kept close to the glass and so wide apart as to favour the natural spread of the foliage, which should be short, broad, and sufficiently firm to resist the first gleams of spring sunshine. If these conditions do not exist, then shading on bright days must be resorted to; but the less of this the better, as daily shading softens the tissue and hastens many a plant to an untimely end. Where space is limited, a good permanently fixed McPhail frame well filled to the requisite level with fresh fermenting leaves, and lined externally with stable manure, is perhaps one of the best structures that can be devised for the summer culture of young stock. If rather flat in the pitch, the young plants rarely require shading, as they are constantly developed in ammonia-laden moisture, which prevents scalding or even browning in the hottest weather, while the decaying materials of which the bed and linings are composed yield a never-ending supply of genial food, upon which they luxuriate.

FIGS.

The fruit in early houses started at the end of November is now beginning to ripen freely, and we are reducing the supply of atmospheric moisture, but not to an extent that will affect the advancing crop or favour the spread of spider. It used to be the practice to withhold water from the roots as well as the leaves as soon as the fruit commenced ripening; but one thing is certain, we must have a high ripening temperature if the fruit is to be worth eating, and that is the grand aim which cultivators hold in view. A high temperature with a dry atmosphere in April means sharp fire heat speedily followed by the spread of spider, thrips, and bug, and probably the loss of all save the most forward fruit. To prevent these mishaps we now keep the roots fairly well watered and heavily mulched and syringe all available parts of the house, not overlooking dry brisk corners whenever the morning looks promising. We also make a point of gathering in close once a week and giving the trees a thorough syringing immediately afterwards. My early trees, formerly in large pots, but now growing in cribbed borders and trained on a trellis, are kept rather thin of wood and each shoot is laid in full length, an arrangement which induces perpetual bearing and prevents overcrowding. The temperature is now allowed to fall to about 60° at night, with a chink of air to let out superfluous moisture and more fire heat is turned on early in the

morning, also with air when a temperature ranging from 75° to 85° is found not only genial, but essential to perfect colour and finish.

Succession house.—The fruit in this compartment has made good progress during the past three weeks, and has been well thinned. Many people are afraid of thinning Figs, asserting as their reason that the fruit is subject to dropping. In order to help the willing horse up the hill with a fair load, they place behind him twice as much as he can possibly draw, and when—thanks to their wisdom—they have brought about that which they wished to avoid, they say experience justifies them in leaving a heavy percentage to compensate for dropping. The Figs, since they were thinned, having reached the tantalising or flowering stage, will not make any apparent progress for some weeks to come. Good work is, however, going on, and any attempt to hurry the process will be carefully avoided. The treatment these trees receive includes good syringing twice a day when the weather is fine and a plentiful supply of generous liquid to the roots, of which Figs in active growth take immense quantities. The temperature ranges from 65° to 68° by night, and 10° to 15° higher by day, with plenty of air and an abundance of atmospheric moisture after the ventilators are closed with brisk sun heat.

Late houses receive similar treatment, but the temperature is not allowed to range nearly so high, at least from fire heat, as we regulate forcing to meet the demand for ripe fruit when the crop in the second house is over. This year it is to be feared the principal supply will come from glass-covered trees, as those on open walls have only just been uncovered, and although the embryo fruits look fairly well, we do not anticipate a heavy, certainly not an early, crop from them. Although I never allow my late trees to carry more wood than can have full exposure to the autumn sun, I always make a practice of cutting out a number of barren or unpromising branches in April to secure an even spread of young shoots for giving the succeeding year's crop. This operation is necessarily delayed, as it is yet too early to arrive at a correct estimate of the damage done by the past severe winter.

Pot Figs, from this or last year's eyes or cuttings, must be kept near the glass and fully exposed to the sun to secure short-jointed growths of medium strength well set with fruit and thoroughly ripened before they go to rest in the autumn. Figs being such gluttonous feeders, they can be induced to make an enormous quantity of wood by the time they are one year old, but quality being of more importance than quantity, they should be kept in small rather than large pots, and never allowed to root through into the bed when rich compost and liberal feeding with liquid will grow them into short-jointed compact specimens, alike fit for forcing or the orchard house.

STRAWBERRIES.

If not already cleared and cleansed, all forcing houses containing other plants subject to spider should now be relieved of the remains of the Strawberry crop, when boiling water and quicklime will be found efficacious agents applied to the shelves and walls. If any of the plants contain ripe fruit they can be carefully removed to a cool airy pit, where raised well up from the soil, and with their heads nearly touching the glass, the Strawberries will keep for some time and be improved by the change. Indeed it is questionable if pits with or without a hot-water pipe are not the best structures for late crops generally from the set to the finish. When plants in 7-inch pots are plunged in leaves in cold pits, and remain undisturbed all the winter, the roots find their way through the crock holes, and aid in forcing up immense trusses of bloom in April. These scapes should be tied to sticks and well thinned before the flowers open, that is, if fruit of the finest quality is wanted; if quantity be the object, and tying up is too tedious an operation, a rough-and-ready mode of keeping the fruit clear of the soil and enemies will be found in laying handfuls of Birch crosswise in the pits and between the rows to prevent the foliage and flowers from resting on the surface of the bed. Treated in this way and well fed, prolific varieties give enormous crops of fruit, which, under judicious management, can be made to shake

hands with the earliest from the open air. They are not, however, so fine as a sample as it is possible to grow them; but for daily family use, medium sized fruit is valuable, and quantity helps to make up for quality. Where the finest varieties are grown for superior desserts or exhibition, say in May, or perhaps as late as early June, they should be potted in 7-inch or 8-inch pots, as they have to perform the most important part of their work under a bright, parching sun, when one mishap in watering will prove fatal to the crop. If the plants can be plunged thinly in light airy pits, much time and labour will be saved in watering, as plants on dry shelves now take water two or three times a day; they will, however, set freely enough in any well ventilated pit, and fine fruit being the sole object, all secondary flowers should be pinched off before the finest and best open. When set and staked, good syringing with clear water and feeding with diluted liquid soot or guano water will have to be performed daily and the temperature must be regulated by the period at which ripe fruit is wanted. Swelling Strawberries will, of course, stand Pine-apple temperature, but these high figures are not absolutely necessary, as we often swell remarkably fine fruit in cold pits where the night heat does not exceed 56° or temperate; but then we compensate for this by shutting in sun heat on bright afternoons, when a maximum of 80° is easily secured. Perhaps the finest late pot Strawberries we ever grew were set, swelled, and finished in a temporary cold pit composed of 3-inch deals on edge, 3 feet 6 inches deep at back, 2 feet 6 inches at front. The main pipes to a distant range of houses ran in an area beneath the front part of the pit, and although the warmth which found its way to the surface was hardly perceptible to the hand, the more sensitive occupants knew and appreciated it. The plants were placed on shelves some 12 inches to 18 inches from the gravel floor; consequently there was a constant circulation of air passing beneath the pots. Overhead syringing was exceptional, but the roots were well fed, and the gravel was kept constantly primed with good diluted liquid. When set, all the pots were turned round to favour the swelling of the fruit under the partial influence of shade produced by the foliage.

Preparations for the coming Strawberry season should now be made, as favourable opportunities offer for carrying out the various operations which go to the completion of a successful system. The first point to be considered is the state of the young plants from which runners are to be taken in June, for if these are not well rammed and mulched, watering will not be necessary, a plentiful supply of early runners can hardly be expected. Some growers plant out a number of late runners in the autumn, pinch out the blossoms in the spring, and pot up before the end of June; but pot plants so formed are not in my opinion either so vigorous or good as robust runners of the current year. Next comes the question of compost. All admit that the main staple should consist of stiff calcareous loam from an old sheep pasture, cut thin and stacked in narrow ridges in the open air during the preceding autumn or winter. If this has not been secured it should be got without delay, also a good supply of old lime rubble or burnt clay for use as correctives, and a stack of old cow manure from stall-fed cattle should be at hand for working in when the ingredients are chopped down and thrown together. All composts are greatly improved by being prepared some weeks before they are wanted for use, that for Strawberries especially so, as it is necessary to allow time for the loam to become thoroughly charged with ammonia before it is firmly rammed into the pots. If the plants are to be pegged down at once on the fruiting pots the latter should be collected, well washed on wet days, crocked, and placed ready for filling when the compost is fit for ramming without becoming adhesive. In addition to the above, bone-dust and soot are excellent stimulants. The first is not an absolute essential, although of the two I should let it take precedence of animal manure; the second should always be used not only as an ingredient for stimulating the root and destroying wireworm, but also for dusting over the crocks to prevent the ingress of worms.

Eastnor Castle, Ledbury.

W. COLEMAN.

FRUIT GARDEN.

FRAME MELONS.

SOWINGS of free-fruited hardy Melons may still be made at intervals of ten days to keep up a good supply of vigorous plants for turning out into pits and frames as they are cleared of Potatoes and bedding plants. The list of Melons now is legion, and to recommend any particular variety, or sub-variety twenty removes from the original, would be quite superfluous; I must, therefore, name the two or three sorts I prefer, and leave other growers to choose for themselves. Melons, like other fruits which I could name, are not improved in quality or constitution by crossing and re-crossing often with their own blood-relations, otherwise we should not so frequently meet with so many mongrels of every shade of colour, from sickly white to bilious orange, at our local and metropolitan shows. One quality many of these hybrids seem to possess—thanks to the raisers or the growers—and that is the undesirable tendency on the part of the foliage to ripen up and pass away before the fruit is fit for table. There is still, no doubt, a fine field open to hybridisers; but if they would succeed they must hunt up old hands who can give them a few seeds of the true old Egyptian Greenflesh, the Beechwood, the original Victory of Bath, the Bowood Greenflesh as grown by the late John Spencer, or even the Bromham Hall, to work upon. All these varieties had constitutions; more than that, they had flavour, and threw off a delicious aroma which the well-tilted lights of the old McPhail frame, resting on beds of fermenting manure, allowed to escape into the garden and over the walls. By going back to these fine old sorts and sticking to the true Egyptian blood, fine breaks, as Gilbert, of Burghley, is proving, can yet be secured; but once let in the Mulattos and Sambos as male or female parents, the best that can be expected will be confusion confounded.

VARIETIES.—Any of the sorts I have named are good for frame culture, and all of them have the original deep green flesh now so rarely met with in modern sorts. If a white-fleshed variety is wanted, there is the handsome hardy Cox's Golden Gem, the more broadly netted Reading Hero, and the exquisite Heckfield Hybrid. Amongst scarlets, we have the little Gem sent out by the late Mr. Turner, Read's Scarlet Flesh and Blenheim Orange, well proved frame varieties. Equally handsome, but not yet proved by myself, is Sutton's Invincible. Hundreds more might be named, but having made a list that should satisfy a horticultural lawyer, I must now say something about growing.

THIN SOWING.—Sow the seeds singly in small pots or on squares of turf placed on a hotbed, pinch out the points when they have made two or three rough leaves, and keep them steadily progressing close to the glass until the bed is ready for them. If the bed on which the Potatoes have been grown contains any latent heat, turn it over and add a little fresh fermenting material to secure a bottom heat of 80°. Tread firmly after, not before, the heat has revived, place two planks edgewise longitudinally in the frame, 2 feet apart and 1 foot or more in depth. Cover the manure between the planks with sound turf, grass-side downwards, and form a narrow ridge of compost the whole length, with its apex on a level with the top edges of the planks. Shut the frame up and keep it closed until the soil, rather stiff loam with 20 per cent. of old lime rubble added, is thoroughly warmed through.

PLANTING.—Transfer the plants to the ridge, plant firmly 18 inches apart, give a little water at a temperature of 90° to settle the soil about

the roots, and submit the frame to Cucumber treatment; that is, aim at a night heat of 70°, with a chink of air to let out rank steam, and cover with mats to prevent the escape of warmth and moisture by radiation. Clear away all covering, and shut off night air before the morning sun strikes the glass. Keep the lights closed until the air temperature touches 76°, then tilt the back or front of the lights according to the state of the wind, and allow the internal heat to rise gradually to 85°, or on calm warm days to 90°. Never shade, as Melons glory in the full blaze of the sun, but damp the back and front strips of the bed with warm water if at any time the plants show signs of flagging. Some time between two and three o'clock in June, from three to four in July, damp every part of the frame and bed, and shut up in time for the frame to run up to any figure under 100° with sun-heat and naturally an abundance of atmospheric moisture.

EARTHING.—When under this treatment a profusion of white, healthy roots begin to creep through the sides of the ridges, add previously warmed soil, good friable loam quite free from manure to fill up the central space formed by the planks, and ram it firmly. As this will be the first and final earthing, and the vines will now grow very fast, old tiles, broken brick, or rough charcoal may at once be laid round the collars of the plants to absorb superfluous moisture. In order to secure an even supply of water to the roots without flooding or even wetting the collars, at all times the most susceptible parts of the plants, it may be well to remark that they should be planted high and dry, and the edges of the two planks should be ranged on a dead level. Further, to enable the attendant to give a full supply quickly when exposure of the plants might be attended with danger, the top of the compost should be a clear 2 inches below the edges of the planks when all is finally rammed and finished.

TRAINING.—Although many still have a liking for the old manure bed, we now find the majority trying to modernise the mode of training. Some fill in the back and front cavities not occupied by compost with rough Pea sticks, others cover them with slates or boards and allow the vines to ramble over them. I prefer lath trellises wide enough to drop in between the rafters, and long enough to butt against the back and front when placed in position after the final earthing. If the summer is hot and internal heat is plentiful, the back and front cavities are left open; if, on the other hand, it is cold and wet and more heat is needed, I fill in with sound Oak leaves in a fermenting state before the trellises are placed in position. All the vines, two from each plant, are then led one to the back, the other to the front of the frame, over the top of the trellis. When within 6 inches of the sides the points are pinched out, and a few fine days bring forth a simultaneous flush of fruit-furnished laterals. As soon as an abundance of female flowers likely to open together have been secured, we renovate the linings back and front to increase the heat, and withhold moisture for two or three days to produce conditions favourable to

SETTING.—The first pinching of the main shoots having thrown vigour into the laterals, the latter will extend rapidly, and show fruit at the second if not the first leaf. If space is likely to become crowded with foliage, every alternate lateral is pinched at the leaf next beyond the fruit, and the others are allowed to extend a little. These are then pinched, and the work of fertilising with the male blossoms is commenced, and continued from day to day until a good set has been secured. If good loam, pure

and simple, has been given to the roots, the weather is hot and dry, and the bottom heat is brisk, many of the fruits get fertilised by insects; but in order to make success certain we always, about noon, on fine days select fully expanded male blossoms, and, after stripping them without disturbing the pollen, insert them in the female flowers, which we allow to rest against a leaf, where they can have full exposure to the sun. If possible, air is freely admitted, but not in sufficient quantity to lower the temperature, and all atmospheric moisture is withheld, as it is desirable to keep the internal air as hot and dry as possible. One variety only being grown in each frame or pit, the setting only occupies a few days, and when plenty and to spare have been properly fertilised, we turn our attention to the swelling and after-management of the

FRUIT.—The great object being the selection of a certain number of young fruits of equal age and size that will swell off in unison, we defer thinning for a few days; but in the event of any of the plants failing to set a sufficient number, the few which may have set are removed, as it is simply impossible to set and swell others after one or two have commenced swelling. All the laterals on those particular plants are then pinched to induce a set of sub-laterals which will set, swell, and ripen their fruit a little later in the season. We do not, however, allow the earliest fruit to suffer from lack of moisture, neither do we always pinch back for a latent set, as one or two extra large fruits are not unfrequently highly acceptable for special purposes; but resume syringing and root-watering, the latter sparingly at first, as a flush of water before the Melons attain the size of pigeon's eggs is apt to cause them to turn yellow and perish. When they have made a good start, fruits for the crop are selected and placed on inverted flower-pots or pieces of board to keep them off the soil. All superfluous fruits are then removed, feeding with good diluted liquid a few degrees warmer than the bed is commenced, and we turn our attention to the manipulation of the sub-laterals and careful protection of the main

FOLIAGE.—Under the impression that Melons may be hacked and slashed with the knife, many people treat them like Cucumbers, and often lay the foundation of canker and premature death by the removal of the old leaves, which they should carefully preserve. Overcrowding is, of course, objectionable, but this will not happen if directions for planting and stopping are carried out and the use of solid manure is avoided. Weekly or bi-weekly pinching and regulating must, however, receive attention, and the best time to perform all work of this kind in the frame ground is during the hour preceding the final closing for the day. Then, as briefly and deftly as possible, every lateral and sub-lateral is cut back to one leaf; all male blossoms are removed, and a little quicklime is applied to wounds if by accident a main leaf is broken off or the collars show signs of canker. Some four weeks, if the weather is good, will suffice to swell the Melons up to the netting stage, and when this is finished it will be time to think of bringing about a gradual change of treatment favourable to

RIPENING.—If well grown and fully exposed to every ray of sunshine, the foliage will be hard and capable of withstanding the extra dry heat which must now be brought to bear upon the fruit, for without plenty of dry heat frame Melons cannot be expected to compete with fruits grown in light hot-water pits and houses. The change must not, however, be too sudden, but guided by the appearance of the fruit; root

watering and atmospheric moisture must be gradually discontinued; not so the heat, as a brisk bottom heat from renewed linings is imperative. Therefore, from general watering and flooding, wear off to pouring in a little warm water along the edges of the bed to sustain the roots clinging to the retaining planks. From daily syringing reduce the supply of atmospheric moisture to sprinkling the inside of the frame and portions of the bed of leaves where it can be done without wetting the foliage. Defer shutting up for an hour or two on fine afternoons, but always close in time for the temperature to touch 80°, as Melons ripened without heat are of little value; give a chink of night air, cover up from first to last, and commence airing earlier than previously on bright mornings.

CUTTING AND PRESERVING THE FRUIT.—Melons should never be cut until they begin to show signs of cracking round the stems and throw off their delicious aroma. They may then be cut with a good piece of the stem attached and removed to a dry, airy room or vinery, from which the Grapes have been cut, to rest until they are fit for eating. Some varieties are fit for use immediately after they are cut; others improve by being kept for a few days in a warm vinery; the thinner the skin or rind, the more quickly do they arrive at perfection. This matter of cutting and using, it is needless to say, can only be reduced to a certainty by acquaintance with the sorts and practical experience. Like all other exotic fruits, they should not be allowed to remain attached until they are dead ripe; neither should they be cut before the aroma indicates that the work of the plant is nearly finished.

Eastnor Castle, Ledbury.

W. COLEMAN.

MAIDEN PEACH TREES.

I SEE that "T. B." asserts that maiden Peach trees "of the shape that nineteen out of twenty now are when bought in"—that is, with one shoot—are left "untouched" by extensionists, and he proceeds to explain his objections to the system on that assumption. Allow me to say that neither myself nor anyone with whom I am acquainted have ever recommended any such thing. In *THE GARDEN*, and also in my book on pruning and training, I recommended and illustrated the method of beginning with a one-shoot maiden by cutting it down to the graft in order to get limbs. It seems that my hint given a couple of weeks ago, that there were maiden trees shaped differently from this, has set "T. B." athinking, and for the first time he has discovered that a maiden need not necessarily be trained with one shoot, but with half-a-dozen or more as one likes, and hence these need not be shortened more than an unequal balance in the tree demands. It was the old-fashioned maiden of which "T. B." wrote first, however, and trained on the end of his dwelling, as described by him lately, but not in the way which extensionists recommend, and hence his failure to cover the bottom part of the wall at the outset. By topping a maiden low down the first year a number of shoots can be originated, and the foundation of a good tree laid the same season. These branches will produce many medium-sized shoots the next year—the "first year from the maiden," and the year after that there is nothing easier than to produce the dozens of fruit mentioned on a fertile variety. The maiden trees about which "T. B." has been discoursing up till now are the one-shoot maidens sold by the trade, and he has never even suggested any other; but now he has discovered that "those who have taken the training of these maiden trees in hand during their first season, and shaped them as they might be, there would be little need for cutting back." Just so; but in all his writings "T. B." has never alluded to this before, though he is on the alert the moment it is suggested to him that the extensionists begin at a stage earlier than he had ant-

cipated. What has led "T. B." astray is the fact that all books on Peach culture begin with the one-shoot maiden, as shown in the "Gardener's Assistant"; but there is no reason for either the nurseryman or private grower keeping to these alone, and hence, when "T. B." spoke of a prize, I at once set about making enquiries for four and six-limbed maidens for whoever might want them.

J. S. W.

PLANTING VINES WHEN IN LEAF.

WHEN one sees the results of planting Vines when in leaf, and the way in which they establish themselves in a short time, they cease to wonder how it is that planting dormant Vines is fast going out of fashion. For some years, therefore, I have made it a practice to plant growing Vines instead of dormant ones. As to the best time for planting such Vines, I do not think any hard-and-fast line can be laid down, seeing that it is really more a matter of convenience than anything else. If the house and border which they are to occupy are ready, they may be planted at any time between the 1st of June and the 1st of October. I have planted in the first week of that month, and have obtained very satisfactory results. But in this instance I used special care; before planting, the roots were disentangled, but not a leaf was injured that could be avoided. As soon as planted, the border, which was outside, was watered with lukewarm water, and then covered with wooden shutters. At the same time the house was shut up close, and remained closed for a fortnight. Whenever the sun shone the roof was shaded, and the internal temperature maintained at 85° both night and day during this time. The Vines as well as every part of the house were syringed with lukewarm water several times a day, according to the temperature of the outside air. The drier it was outside, the more moisture was given inside. Indeed, I may say that the Vines were in a constant vapour, which, with the assistance of plenty of warmth, kept the leaves from flagging to any serious extent. At the end of three weeks it was evident that the roots had taken hold of the soil, for the tops of the canes began to push out new leaves. This was what I had aimed to secure, and all that I wanted the plants to do at that time. I therefore began to reverse the treatment, but this was done gradually. The temperature as well as the internal moisture was reduced and a little air was admitted; therefore, at the end of another three weeks, new growth, 1 foot or more in length, had been made. Vines thus treated did not go to rest so soon as those grown under ordinary circumstances, but, by keeping them cool in winter, after being cut down they broke as strongly and regularly as I could desire; while in the matter of growth I am satisfied that I gained two months in advance the next year, and I believe I gained considerably in strength of wood also from what I should have had had I waited until the spring and planted dormant Vines. If I could so arrange it, I would prefer to plant early in June, as the plants would then have all the benefit of a summer's warmth; and so strongly am I impressed with the advantages of planting at that time, that I would rather keep the house empty until June than plant dormant Vines in March or earlier, because I know that I should get better canes and a greater number of roots from young canes planted in June than from dormant ones planted earlier.

PREPARING THE VINES.—On this part of the subject I may be expected to say something, yet I have nothing particular to say, except that I have raised my own Vines on several occasions. I have planted the eyes on thick turves, and transferred them to the border without disturbing them. I have also prepared the plants in deep

pans filled with soil, and rather than disturb the roots I have sacrificed the pans by breaking them. I have likewise purchased Vines in pots and planted them as soon as they came to hand, and now, if I were asked to say which was the best plan to adopt, I should answer without hesitation that I would as soon plant purchased Vines out of pots as I would those prepared in the most painstaking manner; and I say this after more than 30 years' experience in conducting the work of a large garden. Future success depends a good deal on the way in which the Vines are planted. If the work is done in a hurry without previous forethought as to the conditions under which the Vines have been raised, and without regard to the state of the soil, one has no right to complain if not successful with summer planting. If the Vine border is outside the house, it will never do to take Vines from a house heated up to a high temperature, and subject their roots to a cold border without first preparing them for the change by moving them to a cooler structure for a few days, and it would be equally inconsistent to put the roots into soil saturated with moisture through recent rains. The careful cultivator will have in readiness a sufficient quantity of light, rich soil under cover to place immediately round the roots. With these precautions the planting may be successfully done at any time. If the plants have to be turned out of pots and the roots have collected round the bottom, it is better to disentangle them, so as to be able to spread them out, than to plant them with the ball intact. Although such a course may give a slight check to the growth, the roots will take hold of the soil much quicker than if not disturbed.

MANAGEMENT OF NEWLY PLANTED VINES.—In order to insure the best results the border should be mulched with half rotten manure as soon as the planting is finished, and from time to time the soil should be examined; if found dry, it should be immediately watered. The sun should not be allowed to shine on the young Vines for at least a fortnight after they are planted, and as a thick shade will be better than a thin, the glass should be covered with mats; when it is decided to discontinue shading it should be done gradually. As regards internal management, no air should be admitted until the thermometer registers 90° for the first fortnight, and as near as can be managed the night temperature should be 70°, and these temperatures should be maintained during the summer. As a matter of course, it will, however, be necessary to give more air in bright weather in order to keep down the temperature, but at other times moderate supplies will suffice until the plants are in active growth. All the time during which the shading is over them the Vines should be syringed several times a day, and the floor and walls should also be kept damped. When they have grown 4 feet up the rafter I like to pinch off the tops once, and then allow them to grow their own way all summer. The stopping of the leading shoots will result in their making three or four others; these I consider it desirable to let alone. Undoubtedly in this case, if not so always, the more leaves the more roots, and the more roots made the first season the stronger the growth will be the next.

PRUNING.—This is perhaps a point that each one is best able to decide for himself. If it is expedient that Vines planted early in June should produce a few bunches of Grapes the next season, they will if they have done well be quite capable of doing so. But looking to the future prosperity of the Vines, I have no hesitation in saying that they ought not to be cropped the next season, *i.e.*, if expected to remain in a

strong and fruitful condition for the next twenty years. I have known a house of Vines do well from four to six years, and at the end of the eighth or ninth year suddenly collapse through the Vines having been over-cropped when young, while if they had been rationally treated they would have borne magnificent crops. Vines should be thoroughly established before their strength is taxed too much. J. C. C.

EXTENSION TRAINING.

THE statements on this subject by "J. S. W." vary so much, that one is puzzled to make out which he intends us to accept as evidence of the merits of the training under discussion. Mr. Coleman's two-year-trained Peach carrying eight dozen fruit is now brought forward to prop up the statement about the one-year-planted maidens bearing eight dozen each, about which "J. S. W." so often speaks. What has the crop which a two-year-trained tree is able to bear to do with that which a one-year-planted maiden can support? Nothing at all; yet it is by a persistent reiteration of statements of this kind that "J. S. W." tries to hide the defects of the practice which he recommends. By the way, these one-year-planted maiden trees bearing eight dozen fruit prove a little too much; it would be interesting to know how much heavier the stones and the skins were than the eatable flesh of the fruit named. "J. S. W." attempts to make out that the Victoria Nectarine at Lambton Castle which I described was evidence in favour of his unrestricted training; it was just the reverse, and was instanced to show that trees which had their strong shoots cut back sufficiently to secure an even strength of wood all over them could be made to cover the space allotted to them fast enough to satisfy those who hold reasonable unbiased views on the matter. The Nectarine in question, in addition to its well-known vigorous habit of growth, was a trained tree when planted and had five years afterwards in which to make its growth, and was as good an example of a skilfully pruned tree, even in strength, as one could desire. "J. S. W." tries to make capital out of my reminding him that my practice had nothing to do with the question at issue. Nor has it. Nevertheless, I stated in sufficiently plain terms the practice I had always followed. One thing connected with extension training is highly interesting, and that is the trouble that "J. S. W." has taken to make it appear that it is an invention of his. I can assure him his claim to it has been made too late. So long as I have known what trained trees were there has been no scarcity of instances to be met with in which young trained trees composed of strong vigorous shoots and of weak ones were planted and their heads left untouched, the gross shoots allowed to go on and still further impoverish and outgrow the weak ones, half the wall space never being covered, and this, as I have before stated, is so much waste. To this "J. S. W." persistently turns a deaf ear, yet, coupled with his recent admission that extension training does not give the most fruit in a given space, it so far condemns the system, that most people will consider him welcome to claim extension as his own if he chooses to do so. T. B.

Plum trees in woods.—I have no experience as regards planting Pear trees in hedgerows—a plan recommended by "D. T. F."—but I see no

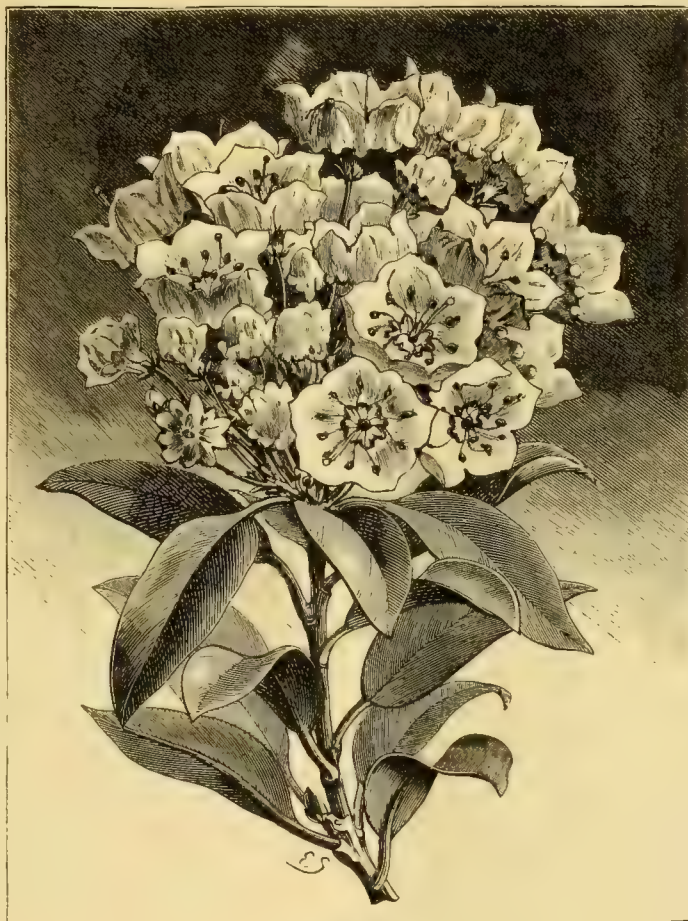
reason why it should not succeed. In many cases we see such sorts of Pears as the Seckel, Crassane, Williams' Bon Chrétien, Windsor, and Swan's-egg bearing good crops as standards; therefore I see no reason why they should not succeed if planted in sheltered hedgerows. With regard to Plums, I do not think they are reliable enough to plant in such positions, unless the hedge was of more than ordinary width. But what I have to say about planting Plums in woods is a fact that has been carried out by a gardener in this county with the most successful results. Provided the soil is right, most of us know that Plum trees will grow anywhere; but to secure anything like regular crops of fruit is another matter, yet this has been done. Having the care of a portion of the estate apart from the garden, the gardener just alluded to made clearances in a small wood to receive some Plum trees. They were, of course, standards, and only the most hardy sorts were selected. In due time they were planted, and quickly grew into

done so well, that the only regret is that more trees were not planted, and also a greater number of varieties.—TAUNTON, in *Field*.

TREES AND SHRUBS.

KALMIA MYRTIFOLIA.

THE best known of the Kalmias is the Mountain Laurel of the United States (*K. latifolia*), a charming evergreen shrub, at times almost reaching the dimensions of a tree. Apart from the beauty of its blossoms, its deep green glossy leaves are always much admired, and when laden with blossoms it stands quite in the front rank amongst flowering shrubs. The blooms vary in colour from almost white to pink, and among individuals there is generally a good deal of difference as to their flowering capabilities, some being in this respect much more prolific than others. The finest of all is a variety that was awarded certificates both by the Royal Horticultural and Royal Botanic Societies a couple of years ago, under the name of *K. latifolia* major splendens. The flowers of this were much richer and brighter in colour than those of any of the others, being in the bud state quite cherry-red, but lighter after expansion. Another well marked variety is that here figured, viz., *K. myrtifolia*, the leaves of which are, as its name implies, much smaller than those of *K. latifolia*. As a rule, it is also less spreading than *K. latifolia*, while the flowers are likewise smaller. These Kalmias thrive under much the same conditions as suit Rhododendrons—that is to say, they like a position slightly sheltered and soil somewhat moist. Like Rhododendrons, sometimes they will thrive luxuriantly in a stiff clay, and at other times equally well in a light vegetable compost. A curious irritability may be observed in the flowers of Kalmias; when fully expanded the stamens lie out on the petals, but if just touched at their base with a pin they at once close up towards the centre, and form a cluster in the middle of the flower. Similar behaviour may be found in some kinds of Berberis. Kalmia flowers are at their best about June, but under favourable conditions they last long in blossom, and if cut just as the buds commence to expand and kept in water they will remain fresh for a considerable period. The narrow-leaved American Laurel (*K. angustifolia*) is a smaller growing plant than either of the foregoing, being generally seen in the shape



Kalmia myrtifolia.

of a little upright shrub a yard or so high. Its leaves are about 1½ inches long and three-quarters of an inch broad, while the flowers are smaller and deeper in colour than those of *K. latifolia*. It is widely distributed over a considerable tract of country in North America, and, as a matter of course, varies somewhat in general characters. There are a few well-marked varieties of this, the best of which is one often met with under the names of *rubra* or *superba*; it differs from the type in the flowers being of a rich rosy red colour. One form is much dwarfer than the type, while a very glaucous-leaved variety is also in cultivation. *K. glauca* forms a low-spreading plant, the leaves of

fine trees. At first they did not seem disposed to bear fruit, but only to make growth, which the sheltered position and moist soil doubtless favoured, but as soon as the trees had filled their allotted space with roots, the growth became less vigorous, and they commenced to bear fruit, and this they have continued to do regularly almost every year. Further than to keep the surrounding growth cleared away as the Plum trees required more head room, they have had nothing done to them. What surprised me most to hear was that birds did not interfere with the buds, nor did wasps or flies attack the fruit, but allowed it to hang on the trees unmolested. The sorts of Plums planted were the Diamond, Early Prolific, Orleans, Victoria, Belgian Purple, and the red and white Magnum Bonum. I should add that they have

which are very glaucous underneath, but deep green on the upper surface. The flowers are of a pale pink colour and borne earlier in the season than those of any of the others, being indeed often in full bloom in April. This *Kalmia* does best in a moister spot than the preceding, and to be effective it should be planted in clumps or masses rather than dotted about here and there. For the lower parts of rockwork where it will get plenty of moisture it is well suited. *K. hirsuta*, a pretty little species, comes from the Pine swamps of Eastern Virginia, but it is rarely met with in this country, being difficult to cultivate. The larger kinds of *Kalmia* associated with *Rhododendrons* make excellent plants when in flower for indoor decoration, and from the dense fibrous character of their roots they can be readily lifted at almost any stage without injury. They cannot be forced very early into bloom, but by placing them in gentle heat they may be induced to anticipate their usual period of flowering by a considerable time. Seeds of *Kalmia latifolia* are readily obtained, and should be sown at once in beds of sandy peat, and if covered by a frame, so much the better, as from their small size they need as much as possible to be protected from drying winds. If sown in the open ground, a few Spruce branches should be laid over the bed. T.

EFFECTS OF FROST ON PLANTS.

I AGREE with "D. T. F." that it may seem strange that, although some plants (especially such as are of a succulent nature) bear more frost when in a dry, shrivelled state than when the roots are moist enough to keep their tops plump, there are others that suffer more if frozen at a time when their tops are in a stagnant, enfeebled condition for want of root moisture. Yet such is the case, as I have frequently seen, and it is plants that are impatient of having their roots dry, such as some Ferns, the *Calceolarias* I named, and other things of a like nature that suffer most from exposure to a low temperature when over-dry at the roots; though this is opposed to the prevalent idea that the less moisture there is present in the leaves, the shoots, and the stem of a plant, the less effect frost will have on it, and this is correct in the case of most things; still, it is not so with all, and it was to draw attention to this that my remarks were directed. It appears that, in the case of plants so affected by their vital forces being suspended by over-drying at the roots, they are correspondingly less able to withstand a low temperature. Respecting what I wrote about the ability of plants generally to bear more frost when their tops are dry than if wet, I can understand "D. T. F." failing to comprehend my words, which should have read, the more moisture there is hanging about them the more they suffer from its being congealed, not confined, as the sentence appeared to show. "D. T. F." will, I think, be able to see the general meaning of what I had to say on the subject in question, which was to direct attention to the fact that it is easy to carry matters too far in over-anxiety to keep plants dry at the roots when frost is likely to reach them, especially with such as require a good deal of root moisture to sustain them. Take, for instance, a couple of plants of *Chrysanthemum* in pots stood out of doors during a long and severe frost; if when the frost comes one happens to be so dry that its leaves are limp and flagging, and the other with the soil wet enough to keep them plump and erect, when thaw comes it will be found that the dry plant has suffered severely, whilst the other that was wetter will be little, if any, the worse. This I have noticed frequently. The action of frost on plants is a subject in which I have taken some interest, and there is a good deal connected with its effects on vegetable life under various conditions that cannot always be accounted for. T. B.

5484.—**Lemon wine.**—To 4½ gallons of water allow the pulp of 50 Lemons, the rind of 25, 16 lbs.

of sugar, half-an-ounce of isinglass, 1 bottle of brandy. Peel and slice the Lemons, but only use the rind of twenty-five of them, and put them in cold water. Let it stand eight or nine days, squeezing the Lemons well every day; then strain the water off and put it into a cask with the sugar. Let it work some time, and when it has ceased working put in the isinglass. Stop the cask down six months, put in the brandy, and bottle the wine off.—W. A. E.

KITCHEN GARDEN.

BRUSSELS SPROUTS AND THEIR VARIETIES.

"A. D." in his thoroughly practical article on this most useful winter vegetable, says he only recognises one type, and inquires who shall say which of the fancy varieties is the best. Ninetenths of the growers and all the consumers will most certainly agree with "A. D." in his assertion that a good strain of the imported Brussels Sprouts is decidedly the best, not only in point of hardness, but also in productiveness and quality. Vegetables of nearly all kinds have during the last twenty years been greatly improved by selection, but every step in this direction does not, I think, apply to the Brussels Sprout—at least, where an infinite number of hard, delicious little nuts have been sacrificed to large, soft, spongy sprouts partaking strongly of the Savoy flavour. I invariably grow a few rows of the so-called improved varieties to satisfy myself that I am not allowing a really good thing to pass by; but for my main crop I have always sown the imported, which, thanks to our Continental neighbours, we can still procure "true." Having compared notes with my old friend, Mr. Wildsmith, I think our modes of treatment are nearly, if not quite, identical. Mine is as follows: In February a slight hotbed is built up for Lettuce, Celery, Cauliflowers and Brussels Sprouts. The latter are pricked out on a warm border about the end of March, and when about 6 inches high they are transferred to their permanent quarters—generally the ground on which Celery has been grown. The plants are placed 2 feet from each other, and the rows are 4 feet apart. Rows of August-sown Cauliflowers are then introduced for cutting in June and July; all are in due course well mulched and watered with the hose if dry weather sets in. When all the Cauliflowers are cut the ground is dressed with soot and lime, and the Brussels Sprouts receive the final moulding with steel forks. As I do not care to have a winter vegetable too early, the Sprouts are kept growing by an occasional flooding, and some of them are staked if, owing to their height—3 feet to 4 feet in good seasons—any of them show signs of swerving from the perpendicular. Early in November all the lower leaves are broken out to let in light and air and to expose the Sprouts to the influence of rain, but the heads and a few of the top leaves are left to protect the Sprouts and preserve the stems from frost. When cutting is commenced, a few of the most forward Sprouts are taken from the base of each stem first, and a second set is frequently formed by the time those near the top of the plants are used. August sowing I do not think necessary, as I find the secret of success consists in sowing early in the spring and keeping the plants growing throughout the season without a check, until autumn weather arrests their upward progress. In reply to "A. D.'s" inquiry as to which of the fancy varieties is the best, I may say that the finest bed I ever saw was May's Northaw Prize, under the able management of Mr. Allan at Normanhurst, when I was courteously shown through Sir Thomas Brassey's gardens last year. All the plants of this care-

fully selected strain of the imported were exactly alike, and, although the season had been unfavourable for the Brassica tribe, they averaged 2 feet 6 inches in height, and were literally packed with hard little nuts from the surface of the soil to the summit. This fine strain is now in the hands of a London firm, and lovers of a first-class Brussels Sprout will not regret giving it a trial. It is now getting late to sow for extra large plants, but a pinch of seed sown in a box in gentle heat, and pushed on in deep, rich soil will produce a fine plantation by November. Eastnor Castle, Ledbury. W. COLEMAN.

PLANTING LATE POTATOES.

SOME early Potatoes are planted from the middle to the end of March. A great many are put out early in April, and the whole are generally planted by the 20th or so of that month, and the first or second week in May should see the whole of the late varieties planted. As a rule, early Potatoes are planted in sunny borders and in warm, sheltered spots, but it is unnecessary to give late ones a choice position; as a rule they may be planted in any part of the garden. When many Potatoes are planted in a garden they take up a great deal of space, and where the bulk of the late crop can be grown in a field it is a great advantage to those in charge of the garden, and who have to raise a large quantity of winter vegetables. The plan of planting late Potatoes wide and then putting Broccoli, Savoy, Brussels Sprouts, &c., in between the rows is good to a certain extent, but it very often results in both crops being inferior. We have planted quantities of late Potatoes 3 feet and 3½ feet from row to row at the end of April, and as soon as they were earthed up in May the winter crops were dibbled in along the bottom of the trench or hollow between the rows. For a time all went well, but late Potatoes, such as Schoolmaster, Magnum Bonum, Champion and others, produce a great deal of top growth, and by July the tops only of the greens could be seen. This causes them to become very long in the stem, and by the time the Potato stems began to wither many of the plants between had been spoiled. This is the main objection to this system of dealing with late Potatoes, and I would much rather plant at the rate of 18 inches from row to row, and plant one half of the space with Potatoes and the other with winter greens, than mix the two together. Where late Potatoes are used by the ton the kitchen garden must be very large indeed to keep up the supply. Some may say they buy all their late Potatoes, but it is very often a difficult matter to get really good eating tubers in the market, as it is sometimes not easy to tell what the variety is, or how they have been grown. All, therefore, who have a home farm should grow them there, and others might have no difficulty in agreeing with a neighbouring farmer to plant a number of rows in his field. In such cases the gardener could superintend the planting, and he should also find the seed, when a satisfactory crop and roots of high quality will doubtless as a rule be produced. The soil should be medium in texture, well drained and well manured. In many cases artificial manure is substituted for that from the cow-sheds or stables, but on the whole, and especially in considering the general improvement of the soil, the latter is the best to deal with. We do not know of a late Potato so compact in the stem as is to be found amongst early and midseason ones, and while the latter may be planted from 18 inches to 2 feet apart in the row, and from 15 inches to 20 inches set from set, from 2 feet to 3 feet is not too much space between late ones. Some varieties of late Potatoes are very late in sprouting, and although they may be wintered in the same place as the early ones, they are generally quite dormant when the others are bursting into growth. This lateness in starting is not an evil; on the contrary, it is an advantage to have each of the sets sprouted a little before planting, and all of them should be laid out in a single layer in a light place under

cover for a fortnight or more before planting. As the majority of late Potatoes are round, and not kidney-shaped, they all bear cutting up, and although we never cut them so fine as to reduce them to single eyes, all ordinary-sized tubers are divided into three and four pieces.

CAMBRIAN.

Veitch's Autumn Giant Cauliflower has proved quite as hardy with us this winter as Snow's Winter White. Last year, when the weather was milder, we had this Cauliflower fit for table in January. I shall certainly discontinue growing Snow's, for at best it is not a satisfactory sort even when it can be obtained true, which is a difficult matter. But now that the Giant Cauliflower proves to be so hardy, I hope to plant large breadths of it. For furnishing plants to come into use during winter the seed should not be sown until the second week in May. I find that plants which have had the most room to grow prove to be the hardiest.—J. C. C.

ROSE GARDEN.

OWN-ROOT ROSES.

For some years past there has been steadily growing a conviction that the standard Rose is not the form that will give the best results to people who love Roses. So strong has this idea become, that Rose growers for sale confess that they have some difficulty in effecting a clearance of such stock; and than this no better proof is needed that the public have, after much patient waiting, proved for themselves that standard Roses are, as a rule, too short-lived to be extensively planted. Those who take more than an ordinary interest in Roses need not to be told that the same feeling is gaining ground respecting dwarf Roses when worked on alien stocks. These also have been tried and found wanting, inasmuch as on every hand the complaint comes that they do not thrive for more than three years. The first year after planting they do very well; in the second there is a slight falling off in the number and size of the flowers; the third shows a marked absence of vigour, and from that time they dwindle on, and many ultimately die. What is very provoking, too, their behaviour is nearly the same, whether the soil be good or bad. In a suitable Rose soil they may, perhaps, retain their vigour for a year or two longer than they do in a less favourable staple; but, in the end, the result is the same; if they do not die outright, they become so feeble that their presence is unbearable. Therefore, the question is, Why should this state of things continue when a remedy is at hand? Growing Roses on their own roots is the only remedy, and, as regards those who can purchase plants, I am aware that making the recommendation is easy enough; but knowing where to get the plants is not so simple a matter, because trade growers have not entered with the same spirit into raising own-root Roses as they have those on various kinds of stocks, although they acknowledge that the demand for own-root plants is very inadequately met by them. This being so, we have only one way out of the difficulty, and that is to raise our own plants; and this is not such a serious undertaking as many suppose. The chief factor in the formation of own-root Roses is patience. Skill of the first order is not required, nor expensive appliances in order to raise them by hundreds; therefore, there is no reason why we should not have them. It is not too late yet to prune, and instead of, as in previous years, burning the prunings, let us convert them into cuttings, with the view of their ultimately growing into good plants. As to the result of utilising spring prunings, I have no desire to raise false hopes, but I can confidently say, from my own

experience, that, with a judicious selection of fresh carefully made cuttings, a sandy soil and a cool north border, 20 per cent. of plants may be obtained, and this number can be had by simply putting in the cuttings and making them firm in the soil; they want no other attention. Nor is a large space needed to accommodate a few hundred cuttings; for if they stand 4 inches apart, there will be ample room for them to grow for one year. In order to make the best use of spring prunings, the proper way to proceed is to select a shady border in a north aspect; the space need not be more than 4 feet wide; spread over the surface a layer of sand or road-grit 2 inches thick, and when that is done fork over the border, so that the sand may mix with the soil, breaking up any hard lumps, for a fine medium is necessary to encourage the formation of roots. When the cuttings are ready, have a board, the width of the border, to stand upon; then with a clean spade cut out a trench from 4 inches to 6 inches deep, according to the length of the cuttings. Place the latter in firmly at the bottom of the trench, so that they can have a firm base. Some of the finest soil should be then filled in and firmly trodden, so as to securely fix the cutting in its proper position.

In regard to the cuttings themselves, the stouter they are the better. The slender tops should be rejected, and if any can be slipped off with a heel, they should be selected in preference to others. The longer the cuttings are, provided they do not exceed 9 inches, the better, as a long cutting will retain its vitality for a greater length of time than a short one, and it is easier to fix in the soil. It is not advisable to have more than 2 inches above ground, for the more of the cutting exposed to the air, the greater the tendency to become withered by dry cold winds. Cuttings, it may be observed, commence to make roots much sooner than the tops indicate; therefore, there should be no hurry to disturb them until they have stood twelve months in the cutting bed. Some, however, will make more progress than others. We had some plants in flower last August raised from cuttings inserted the previous February. Besides being able to raise plants from cuttings planted in spring, it is well known that cuttings put in in autumn strike freely. There is, therefore, no excuse why we should not have all our plants on their own roots. I know that it will take twelve months longer to get plants from cuttings than it does from budded stocks, but surely no one would mind waiting that time if, by the exercise of patience, they can get plants upon which they can rely. Fortunately for people who may not wish to wait while they raise a stock of plants from cuttings, there is another way in which plants on their own roots may be secured, and that is by pegging down the branches and burying in the ground a portion of the stem, from which roots will ultimately be emitted. This plan is only suitable perhaps for those who grow Roses in masses. In a garden not many miles from Taunton there are several very large beds of Roses that have been converted in this way into own-root plants. This was not done from choice, but from necessity. The beds, like many others, had been planted with Roses budded on the Manetti stock, and at the end of three years it was found that many of the plants were dead or dying. Branches of such as had any length of shoot upon them were therefore pegged down, and by this means in two or three years the beds were quite filled with thriving young plants on their own roots. If anyone starts with the intention of working out this plan, they should not wait a year or two until the vigour of the plants is declining; on the contrary, at the end of the first summer after planting the

strongest branches should be dealt with, and the same process repeated every year until the whole of the space is filled out with plants obtained by pegging down the branches.

The following Hybrid Perpetuals will be found suitable for massing, viz.: Jules Margottin, Edouard Morren, Glory of Cheshunt, Dr. Hooker, Paul Neyron, Jules Finger, La Reine, Abel Carrière Magna Charta, Duke of Edinburgh, Duke of Teck, Paul Jamain, Annie Wood, Caroline de Sansal, Fisher Holmes, Emily Laxton, Comtesse de Chabrillant, and Nardy Frères.

J. C. C.

Persian Yellow Rose.—I do not know whether or not our climate is well suited to this Rose, or whether or not its treatment is properly understood; but it certainly is not often seen in good condition in English gardens. Wherever I have seen it well bloomed, it has been allowed to ramble at its own will; and this leads me to think that the pruning-knife must be blamed for the flowerless condition which seems to be its normal condition with us. I remember being much impressed with a large bed of this Rose in a French garden. The plants were well established, and were so loaded with bloom as to form a mass of rich yellow, the effect of which, I need scarcely say, was most striking. The plants I found were grown on the pegging-down system, one strong shoot only being left to each one, which was shortened to about two-thirds of its length. This, I was informed, is the right—indeed, the only—way to insure an abundance of bloom, the ordinary method of pruning back to two or three eyes having for result a strong flowerless growth. So soon as the flowering time is over, the branches that bore bloom were cut clean away, so as to allow of the young growths obtaining plenty of light and air.—J. C. B.

Tea Roses on walls.—It seems to us unfortunate that in some way the difficulties of growing the Tea Rose have been made to look more serious than they really are. Too many gardeners think that Tea Rose culture is a little more uncertain than that of other kinds of Roses, and in any case one sees too few of the Teas. In many large districts in this country, particularly light soils, the Teas are much more easy to grow than what are called the show Roses. One of the most beautiful plants that people can put on walls north, south, or west are Tea Roses. In some districts we have seen them better on north walls than on any other exposure. Some of the freer kinds made to grow high on walls are exquisite in effect when their flowers and buds droop.—J. H.

Rose Reve d'Or.—This is a capital Rose for garlanding a wall or porch. It is even a stronger grower than Gloire de Dijon, quite as evergreen, and more free-flowering. In one respect it is superior to Gloire de Dijon and all the strong-growing Teas and Noisettes—viz., that when it has attained its full growth it flowers as freely about the base as it does at the top. It is perfectly hardy. The blooms are not so large as those of Gloire de Dijon, but they are good and well shaped, and much admired. It is advisable to cut all the seed vessels off when the first bloom is over, or the second bloom will be scanty. Next to Maréchal Niel, I consider this to be the best wall Rose. The two best-known seedlings of Gloire de Dijon—Madame Berard and Belle Lyonnaise—are worth growing, and also Lamarque, which has a very sweet scent peculiar to itself; but these are apt to become naked at the base if they cover a large extent of wall.—W. R. R.

Convolvuluses.—These, of both the major and minor varieties, are exceedingly showy. The first-named are climbers, while the minor or dwarf sort are suited for beds, or for planting to form patches in a border, in either of which situations they produce a striking effect. As these Convolvuluses are nearly hardy they may be sown where they are to stand, but it is better to raise them in small pots under glass, and afterwards plant them out.—S. D.

Mushrooms in sheds.—On page 354 for "January 30" read "December 31," the latter being the date on which the bed was made, and the former the one on which Mushrooms appeared.—J. M'CIR.



Primula Stuarti. Yellow.



Primula rosea. Pink.



Primula japonica. Colour, crimson-magenta.



Primula cortusoides. Reddish rose.



Primula denticulata. Purple.



Primula Munroi. White.



Primula capitata. Deep purple.



Primula sikkimensis. Colour, pale yellow.



Primula Sieboldi. Colours varied.

SOCIETIES.

THE PRIMULA AND AURICULA SHOW.

APRIL 20 AND 21.

The Primulas.

THIS, as before remarked, was composed chiefly of the collections from the Kew, Edinburgh, and Glasgow Botanic Gardens, and from the nurseries of Messrs. Backhouse, of York; Messrs. Paul, of Cheshunt; and Mr. Ware, of Tottenham. A few collections only from amateurs were shown, the chief being that from Mr. Loder, of Floore, Weedon, who had a group numbering some sixty plants. Mr. Llewelyn, as usual, showed the finest cultivated specimens from his garden at Penllergare, but his collections belonged rather to the Auricula Society's show. The Kew collection was the most important, and it was the largest also, and was a credit to Mr. Dewar, who has charge of the hardy plant department. In the centre of the group were several specimens of *P. verticillata* var. *Boveana*, apparently a fine greenhouse plant, and giving off a fragrance preferable to anything else that may be had in flower so early. In mild winters it is said to stand outside in the southern counties, but we doubt its cold-resisting capabilities much further north than London. Two fine pans of the charming *P. rosea* were very conspicuous, only surpassed by *rosea grandiflora*, a decided advance on the type, having larger flowers, apparently more numerous, and of a much deeper tint, more striking in bud and when newly opened. A large pan of *viscosa nivalis*, though past its best, was still very attractive, and well worth the attention of those growing small collections of choice alpine. It seems to grow particularly well in our climate, flowering even more freely in the open air than when confined in frames, disfigured only by the soot in the vicinity of large towns. *P. japonica*, a justly popular species, is well represented here, with half-a-dozen sturdy highly coloured specimens. *P. denticulata* comes next, and the varieties *Henryi*, *cashmeriana*, &c., with their drumstick-like flower-heads. A new variety was also shown which we had never before seen. It was called *erosoides*, from its resemblance to the species *erosa*. There is surely a future for this plant, and in older specimens we may expect to see a grand flower head. The flowers are twice as large as those of the ordinary *denticulata* and of a deeper and more agreeable colour. *P. auriculata* was also represented by a fine large specimen, exceedingly well flowered, together with two smaller ones, the result, we are told, of last year's seedlings. *P. pubescens* was also represented, and also *Rusbyi*, a small species new to cultivation from New Mexico, and said to be perfectly hardy in the open. A fine pan of the charming *sikkimensis* just opening its flowers was prominent, also *P. Wulfeniana*, with large purple flowers. It is now, we believe, considered a variety of *spectabilis*, from which in reality it differs but little. Of *P. minima* there was a fine healthy specimen not in flower, and there were examples also of the new *mistassinica*. Of *P. Muretiana*, which appears to be the freest flowerer of the section, there were good plants. It is said to be the result of crossing *integrifolia* with *viscosa*. The flowers are deep purple and very handsome. *P. Obristi*, also a cross between *Balbisi* and *Auricula*, was shown. It is a really handsome plant, the leaves being dusted freely with white meal, and the golden yellow flowers on a tall stalk well above the foliage. Among others shown were the following: *P. Peyritschii*, known in gardens as *viscosa major*, appears to come very near to *pubescens* both in leaf and flower. The common Primrose was represented by a large panful, besides a white and coloured variety, and one as if just lifted from the meadow with the green Grass intertwined among the leaves. *P. Facchinii*, a cross between *minima* and *spectabilis*, is a very pretty plant, showing more character than almost any of the other hybrids. *P. floribunda* and its large-flowered form, the latter being an exceedingly handsome plant, and *P. cortusoides amena* (Sieboldi) were well represented. Of other less common kinds was a charming plant of *tyrolensis* just showing flower, and *Warei*, a reputed cross between *scotica* and *farinosa*. It does not, however,

show much on comparison with the true *scotica* close beside it in the collection. The varieties of *viscosa*, as well as the type, were well represented by a fine typical specimen, collected by Mrs. Dyer on the Pyrenees, as we gathered from the label. *P. commutata*, *decora*, *confinis*, and a charming plant of *hirsuta*, with *latifolia* and *pedemontana*, were all represented by healthy plants; and the charming *venusta*, a hybrid between *Auricula* and *carniolica*, was also there, as well as *carniolica* itself, in fine flower. *P. intermedia*, a cross between *Clusiana* and *minima*, was one of the gems of the group; and other attractive species were *P. involucrata*, both the white and coloured forms; *P. luteola*, *P. longiscapa*, and *P. longiflora*. Many of the hybrid plants shown were not in flower, such as *Forsteri*, *pumila*, *Dumoulini*, *longibarda*, *Weldeniana*, *Venzoi*, *Arctotis*, *alpina*, *discolor*, *Flörkeana*, *Gobeli*, *Portæ*, *salisburgensis*, *Steini*, *similis*, *serratifolia*, &c.

THE EDINBURGH COLLECTION was particularly attractive, and contained numerous new or rare species. Among these were *P. denticulata*, *erosoides*, which, like the plant of the name in the Kew group, was certificated, *P. Allioni*, *auriculata*, *intricata*, *Parryi*, *prolifera*, *Kitaibeliana*, *Wulfeniana*, *Peyritschii*, *Steini*, *Warei*, *minutissima*, *mollis*, *elliptica*, besides less rare things, and a charming group of *Androsaces*, including *A. carnea*, *eximia*, *Laggeri*, and *foliosa*. Mr. Lindsay, the curator, deserves praise for contributing such a rich collection in such fine condition. He also showed a few things for his Scotch friends. These included some half-a-dozen seedlings of *P. viscosa*, raised by Mr. Calder, of Canonmills, Edinburgh. Two of these seedlings received first-class certificates. Mr. Lindsay also brought a painting showing a fine specimen of *A. minima*, over 9 inches across, growing in Mr. Muirhead's garden at Paxton, Berwickshire. The plant bore 75 flowers, and when in perfection must have been a fine sight.

THE YORK COLLECTION from Messrs. Backhouse was remarkable for the number of new and rare species it contained. There were 150 specimens; therefore the group was a large one, but besides Primulas it comprised a selection of choice alpine plants of other kinds, as well as Primula allies, such as *Androsaces*, &c. The most conspicuous of Messrs. Backhouse's plants were *P. Allioni*, a large panful a foot or more across, *P. Clusiana*, *Balbisi*, *Muretiana*, *marginata* (2 feet across), *pubescens*, *rosea*, *Flörkiana*, *salisburgensis*, *Huteri*, *turkestanica*, *Olga*, *grandis*, *coronata*, *commutata*, *biflora*, *Forsteri*, and the rare *minima alba*. The collection altogether maintained the high reputation of the York Nurseries for alpine plants.

MESSRS. PAUL'S COLLECTION from Cheshunt was good, and contained five European, six Himalayan, and nine other species. There were such varieties as *Obristi*, *similis* (both yellow), *decora*, *Churchilli*, *ciliata purpurea*, *intricata*, *tyrolensis*, and others. Mr. Ware had a large group arranged in groups according to the list which Mr. Baker had drawn up, and this was, so far as we could see, the only attempt at classification.

THE TOTTENHAM COLLECTION was a very full one, as may be supposed, and the plants were well grown. Mr. R. Dean showed a small group, which included some seedling forms of *viscosa* seedlings, *ciliata purpurea*, and a very singular monstrous *Auricula*. A small collection came from Mr. Worsley, all admirably grown and flowered, particularly *P. Facchinii*, *integrifolia*, *carniolica*, *hirsuta* and multi-caps. The chief attraction of Messrs. Veitch's small group was the pigmy *P. mistassinica*, a fine plant of *P. obconica*, and *floribunda*. Mr. G. F. Wilson showed a collection of sorts of his Scott Wilson seedling Primroses, all with the characteristic plum-purple colour; also cut spikes of wild *P. denticulata* from his wild garden at Wisley, in order to show how vigorous they grew there in the virgin soil of an Oak wood. Miss Owen sent the green Primrose, and Dr. Hogg showed the true Bardfield Oxlip, besides some slightly coloured varieties of it which has cropped up in his garden; and Prof. Kanitz sent a plant of *P. carpatica*, which is between a Cowslip and an Oxlip apparently. The Hon. Mr. Boscawen showed several bunches of coloured Primroses gathered wild, which showed that Nature can herself hybridise freely; and a charming

stand of cut Primroses of rich and varied colours was sent by Mr. Poë, of Riverston, Nenagh, and which was the best in the show. Prof. M. Foster showed the new *Kaufmannia Semenovi* in flower. It may be best described as a yellow-flowered *Cortusa*, which indeed it really is. Quite distinct from the rest was a charming arrangement of yellow and white Primroses and Polyanthus on a bank of Moss. This was done by Miss Jekyll, who displayed the same exquisite taste in grouping the tints as she did in the case of her Daffodil group. Such an arrangement showed the high value of a robust strain of border Primroses for decorative effect, and what such a superb race of Primroses must look like at home in their own cosy nooks and corners of the garden at Munstead one can imagine. Would that we could see more of these beautiful informally arranged groups at flower shows than we now do.

CERTIFICATED VARIETIES.—To the following five new species and varieties first-class certificates were awarded by the Primula committee. To *Primula denticulata erosoides*, a new variety recently introduced from the Himalayas. It has dense heads of flowers larger than typical *denticulata*, and of a deep purple. It will become a popular plant. This was shown by the Royal Gardens, Kew, Edinburgh Botanic Garden, and Messrs. Veitch. To Messrs. Veitch for *P. mistassinica*, a diminutive species from North America. It is scarcely 2 inches high and has a flower like *P. farinosa*. It is a botanical curiosity; that is all. To Mr. Calder, Edinburgh, for two seedling varieties of *P. viscosa* (Nos. 1 and 2). The first has flowers larger than typical *viscosa*, bright magenta and white centre; the other has large heads of flowers abundantly produced, of a bright bluish purple, very showy and beautiful. To Mr. Llewelyn for a hybrid between *P. Auricula* and *Petronella*. It is similar to the wild *Auricula*; the flowers are bright yellow with a white mealy zone, and the leaves are powdery.

The Auriculas.

It was a happy proposal to combine with the usual show of the National Auricula Society an exhibition on Primulas in general, thus bringing together a wondrous display of that remarkable and interesting genus. Indeed, the exhibition of competing Auriculas, Polyanthus, &c., would have made a poor show by itself, as the leading northern growers, Horner, Simonite, &c., were conspicuously absent, and their plants specially so. Mr. Horner always exhibits the finest and most perfect of Auriculas in the kingdom, and Mr. Samuel Barlow, of Manchester, another of the northern florists, generally has the best gold-laced Polyanthus. These fine elements being wanting, of course there was seen in the competitions not only lack of numbers, but of the best quality also, and it is not a matter for surprise if after all many of the gay and, indeed, exceedingly beautiful garden Polyanthus and Primroses, and some of the more striking of the Primula species, carried off the honours for effectiveness and interest in the estimation of visitors. The class for fifty Auriculas brought this time only two collections, Mr. Douglas, Great Gearies, Essex, and Mr. Charles Turner, of Slough, being the exhibitors. To the uncultivated eye the collection shown from Slough, because including many richly coloured selfs, seemed the best, but the judges thought differently because Mr. Douglas had in his group not only greater variety, but also the most refined flowers, being strong in edged kinds. Very good among these were Col. Champneys, True Briton, Ajax, Silvio, Peri, John Simonite, Beauty, Confidence, Dr. Kidd, Acme, George Lightbody, and Mabel; and of self flowers, Sapphire, Charles Perry, Miss Baines, Meteor Flag, and Lord of Lorne were the best. The class for twelve plants, which has often brought several collections of the highest merit, on this occasion contained only two entries, the late season having quite shut out northern growers. Here Mr. Douglas again took the lead from Mr. Turner, having good Smiling Beauty (Heap), Prince of Greens (Traill), Col. Taylor (Leigh), Conservative, Mabel, and Verdure (Douglas), George Lightbody (Headley), C. J. Perry (Lightbody), Duke of Albany (Douglas), and

Pizarro (Campbell). Mr. Turner's best were Beauty (Traill), Lady Dumaresque, J. Waterston, and C. E. Brown. In the class for six plants there were but four entries, Mr. Douglas again taking first place with Smiling Beauty, Abbé Lâst, Green Edge, G. Lightbody, Prince of Greens, Mabel, and Duke of Albany. Mr. Turner, who followed, had Lord Clyde and Lord of Lorne self; and Dr. Kidd, G. Lightbody, C. E. Brown, and Beauty. Only in few cases were the raiser's names given, but, except in the case of duplicates in nomenclature, the raiser's name does not seem to be of much importance. No less than nine lots of four plants were staged, but being from small growers they were not generally first class, although there were some very fair trusses. The leading prize-takers were Messrs. Henwood and Phillips, both of Earley, near Reading; whilst a third, in the person of Mr. A. Potts, hailed from Chester. The best selfs were Sapphire, C. J. Perry, and Lord of Lorne; and the best edged flowers G. Lightbody, Lancashire Hero (Lancashire), and Talisman. Of pairs again limited to small growers eight lots were staged, Mr. Potts here coming first with very fair Read's Acme and Headley's New Green. Of single plants the best green selfs were, oddly enough, George Lightbody, really a fine grey edge; Lancashire Hero, and Prince of Greens. The best grey edge flowers were G. Lightbody, again first, second, and third, Richard Headley and Grey Friar also coming in. The best white edge flowers were John Simonite, Acme, Conservative, and Traill's Beauty. Finally, of selfs, Woodhead's Black Bess, Pizarro, Topsy, and Lord of Lorne took the leading places in the order given. In the single specimens, as usual, the competition was good.

ALPINE VARIETIES.—As usual here, Mr. Turner was to the front with very striking and beautiful kinds, his twelve plants comprising Sceptre, Miss Thompson, Sensation, Athlete, Hotspur, Charles Turner, gold centres; and Edith, Sir H. Darvill, Unique, J. J. Colman, Prince of Wales and J. T. Poë, cream centres. Mr. Douglas had in his lot very pretty Mrs. Llewellyn, purple ground; Rosamond, Princess of Waldeck, Queen Victoria, and several seedlings. Mr. Turner's half-dozen plants in the next class comprised Mrs. Pope, plum ground; Miss Thompson, maroon; Progress, purple; Mrs. Bull, rosy maroon; Paragon, shaded plum; and Edith, shaded violet—all very beautiful. Miss Mollie and Vesuvius were also very good in this class. Of single specimens, the best gold centres were Pantaloon, maroon, shading to bronze (Turner), Rosamond (Fellows), Miss Thompson (Turner), and John Ball (Turner). Of cream centres, the best were Columbine, shaded plum; Tennial, lilac; and Miss Taplin—all Turner's; and Lady Howard de Walden, to this possesses a very rough edge. Of seedlings, the best were gold centres Sunrise and Athlete (Turner); and of creams, Marguerite, also Turner's.

GOLD-LACED POLYANTHUSES made no great show. Mr. Douglas had the only collection of six kinds in Henry the First (Sanderson), George the Fourth (Brecht), John Bright (Barlow), Lancashire Hero, William the Fourth (Sanderson), and Prince Regent (Cox)—generally, very fair flowers. With three kinds a Cheshire grower, Mr. Walkden, of Sale, was first with that premier flower, Cheshire Favourite, Exile, and a seedling. Prince Regent and George the Fourth were very fair in this class. Of single specimens, the best were Cheshire Favourite, first and second; a small but really capital George the Fourth, from Mr. R. Dean, Ealing, coming next; then Prince Regent and Formosa.

FANCY AURICULAS were represented by two collections of twelve plants each. Mr. Douglas had chiefly yellow grounds, with white or green edges, and Mr. W. Bolton, of Warrington, some pale yellows and buffs. These fancies are, to say the best, but burlesques upon show Auriculas, and have little merit. Fancy or border Polyanthuses, again, found only two collections of 12 plants, Mr. R. Dean having, as usual, the first place with large, well-bloomed seedlings from the open ground, and some named kinds in Chancellor, Sulphur, The Bride, pure white; Cloth of Gold, yellow; Sulphur Gem, cream; Conqueror, rich red, &c. The other lot of plants were poor. Mr. Dean also had a dozen smaller, but very beautiful

Primroses, compact plants, full of bloom, the only double kind being the Old White; whilst the singles included White Queen, Ellen Terry, mauve; Ethel and Salvator, purple; Fire Queen and Clarissa, rich red; The Mikado, crimson-edged white, &c. Messrs. Paul & Son, Cheshunt, had of double kinds *Platypetala plena* Croussi, purple and sulphur; also Early Lilac, tinged yellow; Scott Wilson, blue; and other singles.

HARDY PRIMULAS.—A class for 12 plants of these in variety brought four collections, Mr. D. T. Llewellyn, Swansea, having the first and second best lots. In the former he had a grandly-coloured clump of *Primula rosea*, fine in truss and pip; P. Sieboldi, P. verticillata, or abyssinica; P. obconica, with a large head of bloom; P. Auricula, P. involucrata, P. viscosa and viscosa nivea, P. erosa, P. denticulata, and P. cortusoides. In a collection from Mr. Douglas were good clumps of P. Sieboldi in variety and fine heads of viscosa purpurea. Messrs. Paul & Sons also exhibited some interesting varieties in the class.

Of garden forms very striking was a gigantic semi-double Auricula, some 2 inches across, shown by Mr. R. Dean, who also had a new break in laced Polyanthuses in Silver King, very perfectly laced with greyish white, and was exceedingly pretty. The same exhibitor had in Crimson Beauty one of the most perfect of the old Jack-in-the-Green forms we have seen. A list of awards is given in our advertisement columns.

THE CONFERENCE.

At noon on Wednesday a conference of Primula and Auricula growers, and others interested in the matter, was held in one of the rooms of the Albert Hall. There was a good attendance, and the company included many well-known persons in the gardening world from various parts of the country, and some also from abroad. The papers put down for reading and discussion included one on "The Auricula," by the Rev. F. D. Horner; another on "The Auricula as a florist's flower," by Mr. Shirley Hibberd; a third paper was by Dr. Masters, on "The root structure of Primulaceous plants considered in relation to their culture," and, lastly, Mr. Baker, of Kew, gave a paper on "The nomenclature of Alpine Primulas. These papers being lengthy, were not read in their entirety, and epitomes only of each were given by each author, so as to allow more time for discussing the subjects upon which they treated. An interesting and instructive discussion followed each paper, in which several prominent botanists and cultivators took part; but we regret that we have not room this week for the main features of the discussion, neither for more than one paper. Below we give an extract from Mr. Horner's paper on the—

Improvement of Florist's Primulas.

To the accustomed eye the Auricula has an intense individuality, and very slight variations of feature alter an expression, and enhance or detract from a type of beauty. In its brilliant bloom there is the effect as of many eyes turned steadfastly upon their admirers; and there are faces in the flowery crowd on which one may read many expressions of a life and character super-floral. Like as in a bed of Pansies there are many comical casts of countenance, expressive of astonishment, anxious inquiry, perplexity, and brown study; so here, in an exhibition of the Auricula, as representative of its beauty as can possibly be made, the flowers look all gentleness, candour, honesty, simplicity, and refinement. Glaring faults that impart a low and evil look are all absent here; and hence I am not able to submit to you how impudent and barefaced is the "pin-eyed" flower, wherein the stigma, protruding from the hollow throat, is like a tongue thrust out. Neither, how loose and vacant is the expression of the inordinately large tube; and how cunning and cold that of one too small. Nor how lack of breadth in the eye or "paste" of the flower is like that in other eyes which cannot look you in the face; and how narrow ground

colours betoken indecision and want of thoroughness. "Edges" have their own expressions, too; something like meanness when too narrow, and akin to bounce in over-breadth; for excess of edge is often concurrent with excess of size, and coarseness, almost inseparable from immensity in the Auricula, is one of its gravest faults. Had it being practicable, a representative collection of failures in desired qualities would have formed a very clear illustration of mistakes. Yet I would not say it would be convincing; for invariably the uninitiated friend who comes to tell you which of all you have he likes the best, settles his admiration upon something that has set at naught all proper principles, and he does violence to your feelings by approving of it. But the greatest ordeal of praise I ever had was the remark, transparently innocent, of an old country parishioner, "They almost come up to artificials, sir!" The question in what direction efforts should be made for improving the florist flowers of the genus *Primula* resolves itself, descriptively into the statement of the shortcomings more or less prominent and obstinate; prospectively, into what the possibilities are of which hopeful shadows in faint shape are cast before; and practically, in what system of experiments we should seek to overcome the faults, and win into reality the promise of fresh beauties that a flower, inexhaustible in its powers of variation, naturally affords us. As an experimentalist I will adhere to the practical; use bare description as little as I may, and bring young hopes downstairs from the nursery realms of imagination as considerably as I can.

PROPERTIES.

Form.—The first property to be worked for in the Auricula is, I submit, the perfection of that form upon which the colour attributes of the flower will be the most effectively displayed. Colour can always be worked up to, and the florist may tarry patiently for this until he has the form of grace whereon to call it into play. "I always choose as the maternal parent of Auricula seed the best flowers I have in breadth, circularity, flatness, substance, and smoothness of petal; while for male parentage I do not depart further than must be from form. Petals cannot be too broad, so long as they will expand equally and kindly. If they do not meet through narrowness or roughness, the beautiful design of the colour zones is interrupted by vacant spaces signifying nothing. The edged classes and the selfs have each their own type of error in respect of form. In the "edges" it is generally a pointedness of petal; in the selfs a central notch or heart-shaped depression. In the edged flowers the fault has long been noticed and regretted, and has now been brilliantly overcome, especially from the appearing of Lancashire's Lancashire Hero in 1846 onwards; but among the selfs until recent times there was hardly an exception to the rule of notch. The indented petal of the self seemed silently allowed to pass as the typical petal of the class.

Selfs.—For improvement of the self Auricula, my experience convinces me that the best results are to be obtained through entirely self parentage. I would not say that a correct self flower has never come from edged parents, for Mr. Campbell believed that his brown self Pizarro, the best flower in the class at the time, was raised from a green-edged parent, and Mr. Simonite that a good blue self of his was obtained from a white-edged seedling. Certainly, however, my own best selfs have sprung from purely self parents, and latterly from a self descent comparatively ancestral. Selfs have generally a shorter duration of bloom than the edged flowers which possess greater stoutness of petal, and in which the green, whether pure or mealed, is a colour of greater or more leaf-like vitality. It might be theoretical to suppose that if selfs were crossed with these, a greater substance of petal would be transmitted. In practice, however, it is found that all seed from purely edged parents produces a majority of self varieties, and vast numbers of these are notched, and frilled, and flimsy flowers. I have never had wilder flights of seedling selfs than from that grand grey-edge, George Lightbody. It would almost seem that an "edge" did not know what a good self ought to be. I think that for selfs we should work patiently among themselves, advancing in substance as we cer

* "In what Direction should Efforts be made with the View of Improving the Florist's Flowers belonging to the Genus *Primula*?" Introductory paper by the Rev. Francis D. Horner, Lowfields, Burton-in-Lonsdale.



Primula Palinuri. Italy. Yellow.



Alpine Auricula. Colour varied.



Primula farinosa. British. Purple.



Primula scotica. British. Purple.



Primula villosa. Rosy purple.



Primula glaucescens.



Primula viscosa alba.



Primula Auricula marginata. Purple.



Primula minima. Rose-purple.



Primula acaulis fl.-pl. (double crimson Primrose).



White-edged flowered Auricula.

tainty are by sure if slow degrees, and not weakening the newly acquired and most supreme point of the "rose-leaved" or perfectly rounded petal. Another point to aim at in the development of the self is the addition of some that would be constitutionally later in blooming than most of those we have. Campbell's Duke of Argyll (rich crimson, but deeply notched) might transmit this habit, and be overruled in this fault. The Auricula bloom in a collection loses much of its power and beauty when the quiet yet emphatic selfs are gone. It is like the beginning of the end, as when in the fading summer the swallows take their flight.

Edged flowers.—With reference to improvement in form in the green, grey, and white edges, I would remark that in these, good form beyond its intrinsic value has an influence inductive of other good properties. Rounded petals are associated with roundness of the white-mealed circle termed the "paste;" while with the pointed petal the paste is often, as by a kind of sympathy, drawn into corresponding irregularities, which only intensify the serious fault of an angular appearance. For form's sake, naturally, such flowers as have the roundest, broadest petals will be selected; and such a variety as George Lightbody, among those known and distributed at present, will serve as a type. If good form in both parents should justify it, my conclusions are that edged flowers should be crossed with their class fellows; for one line of improvement in the Auricula certainly lies in doing all we can to intensify and magnify the class distinctions, gaining green edges as deeply green as possible, and white edges as densely mealed. The "undecided edge," too green for grey, and too grey for a pure green, is not desirable. Still the Auricula is so very sportive, that some decisive edges will be obtained from parents dissimilar in class; and the experiment is justified, of course, if there be no alternative, and if some marked improvement in form may be hoped for from it.

Petals.—Connected with form, in addition to the roundness and level disposition of the petals, may be mentioned their number. This is variable, even in different flowers on the same plant. Five is probably the normal number, for beyond this the Auricula will take a playful liberty with the proprieties of its Linnean Order, Pentandria, always producing just as many stamens as there may be petals; and if one be of inordinate breadth it is accounted as two, and decorated accordingly with two stamens. This may be a botanical misdemeanour, but is not an offence under florist bye-laws. The same is noticeable also in the florist Tulip, which is required to have petals neither less nor more than six, but is occasionally misformed with four or five, and seven or eight, when there is always one attendant anther for each. In the Auricula five or six petals are sufficient for a broad round flower, and more than eight begin to look narrow and laboured.

Colour.—When we turn from improvement in form to views of improvement in colours, both in richness and variety, a very wide field of development lies before the florist. Possibilities peep out but half concealed or only in the rough, revealing themselves in the rarer combinations of colour that a few seedlings crudely show; and these beckonings need but to be followed to obtain in time some new and beautiful combinations. The Auricula is a most richly endowed flower, possessing already, singly or combined, all colours of the rainbow, violet, indigo, blue, green, yellow, orange, and red; and further still and rarer, that negation of all colours, black. In edges we do not look for a gift of other than the green, grey, and white, now so well known and fixed—while the colours of the paste and tube are constant and common to all. There remains but one more colour zone upon the flower to give variety and play, and that is the ring or belt of velvety surface known as the "ground" or "body" colour. Disposed between the green or powdered edge and the white mealed "paste," it is a solid band along its inner edge; while on the outer it flashes in lively pencillings, bold and blunt in some varieties, sharp and delicate in others, towards, but not dashing through to the petal edge. It is this lively characteristic of the body colour that entirely takes away any tameness or monotony, hardness or fixity, that a series of strict concentric circles

might be supposed to have. The body colour should most certainly have a good solid foundation before it begins to feather off, because a few slight pencillings only have a very feeble and scratchy effect, while a bold and rugged style of its outer edge is massive and handsome in the extreme. But by an expressionless ring of black, dreary as a black hatband round a white hat, I would not advocate taming the Auricula down to the miniature similitude of an archery target. Such a picture of utter and unbending primness (for which the botanical equivalent is not *Primula*), as a series of severe circles may indeed have been in old time perpetrated in hard diagram; but this was only as the bare skeleton which Nature in real life shall clothe with all fulness, softness, and grace and vivacity.

The body colour is the "iris" of the flower's eye, and black is at present the most settled colour. A good black is very safe and true, lasting well upon the flower, a most important point; and hence it has been a favourite colour, especially with florists in the north, and the more encouraged, pursued, and developed. Indeed, other body colours were regarded with marked disfavour by old Lancashire florists, though if other colours had been worked up to the truth and steadfastness of the black, there is nothing but local fancy or prejudice to make them less valuable and less beautiful. Little encouraged in such variety, the Auricula has shown a capability, if only initial yet, of giving both blue and crimson as the ground colour in edged flowers. These will of course require cultivating up to intensity and steadiness, and I submit this as a very interesting new path of improvement. One marked difficulty so far has been that of transmitting to any flower, whether self or edged, the all-important feature of a rich gold tube, if that flower has tints of violet or blue. Their tubes are pale or greenish yellow, always a colour of low vitality and weak endurance. Some seedling blue selfs, however, by pollen from gold-tubed varieties are better in this respect than the old blues. Memories come back to me here of some old flowers that might have been helpful towards new combinations of colours that are faint and timid, and wavering yet. Such were Moore's Violet, a green-edged flower, with violet body colour, and a green edge of Traill's (Rev. George Jeans), in which the ground colour was of a lilac tint. In white edges were Ashton's Bonny Lass, with beautiful violet, and Maria, richer in colour. These, however, and others of like colour all were weakened by a pale and watery tube; and further, the ground colour was not of one uniform steadfast shade, which it decidedly ought to be in both edged and self Auriculas. Red or crimson as a ground colour of edged flowers has not yet been obtained of any intensity. Lightbody's Fairy Queen and Star of Bethlehem, and also Smith's Waterloo, were green edges, in which the body tints were a shade of red-plum, and a white edge of McDonald's was lighted up with a brighter red. Chocolate-brown is another possible change in ground colours worthy of being followed up. It occurred in Lightbody's white edge Countess of Dunmore and in Smith's Ne Plus Ultra. These red and brown ground colours are happily not associated with the weak tube colours of the blues. Mr. Simonite, in his Heather Bell and Aurora, has better blue-grounded white edges than the old ones, and the tubes, though not of a strong yellow, have more stability. An offer of a red-grounded green edge occurs in a rather erratic seedling of Mr. Rolt's. The edge is pure, but insufficient, and the red ground colour brightens with age, but is too broad, and runs wildly out at the petal edges. Such a flower would be worth crossing with some green-edge seedling of fine form, in which existed the fault of a ground colour much too slight and narrow.

In new types of colour in selfs the last great acquisition came through Mr. Campbell's success in his efforts to produce a true crimson self. Some fifteen years ago he sent out, as the result of many years' work abounding in failures, two intensely crimson flowers—the one better than the other, both in its colour and its rich gold tube, but both of them notched in petal. These flowers have transmitted their colour well to seedlings of better petal. Within the last two or three years another new and very beautiful break in self colours has occurred among both Mr.

Simonite's seedlings and my own, showing yet another direction in which we may seek to enrich and improve the Auricula. This new colour is a very lovely and decided pink. The flowers have happily been nearly always gold-tubed, and the petal is a fully rounded type. This young colour, however, is not easy as yet to obtain solid—i.e., unshaded and steadfast. Some have failed by growing slightly paler with age, or in losing with age the surface of the petal; so that what is velvet at first is calico at last. There is no doubt, however, that the true pink self is a coming flower, and I name it as one illustration more of the direction in which the Auricula may be improved. I have spoken of the failures of this newly-won colour—the successes must speak for themselves when they can.

Adulthood.—There is something very curious in the blooming character of the first three years' life of an upgrown seedling which it is important to mark and allow for, because it certainly is connected with the practical part of our question. It is not an invariable rule, but it is a frequent occurrence for a seedling that blooms with brilliant properties in its maiden year, to flower the second year in much inferior if not loose character. This is oftener the case with the complex edged flowers than with the simpler selfs. At the third year the flower may either return to its early promise, or go again astray. I do not know how to account for it, but it is a noticeable feature in a long experience. It would seem as though the plant were affected by some unseen change or turning point in passing from its seedlinghood to becoming an established variety. Certainly some seedlings that show brilliant properties the first year never afterwards display them; and occasionally others, that one has gladly given away to friends with garden borders, have, like the "ugly duckling" of the story, developed into very swans of excellence. I mention this, not only that joy over some sudden acquisition may be tempered with gravity, but also that doubt may be not unlighted with hope. I do not cease to feel some anxiety for a brilliant seedling, and some hope over a rather disappointing one, till I have seen them at their third bloom. Some faults are decisive, such as the pin-eye, the pale tube, the angular paste, the notched or pointed petal. Of such there is no hope. But if properties of tube and paste and petal are fine, I do not discard the seedling because, at its maiden bloom, the proportions and other qualities of the ground colour and edge may not be correct. There may be a good flower in disguise.

ALPINE AURICULAS.

I pass on now to a brief notice of that other division of the Auricula as a florist flower, which is technically known as the alpine. These very beautiful flowers possess as features of distinction from the edged classes and selfs, a perfectly unmealed centre or eye, and petals richly shaded from the deepest to the lightest tints of that one colour which the flower has adopted. That shading cannot be in tints too numerous or too softly blended. The tube of the alpine so closely follows in colour the centre of the flower, that it should have an expression in form all the more marked, because there is the less power of contrast with the centre by colour. It is a great point of beauty in all Auriculas that the mouth of the tube should be well defined, and rise fully to the level of the flower's face, otherwise there is the appearance of a weak and sunken eye. The alpine Auricula is divided into two sections, distinguished by the golden, and the paler, almost primrose-coloured centre. The golden centre is the higher type. In the alpine, as in the edged flowers, it is again the flowers possessing violet or bluish colours that exhibit the palest yellows in the tube and eye. Flowers would no doubt be very highly valued in this class of violet shades if they could be obtained with the rich golden eye of those with crimson.

THE POLYANTHUS.

I must not close this paper without including the florist Polyanthus, a lovely sister of the Auricula, and in sore need of reinforcement in sterling varieties. Some of the very best Polyanthuses, like Kingfisher in the red ground flowers, are lost to cultivation; and among black grounds of high merit, Lord Lin-

colours seems all but gone. Many garden strains of Polyanthus are termed "gold laced," but they are a far remove from the florist flower with its cultured properties. The resemblance in most of them looks nearest when seen at the greatest distance. The decision, purity, and refinement of our Polyanthus are not in them. Mr. Barlow's success in raising both black and red ground flowers of very high character, perhaps in red more especially, is a proof that though the flower may not be more ready than its radiant sister, the Auricula, to give the properties we would have, still it will repay all good care bestowed in judicious crossing. I do not think that any foreign blood of strains outside the florist pale, however proudly spoken of, should be introduced under the plea of giving vigour, which the standard old sorts have, alas! too often lived to lack. From such extraneous source of robustness will come much unfitness. A more safe return to soundness of constitution will be naturally obtained through seedlings, because seedlings naturally possess it, and happily young blue blood is no exception to the rule. For suggestions of improvement in the Polyanthus, I can but briefly state the properties that require to be exemplified in as many living representations of their beauty as we can obtain. The two brilliant extremes of class colour will be a black ground, or a scarlet ground within the lacing of bright yellow. Whatever the body colour be, it must consist of one rich uniform shade; and the yellow, which is best when a clear lemon-gold, must be free at the eye or centre from any other shade of yellow. The gold of the lacing must exactly match that of the eye, and the lacing itself must be of exquisitely smooth edge and even width. It must both completely edge the petal and strike down through the centre of it to meet the golden eye. The central line of lacing is frequently broader down the middle of the petal than round the edge, but the nearer it is of the same width the better. It is characteristic of the Polyanthus petal to be deeply notched in the centre, so that the circular edge of the Auricula petal is not looked for here. The centre or eye of the Polyanthus should occupy a wide circular space upon the flower. It can hardly be too wide, and is often not wide and circular enough. The mouth of the tube should be extremely well defined, and even most slightly raised above the level of the centre. As in the Auricula, the tube should be filled with bold anthers up to the surface, with the stigma almost sessile below; and all flowers should expand equally and well. These are the points to be attained and strengthened in the improvement of the florist Polyanthus; and it will readily be seen how far these lines of beauty, which give such brilliance, purity, and refinement, lie beyond the comprehension of the common garden border strains, and how far too few are the beautiful florist Polyanthuses we have that fulfil this standard.

MOLES IN GARDENS.

THE discussion upon this subject reminds me of an article which appeared lately in a French gardening paper. The writer relates how, being almost ruined by the ravages of the chafer grub, he bethought him of the mole as a means of ridding him of the enemy. With the assistance of a skilful mole-catcher a number of moles were turned into the garden, with the result that in the course of a season or two gardening again became possible there. The ravages of the chafer grub are so great in many parts of France, far, indeed, beyond the conception of English gardeners generally, that one does not wonder at any possible means being taken to lessen its ravages, and this was a case which demanded a desperate remedy. It is, however, instructive to know that the mole feeds on the chafer grub, as there are parts of this country where it is productive of considerable loss, and where such is the case owners of garden ground should hesitate before exterminating moles. If moles would keep to a foot below the surface—in heavy soils they might come nearer by several inches—they would do no harm, but in moist weather they overdrain by running just under the roots of small plants, and in dry weather they are sure to find their way into seed-beds which are kept watered. Were it not for this, moles would do good in heavy lands

by draining them, and in those rich in humus by lessening the worms which are there too numerous. In Germany I remember once catching a mole which I was about to kill, but I dropped it like a hot brick on being told that a tolerably heavy fine or a month in prison would be my reward for doing so.

JOHN CORNHILL.

Marguerite grubs (*B. E. J., Bournemouth*).—Your Marguerites are attacked by the grubs of the Marguerite Daisy fly (*Phytomyza affinis*); unfortunately, it is by no means an uncommon insect. The parent fly lays its eggs on or just beneath the skin of the leaves, and the grub as soon as hatched begins to feed on their fleshy interior. At first a very small transparent pimple is all that betrays the presence of a grub, but soon the white markings on the leaves are visible, which increase in size as the grub eats away more and more of the green flesh of the leaf. No insecticide, as far as I know, will touch them without injuring the leaves. If the leaves are hopelessly injured, cut them off and burn them; if only thrown away, the grubs if nearly mature will undergo their transformations as if nothing had happened. There are several broods of these flies during the year. Hold up the leaves to the light and pinch them whenever the grubs are visible. This operation should be carried out as soon as the attack is noticed. This insect also attacks Cineraria leaves.—G. S. S.

NOTES OF THE WEEK.

Anemone fulgens græca.—I send you a bloom of this ALMOND received from Miss Owen, who, I believe, had it from Mr. Peter Barr. It is in size and colour incomparably beyond any form of fulgens I have ever seen; the ordinary one is brick-red beside it. Is it rare? No one here seems to know it.—GREENWOOD PIM, Monkstown, Dublin.

Iris tuberosa.—Why is not such an exquisite delicate beauty as this is, and, moreover, such a cheap thing, more commonly grown than it is? I think its pale green forked stigmas contrasted with the nearly black velvet petals of surprising beauty, and its culture seems of the easiest.—GREENWOOD PIM.

Double Chinese Primulas.—The only representatives of our favourite winter blooming *Primula sinensis* were from Mr. Alphinstone, of the Gardens, Shipley Hall, Derby, and were four of the finest doubles yet seen in London. They were all apparently Marchioness of Exeter, one of Gilbert's finest forms, and in 14-inch pans, correspondingly deep. The plants were each about 20 inches over, luxuriantly leaved and bloomed, and merited the warmest approbation. Mr. Alphinstone certainly possesses a secret in his method of growing these usually difficult plants.

Roses at South Kensington.—Messrs. Paul and Sons, of Cheshunt, gave the visitors to the Primula conference at South Kensington an unexpected treat in the form of a grand group of Roses in pots, about forty plants, the majority being standards, and nearly all finely flowered. Of the standards in 8-inch and 9-inch pots there were plants of *Alba rosea*, Madame Lambard, Senateur Vaisse, Madame Falcot, Cheshunt Hybrid, La Reine, and Hippolyte Jamain; whilst of bush plants, White Baroness, Merveille de Lyon, Catherine Soupert, Madame de Manchereau, a fine pink globular Rose; Gloire de Lyonnaise, creamy white, very fine; also Madame de St. Joseph, and Comtesse de Serenye. Mr. B. S. Williams' group of Orchids, Amaryllises and Azaleas, intermixed with foliage, had a beautiful effect also.

Apples at South Kensington.—A most unexpected exhibit on Tuesday at the Auricula show was a collection of some sixty dishes of well-preserved Apples staged by Messrs. Cheal and Sons, Crawley, Sussex. Although kept in an ordinary fruit room of brick walls, thatched roof, and concrete floor, and on ordinary lattice shelves, yet the samples were almost remarkable. Mère de Ménage, Emperor Alexander, Cellini Pippin, Worcester Pippin, Cox's Orange Pippin, Blenheim Pippin, were all good, and Ribston finely coloured and in perfect condition; also of late kinds, Reinette du Canada, French Crab, Alfriston, Betty Geeson, Wellington, and Winter Queenings were all first-rate and firm. Mr. Cheal attributes the good

keeping qualities shown largely to the thorough maturation the fruits received last year.

Ranunculus Lyalli.—This plant may now be seen in flower in the T range at Kew, and, notwithstanding the smallness of the plant as compared with what it is known to be in the mountains of New Zealand, the flowers are quite equal in size and beauty to any described. It is remarkable that two of the most coveted of herbaceous plants found in New Zealand, i.e., this *Ranunculus* and *Myosotidium nobile*, should have flowered in England in the same week. Although introduced more than ten years ago, it seems strange that we have not yet succeeded in establishing this *Ranunculus* in our outdoor collections. No doubt the blunder made at first with respect to the conditions required by the plant has stood in the way of its succeeding with us, but now that we know more about the conditions under which it grows naturally, surely we shall not have long to wait before this noble *Ranunculus* will be in every collection. Here is some additional information to that already published in THE GARDEN respecting this plant as it grows in New Zealand. A correspondent writes: "The winter temperature you speak of, viz., 45° to 50°, might do for summer, but 10° below zero would be better during winter. The roots are frozen for months at a time in their natural state. It grows in peat near running streams, but where there is good drainage, and always on the shady side of the hills, so as not to get much sun, and where it is frozen in during winter. It generally flowers once in Christchurch, and then dies for want of the winter cold. It should be planted out on the Scotch mountains, or in the north of England, and naturalised there." The Kew plant was raised from seeds in 1883, and has since then been grown in a Masdevallia pit. It is potted in a mixture of peat, loam, and leaf-mould, and has been kept uniformly moist all the year round. In the early part of last winter it lost all its leaves except one, but since then has developed two new leaves and the flower-scape, the latter being a foot high, as thick as a goose-quill, and bearing two or three leaf-like bracts, above which are four flower-buds and one open flower. This is as large as a crown-piece, pure white, with the stamens in a cluster in the middle and coloured bright yellow. Even if the specimen at Kew represented this species at its best it would be a most desirable garden plant, but when it is remembered that the scapes are known to be nearly 3 feet high and bear numerous flowers, its great beauty may be easily imagined.—B.

LATE NOTES.

Shrub and tree names.—What is the name of a shrub (an evergreen, I think, but am not sure) which flowers at Cannes in every garden at this time? It has flowers like those of the common *Daphne Laureola* of shrubberies, and which smell like Orange blossoms. I would also like to know the name of the large trees in the Tuilleries Gardens at Paris which bear about Whitautide (or in May) beautiful large purplish lilac flowers quite unlike any I have seen in England.—L. S.

Violets.—Permit me to thank the Rev. A. Rawson, Fulbarn, Bowness, Windermere, for a plant of his single white Violet in full flower. The flowers are of good size, fragrant, and stand well up above the foliage. The habit seems good and floriferous, and I have no hesitation in pronouncing it to be the most promising single white Violet I have seen.—D. T. F.

Insects by post (*J. W. B.*).—When your box reached me it was empty. It had been crushed out of shape in the post so as to give the insect room to escape. Boxes sent by post should have the address and stamp on a label which is tied on; this prevents them from being injured by the office stamp. It is as well to kill insects of any size before packing them up. This is easily and quickly done by dropping them into boiling water. Their death is almost instantaneous.—G. S. S.

Names of plants.—*F. Oliver*.—*Berberis Darwini*—*E. Boscage*.—*Odontoglossum citrostomum roseum*.—*G. S.*—*Crimum ornatum*, *Dendrobium pulchellum*.—*W. R.*—1, *Narcissus c. muscus*; 2, *N. odoratus*; 3, *N. Horsfieldii*; 4, *N. Emperor*.—*J. G. B.*—Orange Phoenix, *Narcissus incomparabilis plenius*.—*J. H. and H.*—*Dendrobium Pierardii*.—*W. Thos.*—*Dendrobium Deconianum*.—*R. C. K.*—1, *Odontoglossum gloriosum*; 2, *O. Cervantesi*.—*Ash House*.—Snake's-head Iris, *I. tuberosa* (native South Europe, an old garden plant).—*C. Scott*.—*Eriophorum vaginatum*.—*D. B.*—*Rhynchosia galatoides*.—*W. M. M.*—1, *N. incomparabilis Stella*; 2, *N. princeps*; 3, 4, 5, all forms of double *N. Telamoneus*.

WOODS & FORESTS.

TIMBER CARRIAGE

It seems to me that if "D. T. F." had meant what Mr. D. J. Yeo thinks he meant, "D. T. F." would not have forgotten to say so himself. But putting that aside, I do not see how Mr. Yeo is going to mend matters by using two horses instead of three or four, nor is it a rule to have timber carriages made too heavy. On the contrary, both for cheapness and convenience they are just as slim as they can be made for the work. Moreover, as timber-carriers cannot afford to have carriages of various sorts and sizes, but have to make them to carry loads made up of small poles or single heavy trees several tons weight, just as the case may be, and that being so, it is their interest to load up to the full on all occasions. Two horses, the number recommended by Mr. Yeo, can neither snig heavy timber over the ground nor pull it on the carriage, because their strength is quite unequal to the task. Three horses are the fewest number a good teamster will enter a wood with, and it requires six horses frequently to drag heavy timber out of sloping ground or ravines, with the assistance of the two-wheeled carriage. Our timber carriages consist only of a pole and four wheels, with the axles and bearers, and these no two good horses can work either well or economically. I noticed that Mr. Yeo only suggests the use of two horses, probably knowing as well as I do that more than two are always employed. He says for 50 feet of timber a couple of horses will be far and away more convenient, but the fact that the quantity removed at one time may be at least doubled by the use of three horses shows at once the loss entailed in every journey by the light load. Not only that, but there is the time to consider. When large quantities of wood have to be removed quickly, both on account of the purchaser and seller, light loads will not do. I am of course speaking of large quantities of timber. We have just concluded an agreement for the purchase and removal in a stated period of 50,000 feet of timber from one wood by one road, and that does not nearly represent the total quantity for the year. I also know of numbers of similar cases, and in all the road question and the leading has to be carefully considered, so as to have the most work done with the least labour and cost to all concerned. Fifty feet, or a little over a ton, to two horses—Mr. Yeo's calculation—and two or three men to load must entail heavy loss to somebody, and make little or no difference to the roads. Your correspondent must remember that the double team is in common use with the heavy loaders also, and it follows that they can do more work in a day than the light loaders. I am, however interested in the assertion that two horses are sufficient for the removal of trees of the average bulk of 50 cubic feet, and would like to know where such work can be seen in everyday operation where large quantities are felled.

As to the tripod v. skid system of loading, I have little experience of the latter, but the Yorkshire timber leaders are acknowledged to be bad to beat at their business, and the tripod is the most scientific plan and, I think, the easiest, because, according to the school books, and I should say practical experience, the pulley is superior to the inclined plane because of the friction avoided. It is quite common for our teamsters to set out at seven o'clock for the woods, load up between four and five tons on two carriages, and deliver the same four or five miles distant early in the afternoon. Can your correspondents beat that? We have five four-wheeled carriages doing something like that almost every day. I would point out, further, that "D. T. F." and Mr. Yeo's cases differ. "D. T. F." wrote of keeping forest roads in trim condition, and offered impracticable suggestions about transit of timber over them; while Mr. Yeo is merely contending for keeping roads in "passable order," to lessen the cost of timber transit—quite another subject. The original

question was the saving to the roads by loading lightly, and it was pointed out that the journeys would have to be more frequent in proportion, thus causing a loss of time and adding to the cost without benefiting the roads, for it is to be doubted if more damage is not done by taking, say, ten tons over the same ground in ten loads than only in five. At the best it is a six-and-half-a-dozen affair as to damage, but there is no doubt about the comparative cost in each case. In watching two steam-rollers at work on the highway the other day, one lighter than the other, I noticed that the light roller did its work of pressing down the road-metal as effectually as the heavier one by going over the same piece oftener, but the big roller was the most economical of the two. One important factor connected with the road question is the breadth of the timber carriage wheels, which, in our wagons, is a little under 5 inches; but that is not enough on earth roads. On some estates in Scotland they are 9 inches broad, and consequently very heavy, but they save the drives. I am hopeful that shortly some improvement will be effected in this direction by the introduction of light steel wheels, made on the bicycle principle. In some of the steel works in Yorkshire I hear of a revolution being effected on the wheels of both heavy and light vehicles, and that steel wheels of strong make, but light, are likely to be introduced into the Royal Artillery. If light wheels of this kind could be used for timber carriages, with rims considerably broader than those in use, the cost of road-keeping would be greatly reduced.

YORKSHIREMAN.

THE TIMBER TRADE.

It seems to me that there is no need to occupy space in arguing out the question of whether as a whole timber pays to grow as a crop. It seems plain enough that now it does not. Admitting this, it is only fair to ask what does. This way of looking at the position and prospects of the English timber grower reminds one rather strongly of a much debated measure which is now occupying the mind of the country. Condemned it must be, but who shall find the satisfactory solution? Timber growing does not pay; neither does corn; and raising stock does not promise much better. Because this is so the land must go to waste. The reply at once will be that corn growing and stock raising is carried on from year to year, simply because the time involved is so short as compared with timber. Quite so; but looking at the direction of events, is there any reasonable prospect that half a century hence the conditions will be materially altered? If there is a hope for corn there is for timber, as the same set of circumstances which would influence one would influence the other. In a certain way the case of the iron trade is analogous. It cannot pay to produce iron, and when iron is spoken of, the number of collateral trades by which the crude product is used are included. Yet, must the trade be abandoned in consequence? These are questions which may well occupy the attention of economists, but which, in spite of the increased amount of knowledge and the light of discussion which is brought to bear upon it, can never be fully answered. If the prospects of the timber planter are bad, who will dare to say that more timber should not be planted? Is there one single thing where the future is concerned which can be looked upon with any degree of certainty. It is easy enough to look at matters as they stand before us, and argue from them that fifty or a hundred years hence the position of supply and demand will be the same as now. If the planters of a century ago worked out probable results on the lines upon which affairs then stood, and their calculations were falsified by the subsequent turn of events, who can say that ideas based upon what things are now will not be equally wrong? Deal

with the past we can; but the future is a blank. In dealing with the question of whether timber growing will or will not pay, all the opinions which can be expressed about it are not worth the paper they are written upon. Look merely at the theories which during the last ten or a dozen years have been ventilated. By this time all the available forests were to be exhausted, yet what is the fact?

It takes millions of units to make up a nation, and it takes thousands of landowners to keep up a supply of forest trees, and this is the safeguard we have that extreme views either one way or the other will not prevail. If the question was one which rested with any associated body of individuals and the majority had to rule the roost, we should probably be either landed in disaster or in a marked degree of success.

D. J. YEO.

SHELTERS FOR WOODMEN.

THE ordinary woodcutter's hut—using the term, of course, for the structure in which he works, and not as applied to his dwelling—shows, perhaps, constructive art in the lowest phase in which it is seen in this country. A few stout stakes driven into the soil, and more or less deviating from the perpendicular, with a tree doing duty for a corner-post to give some degree of rigidity, in most cases represent the framework on which the roof is to be placed. This consists of another framework—if the arrangement of rough poles of which it is formed can be so called—laid at an appreciable angle from the horizontal, and covered with masses of chippings and other light waste material which comes off the wood in the course of manufacture. It is true that often these sheds on two opposite sides are flanked by piles of wood, either manufactured or waiting to be worked up; otherwise they are exposed to every point of the compass and serve no other purpose than as a partial break from the rain. It is generally imperative that the two ends of the erection be left open and free from obstruction, as the poles of Ash and the rods of Hazel and other underwood which forms the staple of the manufacture have to be dealt with in lengths too long to be readily manipulated in a building closed on every side. To the casual observer there seems but little choice between working in such a building and in the open air. In practice, however, there is a material difference, and even in such a primitive concern as this there is a considerable amount of comfort to the worker. He, of course, looks out that the sides where the shelter is given shall be in the direction of the prevailing winds, and on exceptionally rough days rigs up temporary protection where it is required.

Another class of structure, and for a different class of workers, is the sawpit shed. In the former case, the time for which the woodcutter's hut would be in use would not exceed a few weeks. In the case of the saw-pit work may be required at intervals for year after year. There are almost innumerable ways in which these sheds may be built, and they need not cost much for timber or material. By some corrugated iron is affected for roofing. It is certainly portable, and has the advantage of considerable durability; but much cannot be said for it beyond this. Where it is erected away in the recesses of a wood, its appearance does not much matter; but where it is at all in view, we cannot appreciate its neat and trim appearance. A roof of wood is certainly more in character with the surroundings. Four main posts of Oak or Scotch Fir, or any similar wood which may happen to be at hand, inserted unsawn into the soil; two half-round pieces laid horizontally upon them at the sides, and two others—lighter, if necessary—across the ends, corresponding to the wall plates of an ordinary building; the necessary number of rough Fir rafters sawn to one straight side, and covered in with Fir boards—Spruce, perhaps, for cheapness—will serve for a saw-pit shed, which will do duty for a considerable time.

Y.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

OUR APPLES AND APPLE ORCHARDS.

I AM greatly interested in British Apple culture, and should much like to see our old neglected orchards improved. All writers agree that orchards, of which we had thousands of acres planted more than a century ago, have fallen into a terribly neglected state. Some make strong and pungent remarks on the English Apple grower's management of the few good sorts struggling for existence on farms; others endorse all that some previous writer has said, and so the poor tenant is cuffed about, but no one seems inclined to hold out a ready and willing hand to help him out of his difficulty. A writer in the *Field* says the farmer does not know how to grow, what to grow, or how to pack. A correspondent of THE GARDEN says our orchard trees are "on their last legs"—Moss and Lichen are doing their work—and puts a damper on poor John Bull by assuring him that our American and Canadian cousins have the ball in their own hands, and will continue to monopolise the trade in our English markets. This, indeed, is a bad state of affairs. But I do not quite agree with these pessimist writers; neither do I think it is quite fair to knock one's own brother down and read over to him a glowing account of Baldwins and Newtown Pippins while he is prostrate. Our climate, several of these writers assure us, is superior to that of Canada for Apple culture; if it is as good, we may be thankful—that is, if we use our knowledge aright, and put our shoulders to the wheel instead of calling upon Jupiter. We must not, however, attempt to grow the Canadian sorts in our orchards, but select a few of the well-proved English varieties which grow clean and fine and bright in our own particular localities. Although I do not quite fall in with the depressing remarks which have been freely expressed, I think it is quite right that we should make ourselves acquainted with the true condition of matters before we begin to operate. We have in this country hundreds of skilled horticultural physicians competent to take Mr. Crabstock in hand, and although he may be on his "last legs," his restoration to health may not be found an insuperable difficulty.

When more than 150,000 acres of land are in question, it behoves all who can to lend a helping hand. The whole of this area, it must be borne in mind, is not devoted solely to neglected Apples and Pears, but includes modern orchards and hardy fruit trees of all kinds. In Herefordshire we have something under 27,000 acres devoted almost entirely to Apples and Pears, the estimated value of which for cider and perry amounts to £111,000. This sum, however, does not include the value of pot fruit, estimated at 60 bushels per acre, or the pot fruit grown in almost every private garden throughout the county. The value of this hand-picked fruit at 3s. per pot of five pecks, competent judges put down at more than £50,000, making in all more than an average of £5 an acre. So much for our old Herefordshire orchards, now on their last legs, whose greatest fault exists in having been planted too early—the latter part of the 17th century. Many

orchards have of course been planted since that date, and planting is still going on, but there are doubtless a great number of trees still standing, the age of whose Lichen-covered heads carries them back to the peaceful period which followed the civil wars. About that time everybody devoted their attention to planting. Cider and perry of very superior quality from vigorous young trees became the beverage of this and the adjoining counties, not perhaps entirely from choice, as the Continental wars, combined with the isolated position of consumers, prevented them from getting foreign wines. Kings partook of them and pronounced them good; farmers grew rich; their farms increased in size; neglect followed; inferior or kernel fruits were planted; and what is our present position? A steady downward tendency, extending over many years, finds the original orchards on their "last legs," it is true; but, aided by their descendants, they are still capable of producing upwards of £5 an acre. The unsatisfactory condition of our west midland orchards at the present time is not without its parallel, as we read that the American orchards were in a similar plight some fifty years ago. That one Thacker called attention to their condition; his warning was taken to heart; Apples and Pears have rapidly improved, and every American farmer now recognises the fact that no farm is complete without a well-cultivated orchard. This should, I think, give us courage; but how must we proceed? One thing is certain; our orchards are of national importance. What must we do to make them pay? Quantity will not do it, as we now have free and cheap rates which enable the foreigner to beat us out of our own markets, although he reside 3000 miles away. Quality, then, must be our watchword. Our land must be well drained and deeply cultivated; a century of neglect must be replaced by a period of revision and careful cultivation. All inferior varieties must be removed root and branch, and others, whose age and vigour admit, must be headed back and grafted with sorts that will pay, not for making into cider, as cider is already a curse to the poor man, but for supplying our teeming thousands in large towns with a wholesome article of food. Pruning, thinning, and cleansing will, of course, receive attention, as our trees must be free from Moss and Lichen. Their branches, carefully thinned to let in sun and air, must have plenty of room for extension, and all vacancies filled up with the most approved varieties for table or culinary purposes. Assuming, then, that this important matter is taken up, the following matters might be discussed with advantage: 1, clearance of the ground as a preliminary to future action; 2, draining and subsoiling; 3, pruning and cleansing; 4, grafting; 5, planting; 6, the best sorts for certain soils and districts; 7, the best site, soil, and aspect for new orchards; 8, the most suitable manure and top-dressing; 9, the best surface management, whether tillage or pasture; 10, gathering, storing, sizing, and packing for market. These remarks, it must be borne in mind, do not apply to modern or well-managed old orchards, as we have in these Apple counties a number of enterprising men, who more than pay the rent of their farms out of their pomological produce, who are now shipping cider and perry of the finest quality to India and Australia. We have fruit growers with whom "J. H. H." or "D. T. F." might while away a few days—certainly pleasantly, if not profitably, and if, by the way, they could come down during the gloomy month of which they speak, say about the time our great annual fruit show is held in Gloucester, we could show them Ribstons, Blenheims, Orange Pippins, Ashmeads, and the general run of table and dessert fruit, not in isolated dishes, but in quantity and quality,

that would gladden the heart of a Bunyard or a Haycock.

W. COLEMAN.

Eastnor Castle, Ledbury.

LATE STARTED VINES BEST.

WERE my only study to secure the finest possible crop of Grapes at the least expense, I would never start a Vine into growth until the end of March or beginning of April, as then I should secure the invaluable assistance of a long day, bright sunshine, and genial weather—conditions more conducive to high class Grape production than any others which could be named. Grape growing in the early spring months is by no means an easy matter, and Vines which would only produce a very ordinary crop if started in January will often bear a first-rate crop if not started until April. Where there are several vineries and a long succession of Grapes is expected, it is, of course, necessary to start some of them early; but where there is only one viney I would strongly urge the starting to be delayed until about the time just named when easy culture and good results would be the rule. Some are ambitious to have Grapes ripe in June or July; but, when not for sale, they are really not valuable then, as Strawberries, Gooseberries, Plums, Peaches, Apricots, and other fruits are in season from June until September, and no one misses Grapes very much when a good supply of these fruits can be had. When, however, these are becoming scarce or altogether over, Grapes are prized. Vines started into growth in April will mature their fruit in September, and the crop may be used during October, November, and December—months in which Grapes will be more acceptable than earlier, when choice dessert fruits are readily obtained in great variety. Grape growers on a small scale, who have adopted this course, have been delighted with the free way in which their Vines made their growth as well as the fine supply of late fruit which was the result.

APRIL IS AN IMPORTANT MONTH in Vine culture. Vines which have been growing for many weeks will assume fresh vigour then, and tying in the shoots, stopping, and thinning will require attention two or three times weekly. I have seen Vine shoots, tied down moderately close during dull weather when making very slow growth, after a day or two's bright sunshine push so rapidly, that many were broken off through being tied down too closely. It is therefore unwise to tie down the shoots closely while still growing, and they should never be tied into their permanent positions until all danger of their making a sudden start of this kind is past. As a rule, amateurs are afraid to prune their Vines very hard in. One eye, or two at most, are enough to allow to each spur; but from four to six are often allowed to remain at pruning time, and when the Vines are started into growth, the whole of these grow, and the majority are allowed to remain until they are some inches in length, in order that it may be seen which one has the best bunch or promise of one. But this plan is injurious to the Vine, as so many shoots crowd each other, and, when taken off, they leave a wound, from which sap flows freely; whereas if the whole of the young shoots were rubbed off when not more than half an inch in length, except the one left to bear fruit, the whole of the strength of the others would be thrown into it, and it would be stronger in both wood and leaf, and better able to produce a larger bunch, than could be expected from amongst the crowd which results from allowing too many shoots to grow. I have noticed in many vineries that the finest bunches and best finished fruit were invariably produced on Vines where the shoots were what many would be inclined

to regard as too far apart, and the smallest and worst finished bunches on Vines heavily laden with a superabundance of shoots and leaves. Crowding a great many rods into a small space is bad enough, but crowding the shoots is worse still, and both should be avoided from the very beginning of the season. Rods only formed last year, that are sending forth shoots for the first time, will emit double the number required to bear fruit or form permanent spurs, and the disbudding of these ought to have very early attention. It is a mistake to allow the shoots to remain too close to each other; 12 inches, 15 inches, or even 18 inches is not too far for them to be apart. We do not, however, approve of having them directly opposite each other on the rod, but alternately, and about equal distances. Thus, the bottom shoot might be 2 feet from the base on one side; the first shoot on the other side 2 feet 8 inches up, and so on to the top. These shoots should not be left until they are any great length, but the majority of what will have to be removed should be rubbed off almost as soon as they can be seen. Disbudding is the first operation demanding attention after the Vines begin to grow; then follows stopping the shoots. There is a rule in this which may be followed almost without exception—viz., stop every side shoot two leaves or joints beyond the bunch, and as growth goes on and stopping has to be done again another leaf may be left; but, unless the rods are trained very far apart, the shoots should never be allowed to extend further than three or four leaves at most beyond the bunch. Neglect in stopping leads quickly to the shoots extending so far that they become entangled, light is obstructed, and when a general cutting off of the ends of the shoots takes place, much injury is done to the Vines. I have seen Vines growing most luxuriantly before this was done almost come to a standstill, and it could easily be seen that they had experienced a severe check. In order to avoid this, the points of the shoots should be pinched out with the finger and thumb before they have extended far or become thicker than a quill, and from this no injury whatever will result. Indeed, it is a beneficial practice, as the material needed to form a long useless shoot will be confined to the fruit and shoot which bears it, and these are the two points on which to centre all the energies of the Vine.

SOME PRACTISE TYING THE RODS TO THE TRELLIS about half their length up after pruning, and the remainder is allowed to droop down. This is supposed to make the young shoots push forth as freely at the bottom as at the top; but well matured Vines do not require such treatment. Where it is done, however, great care must be taken in tying up the rods when the shoots on them are some inches in length, as they are very easily knocked off, and some may be removed that ought to remain. Tying down the shoots, too, requires much care. Sometimes they will grow almost upright, and such shoots cannot be got to bend down to the trellis and be tied in all at once. At first they should only be bent over gently and brought down a few inches; then, in three or four days, they should be drawn down a little more, until, in three or four tyings, they may be safely fixed in their places. A moist, sweet atmosphere is one of the greatest aids I could name to successful Grape-growing. Without this the wood, leaves, and fruit will never develop thoroughly, and insects will be plentiful. Some approve of syringing from the time the Vines are started until they come into flower. They cease during that period, and continue syringing again until the colouring of the berries begins. Vines thus treated are, as a rule, remarkably clean and free from insects.

Others who do not syringe only damp the floors or surface of the inside border, and Grapes grown under this system are generally more perfect in the bloom which comes on the berries than such as are syringed; but they are seldom so free from red spider, and clean Vines are to be preferred to mere bloom on the fruit, although syringed Vines are by no means destitute of that, but it is apt to be a little blemished. As a rule, Vines, and especially those in the hands of amateurs, do not receive sufficient water in summer—i.e., from the time they get fairly into growth until the fruit is ripe. When the border is well drained it is almost impossible to give too much water; the finest Grapes I ever had were from Vines thoroughly drenched at the root once a fortnight throughout the whole of the time during which they were in active growth.

Margam.

J. MUIR.

TESTING FRUITS.

THE comments of "D. T. F." (p. 275) in THE GARDEN concerning the importance of tasting fruits before deciding upon their merits are eminently wholesome and judicious. The common practice of mutual admiration committees going about among the attractive fruit tables of an exhibition and merely recording the verdict of the eyes is pernicious in the extreme. It should be forbidden by the rules of every society. Why, I can furnish such committees with the most beautiful-looking Pears, for instance, a man ever beheld, perfect as to form, large in size, and gorgeous in colour; but they would be sawdust in flavour, and I would want to get behind the door when the enthusiastic gentlemen began to cut into the fruit. And so it is with all fruits. Large size and handsome appearance are indeed desirable features, and well worth striving for by fruitmen. All fruit was doubtless made to please the eye as well as tickle the palate, and the eye has a subtle influence over the palate undeniably. But the latter organ holds the sceptre in these matters, and will not be cajoled by the eye. Who would pick up the muddy little Seckel Pear were it not for the sweet reminiscences of the palate? It has occurred to me that it might be well to select blind gentlemen for these committees; then, in order to judge at all, they would be obliged to taste and smell. Surely it would be better so than not to have the fruit tasted at all. But to "taste and see" is the proper method. As a matter of fact, I am constrained to believe that this squinting or viewing-committee method of judging fruits and making awards so much in vogue has led to a deterioration in quality in our new fruits produced in America of late years. All has been sacrificed to size and appearance, and for this a share of the blame is due to the market men. The recent remark of a large grower and shipper illustrates the situation, "As long as the fruit sells well and grows abundantly I care not how it tastes," said he. Thus the evil influence radiating perhaps originally from our exhibition halls is apparent.

I am surprised to find our Baldwin Apple placed in the same category as to flavour with our Newtown Pippin by your correspondent. He even names it first. Now we would not speak of it in the same breath here, so much superior do we regard the latter. The Newtown Pippin is our national pride. The Baldwin is our general utility Apple, and among our most profitable market sorts. But it is not to be compared with the Newtown in flavour.

"D. T. F." says, "A more depressing task could hardly be assigned to a buoyant horticulturist than a month's inspection of the orchards of Great Britain." This, it must be admitted, is sad news from the land of gardens. And yet I can easily imagine how a man might be made a shade too "buoyant" to feel positively encouraged by an inspection of even our American orchards. It is, however, a pleasure to read that our American

Apples sold to your dealers are so good and satisfactory as to size and quality. I remember many complaints were made of our foreign shipments in former years. I am glad to know that our packers and shippers have become wiser.

Kingston, N. Y.

H. HENDRICKS.

Disbudding Peaches.—Up to the present time the spring has been continuously cold, and fruit trees have made but little progress, but as soon as the wind shifts into a warmer quarter Peach trees as well as other things will start into active growth; then is the time for the disbudding to look round the trees for the first time in order to remove all foreright and other ill-placed shoots, and to thin out others that are in clusters. Be contented at first with opening out the growth to let in light and air, but not too much cold. There are two shoots to be permanently left on each of the present bearing branches—one at the base and the other as a leader. These are absolutely necessary. Others in addition may be required to fill up vacant spaces, and in going over the trees for the first time a general estimate should be formed of the requirements of the tree in the way of new branches, and a selection should be so far made as to leave on enough of likely looking shoots suitable for the purpose. North of London it is as well to do the disbudding gradually and make at least three operations of it to minimise the check, leaving a week or ten days between each operation, but disbudding should not be done too early if the weather is cold.—E. HOBDAV.

Vigour & fertility.—Some years ago I planted a frame 100 feet long with Sir C. Napier Strawberry. Hitherto I had grown this variety in pots, but there were two considerations which induced me to change my method of culture. In the first place, as the fruit was not required before the latter end of May, I could not see that anything was gained by growing them in pots to come in at so late a period, and a portion of the stock not being quite up to the mark in the matter of strength I thought they would gain in this respect by being planted out. I was justified in my calculations by the result. The following year they grew well, not over-strongly, but made stout crowns, which next spring threw up good strong flower-spikes that gave the finest crop of fruit I ever saw under glass. The berries averaged about twelve to the half-pound basket, and the colour and general appearance of them were so good, that they realised 11s. per pound the first week in June, the highest price we ever obtained at that late period of the season and one that I never expect to get again. I should have mentioned that as soon as the crop was over the red foliage was cut off, and as soon as the plants came into full growth the crowns were thinned so as to avoid crowding. The third year they were treated in the same manner, and I never saw such fine plants as they made by the end of the autumn, the crowns being of remarkable size. The enjoyment by anticipation of the forest of noble flower-stalks which would arise from them was, however, the only delight I had, for at flowering time they were woefully disappointing, a great many of the plants being entirely barren, and others partly so. Curiously enough, the barrenness was in converse ratio to the strength of the crowns, the smallest plants being generally fertile. I think this worth recording, as it has been attempted to prove that vigour and fertility go hand-in-hand; whereas over-feeding will as surely drive out productiveness as starvation will cripple it. This is equally as conspicuous in the case of flowering plants as in that of fruits.—J. CORNHILL.

The Victoria Nectarine at Lambton.—"T. B.'s" latest description of this tree cannot be accepted. It is an extension-trained tree pure and simple, and in no respect an example of "just the reverse," as he now states, but did not say so before in a contemporary, where it is described as a wonderful example of rapid growth only, else one fails to comprehend why he wrote about it at all, for the amount of space which the tree had covered in a given time was the only point dwelt on by "T. B." Let us see. According to "T. B.'s"

figures, the tree was a young one to begin with, was five years planted, and covered completely a space 36 feet long by 14 feet high. Consequently the branches on each side must have extended annually at the rate of nearly 4 feet—total annually for both sides, nearly 8 feet. The branches running up to the angles would be even longer than this, annually nearly 5 feet perhaps. As Nectarines under ordinarily favourable circumstances do not extend their radius at such a rate all round, and as the Lambton tree was instanced by "T. B." as a tree that had "had its shoots cut back sufficiently to secure an even strength of wood all over," one wants to know how the space 36 feet by 14 feet came to be filled in the time. Be that as it may, it is interesting to note that, taking this Lambton tree as an example, *restriction*, according to "T. B.," means a young tree extending at the rate of *fully one hundred square feet annually!* This is a great stride forward and leaves the "medium between the two extremes," about which we have heard so much, far behind. Indeed, "T. B." is now quite an extensionist, for the Lambton Nectarine he praised so much and was so favourably impressed by could not have been produced by any other system than the one which he has lately condemned. The mere fact that the extraordinary size of the tree, for its age, astonished an experienced gardener like "T. B.," and caused him to write about it, is sufficient corroboration of all that I have stated. The only difference between now and then is that "T. B." was not then committed to the opposition he has shown lately to the extensionists, and perhaps he had quite forgotten the Lambton Nectarine.—J. S. W.

Effects of frost on growing Vines.—A singular occurrence came under my notice lately in reference to a houseful of healthy young Vines which had made shoots from 15 inches to 18 inches long. All their roots were in an outside border and duly mulched with from 6 inches to 8 inches (12 inches round the stem) of leaves and litter; everything looked satisfactory, till one sunny morning, about 8 a.m., after 18° of frost; the leaves were then noticed to flag, one Vine severely so. Such an unusual circumstance raised suspicion that a rat had gnawed the stem through on the outside, but on close investigation it was discovered that blackbirds and thrushes in search of food had on the previous day scratched away the mulching materials, and thus exposed a small portion of the stem to the frost. This was a most vexatious discovery in the case of such promising Vines; however, it was at once decided to heavily shade the house and keep the Vines frequently syringed. They looked very unhappy all day, but by the next morning all, except a few leaves which we removed, looked little the worse, and I am glad to say have continued so. Some years ago I remember some discussion taking place as to somewhat similar results of frost on a house of Vines in the autumn, but then the leaves all dropped off. Has anyone had similar experience as to the effects of frost on Vines in spring?—W. CRUMP, *Madresfield Court, Malvern.*

SHORT NOTES.—FRUIT.

Pear Beurre Alexandre Lucas.—At the exhibition organised by the Cercle d'Arboriculture at Ghent, in September, this Pear was remarkable for its handsome appearance, and was one of the finest sorts shown there. Like some other good Pears, it owes its origin to accident, being found in the forest of Blais by M. Lucas, after whom it is named. Its season is January and February. It is vigorous and fertile.—J. C. B.

Melons in brick pits (M. S.).—It is possible to raise Melons in brick pits; but it is best to raise plants first in a small frame ready for planting out into the brick pits. Fill these latter with long well-turned stable manure, moderately trodden. Put the frames on to exclude rain; the manure will soon settle down closely, and, as it does, add 4 inches in thickness of good old turfy loam, a little heaped in the centre of each light. As soon as there is a gentle warmth plant your plants singly in the centre of each mound.—D.

Preserving Plums (J. D.).—You should boil the syrup quickly for about fifteen or twenty minutes. Do not use it till it is quite cold. Pour some into each jar that the fruit may not be bruised in dropping it in; add enough syrup to quite cover the fruit.—EAST ANGLIA.

GRAPES AND FLOWERS TOGETHER.

HAVING had a holiday in the Riviera, I did not see "J. F. C.'s" query (p. 218) respecting *Calla æthiopica* until to-day. I have read the remarks of "J. F." in THE GARDEN (April 24), and I think he makes the cultivation a little more difficult than I find it to be. About the beginning of June I take my Callas (which are now just finishing blooming) out of their 8-inch pots (there is but little soil to shake off) and plant them in a trench in my sandy soil enriched with some old Mushroom bed manure, and there they remain (generally leafless, for the leaves die away), without more water than they get from the skies, on the south side of a Holly hedge until they are taken up and repotted about the middle or end of September in loam, Mushroom bed manure, and silver sand. The pots are moved into one of my greenhouse vineries, and are placed on the soil in a sunk bed amongst Ferns, *Cytisuses*, *Azaleas*, *Cinerarias*, *Marguerites*, and whatever else I am growing, 6 feet or more from the roof, and they begin blooming about the end of November and continue until April without manure, saucers, or any other attention. I must have had this season sixty or seventy fine blooms off my six plants; therefore I am warranted in recommending them to all amateurs. As I have before stated, I have very little heat in the daytime unless in frosty weather, and I give plenty of air and light. This year I have been trying double *Deutzia candidissima* as a pot plant, and it is now in flower and a great success. My *Gloire de Dijon* Rose in a corner at the east end of my coolest house has been in flower about a fortnight, and must have at least 200 blooms upon it. It has some prepared soil round its roots on the floor of the house. By fumigating gently for two or three nights running, I do much better than by one violent fumigation. My Cheshunt Hybrid Rose is doing equally well, but is later. I grow it in a Vine pot, and summer and winter it out of doors. Another *Gloire de Dijon* Rose I also grow in a Vine pot in a similar way for succession, and it likewise is a success. The greatest treasure I have found lately is *Primula obconica*. It is a perpetual bloomer, and has good heads of pale lilac flowers with a yellow eye. "L. S." asks (April 24) the name of a common sweet-scented flowering shrub at Cannes. Judging from his description, it is the *Pittosporum*, and the flowering trees in the Tuilleries Gardens, about which he also inquires, are doubtless the *Paulownias*, that is, if the flowers are like *Gloxinia* blooms. It may interest another of your correspondents to learn that the double *Sparmannia africana* flowers everywhere in the open air in the Riviera, even in March, growing 6 feet or 7 feet high, or more. I suspect that it gets too much coddled up with us, like many other things. I should like to add just a word on the subject of *Narcissus Horsefieldi*, which is to my taste the queen of Daffodils, with its long yellow trumpet and white wings. About four years ago I gave eight shillings for a dozen bulbs. These have increased to above 100 (out of doors, of course) in my sandy soil by constant division, which they stand well about July, and in spite of the long winter they are now in full beauty. Almost every bulb has a flower, so I take it that soil and climate are both suitable. Those transplanted last year have flowered as well as the untouched groups. NORTH-WEST CHESHIRE.

Primrose thefts.—As one of your subscribers and constant readers, I think it will be well if you would sound a note of warning in defence of our Primrose. I have a property and grounds near Barnet at Totteridge. We have for many years endeavoured to naturalise wild flowers in a wood at the bottom of the grounds, with some success. The Primrose day has given an impetus to Primrose sale, and for the last two years I have suffered by the depredations of Primrose seekers; not content with plucking flowers, they bring baskets and dig them up by the roots. Last year at least a bushel of plants was rooted up, and through the aid of police brought into court. This

year again, though we have watched, on two occasions similar depredations have taken place from my wood. As all these Primroses have been carefully planted and naturalised, it seems hard to lose these gems for the mere whim of political agitation. I certainly prefer my Primroses to the prodigal decoration of cab-horses, carriage lamps, and button-holes and statues.—JOHN PAGET (Colonel), 8, *Cambridge Gate, Regent's Park.*

BOOKS.

THE CARNATION AND PICOTEE.*

OF late years much fragmentary information bearing upon the management of the Carnation and Picotee has been given in the various gardening papers, one result following from it being that there is now scarcely a garden in which some representative of these foremost members of the *Dianthus* family may not be found. Another mark of their popularity is the large demand that exists for plants of the finer named varieties, and also for the rapidly increasing self and fancy flowers. One of the best cultivators and raisers of the day, Mr. Dodwell, has just issued a small volume on "The Carnation and Picotee," a task for which he is well qualified. For something like half a century he has cultivated Carnations and Picotees, and for thirty years at least he has contributed to many gardening publications his views on the properties and management of these flowers. He, therefore, undertook, at the request of many friends, to collect, reprint, and issue the papers he had written from time to time, with such additions as might be necessary, and the whole appear in the little volume before us. The opening chapter consists of a lecture on the history of these flowers, delivered by Mr. Shirley Hibberd before the Carnation and Picotee Society in 1881. Then follow other chapters on the management of the flowers, what constitutes excellence in them, on dressing for exhibition (a practice that Mr. Dodwell zealously defends), why do Carnations run? (a term used by florists when a flaked flower takes on the self-coloured form) on seedling raising, on the diseases of the Carnation, and a series of scraps bearing on points affecting their management and exhibition, followed by a descriptive list. As a matter of course, Mr. Dodwell writes from a florist's point of view, and deals mainly with plants grown in pots to produce flowers for exhibition. Nevertheless, his garden at Oxford illustrates annually the value of the Carnation and Picotee as border plants; all his seedlings are grown in the open ground, and while his houses and frames are aglow with Carnations in July and August, the open garden contains hundreds of plants belonging to the same race of flowers; in fact, they fill every available space. Any promising seedlings are marked, lifted from the open ground, placed in pots for the convenience of layering, and proved the following year. Mr. Dodwell and his brother florists grow their choice varieties in pots because they are under better control, and in order to have them more secure during the winter months. Winter often hits these plants hard; many plants indeed perished in the open ground this year. The chapter on management gives directions for each month of the year, and much incidental information may be found in it. The calendrical directions are not merely bare recitals of routine management; they are the directions of a cultivator who is thoroughly acquainted with the varying moods of a particular variety, and knows how best to minister to its necessities. Under the head of April, he states:—

Delicate growers, or varieties which suffer from suffusion of the colour, whether of Carnations or Picotees, and whether it be the discolouration of the back petals, or the melting of the colour into the white of the surface, will be greatly advantaged by a liberal admixture of small pieces of charcoal, about the size of a Pea, with the soil at the time of potting. My practice is to have a measure of charcoal of the size described conveniently at hand whilst potting, and to

* "The Carnation and Picotee: its history, properties and management, &c." By E. S. Dodwell, with a portrait of the author. London: Groombridge and Sons, Paternoster Row. Derby: W. Bacon; and the Author, Stanley Road, Oxford.

throw in a large handful, sometimes two, in every case where the Grass is very open and succulent, or when experience has shown that the tendency referred to exists.

Young growers puzzled by this tendency in the flower will be thankful for so valuable a hint. One might quote other equally useful information from the book did space permit. The exhibitor will find it to be the best guide he can have by him all the year round. And with three special exhibitions of Carnations and Picotees, he has his hands now full. There are the annual exhibitions of the National Carnation and Picotee Society in London and at Manchester, and the Oxford Union of Cultivators, which held its first exhibition last year. Indeed, that there has been a satisfactory revival as regards the Carnation and Picotee there can be no doubt, and Mr. Dodwell's useful treatise appears at a time when it is most needed.—R. D.

FIRST-CLASS CERTIFICATES.

THE meeting of the Royal Horticultural Society on Tuesday last was remarkable for the relatively large number of first-class certificates given by the floral committee to plants submitted to it. This does occur sometimes. Some are inclined to think that the deliberations of this committee are influenced by the moon. Be that as it may, it is clear that its members do not always look upon the objects presented to them in the same light. There appears to be no fixed principles upon which the granting of certificates is based. Sometimes plants as old as the hills, so to speak, and common enough in gardens, are awarded first-class certificates; at other times plants equally beautiful and perhaps less known are passed over because they are old. Plants wholly without merit in their relation to the garden are certificated simply because a few enthusiasts on the committee had never seen them before, and the rest think that it must be the correct thing to vote with them. The tiny North American Primrose certificated last week was a case in point, but this was probably because the judges were all Primula fanciers, and their enthusiasm was not tempered by the cooler judgment of those who always consider the merits of an exhibit from a garden point of view. The inconsistency of the committee was more noticeable on Tuesday last than usual. On that day certificates were awarded to plants of sterling merit, and others to plants of very doubtful value, while some plants placed before the committee—among which was one of the loveliest exhibited—were passed over because they were said to be old. The committee's ideas of old introductions are somewhat peculiar. The tinted variety of *Anemone nemorosa*—one of the plants unrewarded—was not known twenty years ago; whereas *Beaumontia grandiflora*, which was unanimously certificated, was introduced nearly seventy years ago. Let us now compare these two plants as regards commonness, one of the reasons, we believe, why the *Anemone* was vetoed. The *Beaumontia* is not uncommon; it may be seen in many old gardens, but it is often thrown away because it cannot be induced to flower—the reason why it has become so little known at exhibitions—and it is perhaps by accident that the specimen at Panshanger has turned out so fine. Now, as to the *Anemone*, hardy plantmen will tell you that it is a plant desired by the many, but obtainable only by the few. In trade catalogues it is higher priced than any other *Anemone*. One may go into a hundred gardens and not see it in ninety-nine of them. Is it then not a plant that should be known and stamped by the authority of the Royal Horticultural Society as a plant of high merit. Looking down the list of certificated plants given in our report, it will be seen that it includes three varieties of *Amaryllis*, four sorts of *Narcissus*, and four sorts of *Fritillaria latifolia*. The *Amaryllises* and *Daffodils* were

doubtless worthy of the distinction conferred on them, but what the committee could see in the four *Fritillaries* to induce them to stamp them as plants of garden value, one cannot imagine. If the labels were taken from them and the flowers intermixed it would puzzle any ordinary person to separate them, or point out their differences. These *Fritillaries* came from M. Krelage, of Haarlem, and, fortunately for him, he sent thirty sorts instead of half-a-dozen; therefore, going on the lines of proportionate ratio, it seemed as if the committee could not select fewer than four. If the certificated four only had been sent, only one would in all probability have been certificated. At the best, *Fritillaria latifolia* is but a third-rate bulb now-a-days, and out of the thirty shown there was not one that could compare with old named varieties of the same plant, such, for example, as that named Black Knight, which has been grown for years. As an interesting series of seedlings, M. Krelage's exhibit was remarkable—nothing more. Perhaps, however, the certificates were awarded merely as a compliment to a foreigner. That may be polite, but should this mutual admiration feeling exist in a committee representing the National Horticultural Society of this country?

A GARDEN AT CLAPHAM COMMON.

CLAPHAM LODGE, of which an illustration is given on the opposite page, is typical of pleasant places still to be found on the outskirts of Clapham Common. At one time the entire common was surrounded by first-class residences, but of late years since the outgrowth of London has reached the district, many fine places have been handed over to the speculating builder and quickly transformed from a paradise of tree growth into a wilderness of bricks and mortar. The builder in the London suburbs seems to have a great aversion to trees, which he speedily demolishes, though often the growth of centuries, and this even when they would not have interfered with his operations. The gardens about Clapham Common range from one acre to ten acres in extent; the largest often contain all the features of an interesting landscape, and connected therewith is also frequently a small farm. Mr. Dredge's garden, the subject of our illustration, is about five acres in extent; it contains, on the southern side, a small kitchen garden surrounded by shrubberies and a beautiful lawn running to the edge of a miniature lake, the upper part being mostly covered with glasshouses. The house itself is only situated a few hundred yards from the common, but so secluded that one would scarcely suspect that it is surrounded by a populous neighbourhood. The trees are the glory of this suburban garden; without them the place would not be nearly so remarkable. It is, in fact, covered with fine trees, chiefly Elms, some of which have a girth of 13 feet at breast high. These great Elms form an avenue on the western boundary of the garden, and therefore serve as a screen to the neighbouring property. There are also a good many other trees about the place, including a huge Horse Chestnut, with a circumference of stem of 12 feet, tolerably large Lebanon Cedars, and a Copper Beech; but the most remarkable of all is a magnificent Plane, a true London Plane (*Platanus acerifolia*). This tree is about 70 feet high, and has a huge symmetrical head, which spreads 95 feet one way and 88 feet the other, the girth of the bole at breast high being 12 feet 8 inches. It is one of the chief features of the place, and, being situated in a low part, is overlooked from the house; indeed, it seems as if the position of the house was chosen with a view to the position of this Plane, which is in a direct line with the

central axis of the house. The lawn is a broad expanse of turf, uninterrupted except by the huge Elms and other trees which rise from it. It terminates at the edge of the lake, as may be seen in the engraving, and this piece of water has been skilfully designed so as to appear larger than it is. It seems to have been at one time a part of a natural watercourse, as it is, or was, connected with a lake in the adjoining grounds now attached to a convent. The tail part of the lake runs into an artificial rocky cavern, which on the waterside has a natural look, and it is from this point that the photographer* took the view. To carry the deception farther, a rustic bridge spans the other end of the lake, so that a stranger looking across the lawn from the house would fancy that the lake extended far beyond its real boundary. Altogether, the lawn view is at all times charming, and particularly in summer and earlier, when the trees are fresh with new foliage, the effect is enhanced. The shrubberies are carpeted with flowers, which are allowed to have their own way; and at one part, under some Apple trees, is a Primrose garden, just now ablaze with bloom. It is a capital place for such plants, for they get light when they want it, and during summer the thin foliage of the Apples affords them the necessary shade. The upper or north side of the house is different. Here Nature gives way to Art. Gay borders of flowers may be seen from spring till autumn, and these are a direct contrast to the quiet and subdued aspect on the lawn side. Covering the wall by the carriage drive is a remarkable specimen of a Wistaria, which travels along the wall for a length of 90 feet, and has a girth of stem of nearly 3 feet. In its course the Wistaria stem has met a Pear tree, which it is doing its best to strangle, for it has entwined its branches around the stem like a large serpent. The Pear is practically transformed into a standard Wistaria, and shortly the entire tree will be garlanded with the Wistaria bloom.

The glasshouses are numerous, and include a conservatory adjoining the house in which the chief feature is an exquisitely designed fernery and dripping pool, one of the best examples of the kind we have seen. Besides the vineries and fruit houses there is a stove containing a good collection of plants, including Orchids, some of which are out of the common, as Mr. Dredge has received them from time to time from his engineering friends in the Tropics. The most recent addition is a *Bomarea* from a new locality, which may prove to be entirely new. W. G.

Medinilla magnifica.—We have not a finer stove shrub than this *Medinilla*, whether judged for its beauty or for the ease with which it grows and flowers. In small houses it is not possible to afford it the space required for its full development, but where there is plenty of room no plant is better deserving of it. There is now at Kew, in the hot, moist house where the Victoria Water Lily is grown, an unusually well-flowered specimen of this *Medinilla* measuring, as it does, about 5 feet in height and 7 feet in width, and bearing no less than 85 magnificent bunches of flowers. The large, healthy, succulent foliage, with these long-stalked pendent bunches of flowers hanging from amongst them, each bunch having about its base large rose-coloured bracts, and being composed of many bright rose flowers, has a particularly striking appearance, and as the flowers remain good on the plant for several weeks, the picture is a lasting one. Since the introduction of this species we have been made acquainted with such kinds as *M. Curtisi*, *M. amabilis*, *M. erythrophylla*, and *M. erosa*, but the grandest of them all is the old *magnifica*, which comes to us from Manilla, and is happy with us if kept in a moist stove.

* Mr. Branfill, Westminster Chambers.

NOTES.

CHERRY BLOSSOM.—It is the month of May, and the great wreaths of snowy-white Cherry blossoms are tossed up against the pale blue sky. I doubt if there is a fairer sight on earth than that afforded by the orchards in Kent and Surrey, when the fruit trees are in full bloom. Here and there are Almond trees garnished with bright pink buds and paler flowers; the Chestnuts are leafing faster day by day, but finer than all and more full of promise are the Cherry trees near the brick houses, or the black tile-roofed barns. Most delicious are these first cool, fresh sunny days of May, rich in tenderest leafage, and fragrant with the scent from white Narcissus and crimson Wallflower in lines beneath the snowy Pear trees. The Hawthorn is late this

multiflorum). There are several varieties, one having leaves variegated with gold, and there is also a giant variety. Well grown clumps of the typical variety flower quite readily if placed in a little heat early in the year. At South Kensington the other day Mr. George Paul exhibited some good examples of this plant, and very effective they looked in front of a bank of forced Roses. To my mind this plant has no rival for graceful beauty as a conservatory plant if we except the white Arum, or Nile Lily (*Richardia*) as it is sometimes called. Even as a hardy plant in a deep, rich soil the *Polygonatum*s are all free growing and effective; none more so than the type with its nodding leafy wands set with clusters of its dangling bells. Later in the season these flowers are often succeeded by dark

life are visible to him which the botanists generally have no opportunity of seeing. In the garden we actually prove surmised relationships by hybridisation or by grafting. For example, the flowering of the first hybrid *Phalenopsis* at Chelsea the other day has settled beyond question the fact of *Phalenopsis intermedia* being a hybrid between *P. amabilis* and *P. rosea*—a fact long ago guessed at by Reichenbach and other lovers of Orchids. In this manner the gardener may prove the origin of many common garden plants now in doubt, such as the *Auricula*, different so-called species of *Narcissi*—those of the *N. odorus* section, for example; the garden Onion, Wheat, Pine-apple, or Banana. Mr. Baker's speech at the conference was a remarkably effective one, and no one man has ever done more to



Lawn view at Clapham Lodge, Clapham Common.

season, and there is no Apple blossom in the full flush of its rosy beauty as at this date last year, but still the warm breath of flowery May is upon us, and every sandy bank or tangled hedge has a thousand secrets of sap movement invisible—a power unknown. Who shall tell us how the stagnant water of the ditches is transmuted into embroidered leaf, unfretted flower, or into luscious fruitage fit for a queen's table! To unravel the mysteries of plant growth may be for a time denied us, but one may at least admire the May-day beauty of the Cherry tree and plant it more generally than is now the rule.

SOLOMON'S SEAL.—Perhaps one of the most graceful of all the hardy perennials which readily lends itself to forcing in pots or in baskets is the common old King's Signet (*Polygonatum*

greenish black berries, reminding one of black pearls, and still later its leaves die off a glowing yellow colour, so that in all its phases this plant is beautiful.

THE PRIMROSE CONFERENCE has again proved how much of benefit may result from the friendly meeting of the botanist with the gardener. Sir J. D. Hooker, Mr. Baker, and others in their speeches were all agreed as to the wisdom of this unity, and proved—if indeed proof were now needed—that the one cannot hope to succeed without the other. The botanist, by virtue of his living and working amongst books and dried specimens, has advantages of analysis and wide research that but few gardeners possess. On the other hand, the gardener works amongst living plants, and a thousand variable traits in plant

bridge over the differences that exist between the gardener and the botanist.

FORCED SWORD FLOWERS.—I see the first snowy blossoms opening on *The Bride Gladiolus*, which is pushing up its slender spires among the tall Grass-like leaves in a warm house. This is, as I think, one of the finest of all bulbs for forcing or for outdoor culture in a warm sandy border. Well-grown pots of bulbs flower freely the first season, and still better the second, and either as growing or after being cut the flowers are most useful. It cannot be too widely known that the spikes of all *Gladioli* open out in water as freely as if left on the plant, and are, moreover, of longer duration. This is a great advantage possessed by nearly all bulbous flowers, and it is one well worth the attentive notice of all who

have to send flowers to a distance, as is now so frequently the case. The best plan is to cut the flowers early in the day and to place them in water for a couple of hours or so ere they are packed for transit. Flowers cut in the bud stage and so treated may be closely packed with their own leaves, or in soft tissue paper (never in cotton wool), and will reach their destination as fresh as when cut. This year, for the sake of variety, we have forced a few pots of the common old Byzantine species (*Gladiolus byzantinus*), and its broader, greener leaves and bright rose-purple flowers contrast well with those of *The Bride*. Nearly all the species would, no doubt, force well, but this *G. byzantinus* is so cheap and common, that it should be largely so used.

BLACKBERRY CULTURE.—If the Blackberry is ever to become popular and generally productive in Northern England and Scotland, I should think these results will be best secured by the careful selection of our finest native varieties. I am fully aware that Blackberry culture is profitable in California and elsewhere in the United States, where large quantities of the fruit are grown and marketed, but the varieties there grown were selected from or seedlings raised from the native American species. We have had some kinds of American Blackberries in our gardens for years, but, so far, they have not made much headway, and I am afraid that our climate is not so suitable to their growth and fruiting as is that of America. We get scarcely half the sunshine of the United States, and one result of this is that the Vines do not show fruit until too late in the year for it to ripen thoroughly. The variety in size and quality amongst our native forms is very great, and I have now and then come across some which for size and flavour of fruit could not well be surpassed. No doubt the Blackberry when perfectly ripe is a very delicious fruit, either as plucked fresh from the vines, or when cooked with Apples in tarts and other confections, but even our native species is capricious and does not exist in all localities alike. On dry banks in full sunshine where its roots can reach the water it luxuriates, as also in stony places where but little else would grow. It would be interesting to know where American kinds have succeeded really well in England or Scotland.

COLOURS IN FLOWERS.—But little is known on the subject of floral colouring; indeed, until very recently the professional botanist ignored colour altogether, or only alluded to it in a perfunctory sort of way. To the physiologist, and especially to the practical hybridist, this question of colour is vital, and I have often thought that good results would be more surely obtained if the hybridiser had the advantage of a few lessons in the mixture of simple colours from a painter. More especially should he learn to analyse in his mind's eye the actual colours which exist in the two individual plants he attempts to cross or to hybridise. For instance, colour is present everywhere in a plant, and not merely confined to the blossom, as is by some supposed. Examine a plant of common wild Primrose, and we find yellow flowers on pink stalks; the leaves are green, but their midribs below and the rhizome are pink or reddish; hence the probable occurrence of pink-flowered varieties is self-explanatory; it is merely a shifting of local colouring matter from the rootstock to the blossom, and may result from simple seedling variation without any crossing whatever. If we find red colouring matter in roots, stems, or leaf-stalks of white or yellow-flowered plants, we may always expect their seedlings sooner or later to show traces of this colouring in the flower, and if this red combines with the yellow, we get reddish brown flowers, as in some *Polyanthuses*; if

with white or colourless tissue of the petals, then, of course, the pink or red is pure when attracted or driven to the blossom.

WILD PRIMROSES.—Mr. Boscawen's group of coloured forms of the wild Primrose was one of the most interesting exhibits at the late Conference. As I was pointing them out to a friendly visitor, he remarked that they were doubtless the result of old garden cultivation in Cornwall, although now apparently wild there. They were very fresh and showy, ranging in colour from white to yellow, and through all the gradations from pale lilac-rose or pink to a deep rosy lake colour. They were true Primroses, and would form a good groundwork on which to begin the rearing of a strong-habited, free-blooming race. Crossed with such a richly-coloured form as is Dean's *P. auriculiflora*, one might hope for a showy series of these popular flowers of spring. I must own to an affection for the Primrose proper as distinguished from the *Polyanthus* forms, and really good varieties of the former are decidedly more rare. In many gardens Primroses soon develop into *Polyanthuses* unless the most rigid selection is made from the seedlings year by year. Mr. Boscawen's group was so attractive, that I hope he will tell us if they are really wild forms, or whether he thinks that they originally escaped from cultivation.

"A NEW DEPARTURE."—It is to be hoped that the well-directed efforts of the Royal Horticultural Society with regard to the provincial show, to be held at Liverpool on June 29 to July 5 inclusive, will meet with the success they deserve. One point connected with this show merits especial notice—namely, the provisions made for the exhibition of gardening and botanical literature and objects of science and art as connected with botany and gardening. This is an innovation worthy of support; and if well carried out, this portion of the exhibition will prove a most attractive one. Classes are formed for: 1. British and colonial periodical horticultural literature. 2. Educational books in garden science suitable for young gardeners. 3. Standard and reference books suitable for advanced students. 4. Books historically interesting relating to gardening and botany from the earliest dates to the end of the 18th century. It is to be hoped that those who may possess rare old works will kindly lend them for this exhibition. 5. A class has been formed for foreign garden literature, so that we may hope to compare our neighbours' progress with our own. 6. Models, diagrams, and apparatus suitable for teaching purposes for use in chemistry, physics, or vegetable physiology. 7. Series of specimens illustrating methods of grafting and budding. There is a section devoted to plan-drawing and surveying, and also one illustrative of decorative art in which prizes will be awarded for botanical drawings, and also for decorative designs in oil or water-colour, and on china or terra-cotta vases, &c. This seems a most praiseworthy attempt to obtain some variety of interest connected with our ordinary flower show system, and those who may wish to exhibit books or drawings should apply to Mr. Barron, of Chiswick, who will afford all particulars on the subject.

SEA BUCKTHORN.—Wherever it luxuriates this is a distinct and handsome shrub at all seasons, having, as its name implies, an especial liking for the sandy shore. I once saw it vermillion with berries on the Lincolnshire coast, but never so fine in stature as behind the sandbanks at Courtown Harbour, in the county of Wexford, where it forms spreading groves, and many of the specimens have great old gnarled stems, storm-twisted, but tall enough for one to walk beneath their hoary crowns. As seen thus

luxuriant near the rippling sea, its soft olive grey foliage in contrast with the yellow sand forms a sight that might delight a painter, and one to which only a good one could do bare justice. That it is a native shrub makes it the more interesting, and although naturally a denizen of the seashore, it now and then lends itself to culture inland. There must be barren stretches of sand on many parts of our coast where this plant is not found naturally where it might be introduced with effect, and no other shrub I know, except perhaps the Tamarisk, is so effectual in fixing the shifting sand. Wherever it grows freely and fruits well it forms a very pleasing bush, the effect of its bright red berries among its soft grey leaves being quite a study. It is certainly, as I believe, one of the plants best suited for gardens or waste places near the sea.

THE COMMON PRIMROSE.—There are a good many Primroses in cultivation, but none really finer for English gardens than is our native stemless species, now fresh and beautiful everywhere. In Sussex just now every wood and copse is filled with its sweet-scented flowers, and a big bowl of them arranged with their own rich leaves is a posy fit for a palace. Improved as it has been in colour variety, it yet possesses potentialities in that way. It varies from nearly pure white to deep rosy lake or pale crimson, and there is a curious old green-flowered form not now often seen. In some places the rosy kinds appear spontaneously in the woods and hedges, and even the common or typical yellow form is well worth careful naturalisation on the fringes of grassy lawns, and near trees where it does not naturally exist. As a pot plant it has not received quite all the attention it deserves. If good young plants are potted up in autumn and placed in a sunny frame, they flower quite freely in winter and early spring, and it is then one of the most welcome plants for indoor decoration. In habit, form, colour, and fragrance this wildling is so fine, that were it a new species instead of a common old one we should rave about it, and gladly pay pounds for the freshness and beauty which pence will now buy.

THE CREEPING FORGET-ME-NOT.—One of the most lovely flowers of spring, with fresh green leaves and blossoms of a tender blue. We have nothing else like it, either for a shady border or for naturalisation under trees. Beautiful as it is, it is also capricious sometimes; but when seen spreading about under trees, almost by the acre, as at Carton, one learns to look upon it as a precious spring flower. While in blossom resembling a Forget-me-not in some degree, it is quite different in leafage and growth, and should find a place in all gardens, its beauty being sure to be appreciated. As grown on the fringe of a grassy lawn, or on a bank partially shaded, and in deep, rich soil, it increases rapidly and contrasts well with Primroses, and especially with the common pale yellow kind. It is quite readily increased by division.

VERONICA.

Hymenophyllum tunbridgense and its ally or variety *Wilsoni* are, under ordinary circumstances, amongst the most difficult and unsatisfactory of Ferns to grow; they usually drag out a miserable existence for a short time and then die, even where the Killarney Fern (now, alas! extinct, or nearly so, at Killarney) does fairly well. A couple or three years ago a gentleman told me of a mode of treatment which has proved very successful in my hands, and which is not, I think, generally known; at least, it was new to such a skillful hand as "Veronica," under whose care I yesterday saw two most thriving specimens grown in the following way, he having taken the "tip" from me: Fill a pot proportioned to the size of your sod of Filmy Fern with Sphagnum, or,

failing that, an old sponge will do; tie with fine wire the Fern without any soil on the outside of the pot; invert into a saucer of water, and place a bell-glass over all. "Veronica's" plants are in a shady part of an ordinary rather large conservatory, and are models of healthy growth after being about a year and a half in their present quarters. I have also seen it doing well in a dwelling room. Of course, it must be shaded from direct sunlight. As I happen to possess a tiny cold house very moist and shady, I have the pleasure of a large mat, about a yard square, of Filmy Fern, simply nailed on the back wall, a solid mass of glistening fronds; but such a house is not in every garden.—GREENWOOD PIM.

TREES AND SHRUBS.

PYRUS CORONARIA.

THIS is the American representative of the Malus or Crab section of Pyrus, and is distinguished from the European species by one or two well-marked characteristics. One is well shown on the accompanying wood-cut, and this is the more or less lobed foliage, which is different in this respect from any of the others, while the green fruits, which, even when ripe, are almost devoid of colour, form a direct contrast to the fruits of others, which, as a rule, are highly tinted. As a flowering tree it takes high rank, the blossoms being of a delicate shade of pink when fully expanded, but in the bud state they are of a much deeper hue. They are also very agreeably scented. This American Crab extends over a wide tract of country from near Lake Superior, in British America, to Louisiana, being more particularly abundant among the Alleghany Mountains. In this country it is perfectly hardy, and forms a tree in habit a good deal like an Apple; it succeeds best under conditions such as the other well-known members of the family thrive under. When planted in an isolated position on a lawn or similar spot it is highly ornamental, as the tree when full grown has a most picturesque aspect, and, besides which, the flowers are later in expanding than any of the others. Though it was introduced during the early part of the last century, it is seldom met with in this country, one of the finest plants I am acquainted with being a large specimen in the Botanic Garden at Cambridge.

THE CHINESE CRAB (*Pyrus spectabilis*) is another fine Crab that forms a free, somewhat upright-habited specimen, flowering rather earlier than the last-named, and with even more showy blossoms. The blooms of this are semi-double in character, and remain in beauty a good while, especially where so situated that they receive a certain amount of shelter from frosts and strong winds without choking up or overshadowing the Pyrus. Some specimens of this scattered over the lawns at Kew are every year most attractive, though at the same time several other trees and shrubs are in bloom. The Chinese Crab is by no means a novelty, for, according to Loudon, it was introduced into this country in 1780. Like the preceding kind, it is quite hardy.

PYRUS MALUS FLORIBUNDA, a Japanese variety, is a more recent addition to English gardens, and withal a beautiful one, either in the shape of a bush (for it will flower freely in that stage) or as

a low tree. Its habit of growth is most graceful, and if grafted standard high the branches assume a sub-pendulous character that renders it pleasing at all times, and more particularly when so profusely laden as it is wont to be with clusters of deep pink-coloured blossoms. When in the bud state they are of a coral-red hue, and are then even more beautiful than when fully expanded. Besides its beauty as a shrub in the open ground, this is also valuable for forcing into bloom early. Another important advantage is that cuttings of it will strike well if put in the open ground after the manner of many other things, Gooseberries and Currants, for instance. Besides these, the common Crab and its several varieties (apart from those cultivated for their fruit) are all handsome when in flower, and many of them nearly as showy when in the fruiting stage. In this latter respect mention must be made of the forms of Siberian Crab, with their profusion of small Cherry-like fruits. These are among the most ornamental small trees which we possess.



Flowers and fruit of *Pyrus coronaria*.

Chimonanthus fragrans.—This sweet-scented hardy plant will soon be out of flower, and the proper time to prune it is just as the blossoms fade, for soon after that it begins to grow. How much pruning any particular plant may require depends entirely on the condition of the growth. If old plants have been properly managed, they will now have a good number of small shoots standing out from the wall. These may now be cut back to within an inch of the old wood. If there is any space on the wall to be filled up, the leading shoots must be laid in to cover it. In our strong soil this plant grows vigorously—so much so, in fact, that we find the old branches to exhaust themselves in a few years, and we have to lay in young ones to keep the tree in good condi-

tion. If we did not do this we should not get so many flowers as we do, and even then they would be much smaller than those produced by younger wood. With us this plant never fails to flower, and where it is not floriferous it may be safely concluded that the pruning is done at the wrong time. People who prune this plant severely in autumn cut away the wood that should produce the flowers.—TAUNTON.

PRUNING EVERGREENS.

IN few garden operations are theory and practice more opposed than in the pruning of Evergreens. Theory, abundantly confirmed and illustrated by the best practice, has established the fact that April is the best month in the year for this purpose. Evergreens cut now quickly heal their wounds, and the semi-dormant buds on the wood left burst into new growths almost on the heels of the knife. Even those headed right back to the ground-line break afresh almost at once, and grow with great strength and abnormal vigour. This enables them to mature their growths before winter, so as to be able to withstand the frost without injury. It is a fact unsuspected by the majority of cultivators that Evergreens beheaded in April break into fresh growths sooner and mature these better than if they had been cut down in November. Nor is this the only advantage of April pruning. Head Evergreens back before or during winter, and if the latter is severe, many Evergreens are killed outright by the frost, as their crowns, roots, and rootstocks, deprived of the shelter of the wide-spreading tops, are easily destroyed by being frost-bitten in parts of abnormal tenderness. Again fresh-made wounds exposed to the winter heal slowly afterwards, or refuse to heal at all. The frost also hits them on the raw ends, and not seldom ruptures the wood or bark, and induces canker or disease, that runs along the pith and enfeebles or causes disease in the branchlets or larger boughs. And yet, though these and other evils result from the winter pruning of Evergreens, the practice is too often continued, not through ignorance or unskillfulness, but absolute necessity. Winter is a season of leisure in most gardens; spring one of enormous pressure; and hence Evergreens are pruned in winter to their injury, because it is impossible to command the necessary labour in April. This is much to be regretted, and leads often to the serious injury of many and the entire destruction of not a few valuable shrubs. In other times, when Evergreens were subjected to an annual shearing or switching with shears and switch-bills, the operation was swiftly performed, and was not seldom got through in the spring; but now that the more rational and discriminating cuts of the knife are considered the only legitimate mode of pruning Evergreens, of course it takes much more time, and those who

value perfect Evergreens will find or make time for their pruning in April. No investment of labour or capital pays better than that devoted to the spring pruning of Evergreens—using the term in its most comprehensive sense. Where these are kept in perfection, an annual knifing over is perhaps the best and cheapest mode of doing so. Others adopt the system of biennial or triennial prunings, but for such plants as Laurels, Hollies, and Yews, an annual overhaul is the best. The extent of the pruning must be determined by such circumstances as the character of the soil, size, thickness, and age of the plants, area to be occupied, &c. Again, such plants as Hollies and Yews will require less pruning than Portugal or other Laurels, while Box may

need little or none. Rhododendrons, again, that have reached flowering size should not be pruned in April, but immediately after blooming in May or June. Ivy on walls may be so closely pruned or clipped in April, as to remove almost every leaf without serious injury to the plants. The bare twiglets will speedily break forth into fresh foliage that will clothe the wall or bank with fresh foliage of nearly uniform size and colour throughout the season. By this simple and severe pruning in April the plague of faded, discoloured, falling Ivy leaves will be stayed for the season. In all the plain and variegated Ivies the maximum amount of verdure or of colour seems reached by this radical method of forcing the foliage into a uniformity of size, colour, and age. This close pruning also keeps the Ivy at home, to the enhancement of its beauty and the securing of the safety of the wall. Not a few of the latter are pulled down by the sheer weight of the Ivy when it is allowed to grow out too far from its base, through lack of severe pruning. Treated as here recommended, Ivy protects the wall more than it injures it. However, it would be unwise, unsafe, as well as unsightly to clip the Ivy so closely or denude it of all its leaves before winter, while in April the fresh foliage will have sprung forth within a week or two of the clipping, and the Ivy will need no further pruning till the succeeding April. D. T. F.

The best Flowering Currants (*Ribes sanguineum*).—Among the earliest flowering shrubs the old-fashioned Flowering Currants, from the brightness of their colouring, stand out most conspicuous, and tend not only to direct attention to their beauty, but also to observe the great superiority of some varieties over others. The finest of all the dark coloured kinds, as far as I know, is *atro-rubens*, which is of a deeper and more glowing tint than the ordinary form, and should be included in any collection of flowering shrubs, however choice. A good contrast to the above is *albidum*, the flowers of which are of a delicate bluish hue, and in some individuals almost white. Another variety perfectly distinct, but not nearly so showy as either of the above, is *glutinosum*, the flowers of which are of a pale pinkish lilac tint. The double-flowered form is of a deeper shade of colour than the common kind, and is especially valuable from being later in blooming than the others, added to which the double flowers last in beauty for a longer period than the single ones. A very distinct *Ribes* of this section is *Gordoni-anum*, the flowers of which in point of colour are about midway between *R. sanguineum* and *R. aureum*, being of a peculiar reddish orange tint, like yolk of egg colour. Though not new, it is rarely met with, showy and distinct though it be. The golden flowered Currant (*R. aureum*) just alluded to is also a handsome shrub, and flowering, as it does, about the same time as *R. sanguineum*, it is well suited for association therewith. Several varieties of the golden flowered Currant are to be found in various catalogues, but the points of difference between them are slight, and a good form of the ordinary kind is from an ornamental point of view quite equal to any of the others. The bright green glossy foliage of *R. aureum* renders it very attractive even when out of bloom.—H. P.

Buddleia globosa.—I believe that this could be well grown in many gardens were a situation carefully selected for it. It appears to be fairly hardy in the sense of resisting frost alone; it is cold winds that destroy it, and if these can be warded off, it will often come well through a hard winter; the top branches may be killed, but if the framework of the tree remains uninjured, new shoots will push out on the return of spring. The best plant of it I ever saw away from a wall was peculiarly placed, the situation having been selected for shrubs of doubtful hardiness. It was an enclosure bounded on three sides by Evergreens and a building on the south high enough to keep off direct sunshine during the summer months of the year. There is not a flowering shrub that

resembles this *Buddleia*, and where it can be preserved in its evergreen character in winter it adds a tint different from all others to the outdoor garden at that time.—J. C. B.

FITZROYA PATAGONICA.

We have many specimens here of this Conifer, the largest being more than 20 feet high, with a girth of 2 feet at the base. They are growing in various situations in the different pleasure grounds, where they have been for the last twenty years, and have proved themselves to be as hardy with us as the common Laurel. Some five or six years ago the shoots on some of the large old Laurels, which are usually well ripened, were killed outright to the length of 3 feet or 4 feet, whereas the *Fitzroya* close adjoining stood the winter with impunity. Although it is hardy, I like to give it sheltered situations and prominent positions that its beautiful drooping and graceful habit of growth may be observed. We have it planted on a rockery, standing in prominent positions with *Thujopsis dolabrata*, *Cryptomeria elegans*, all of which and others grow with remarkable luxuriance. Bamboos and plants of a similar character occupy the low ground, and all far surpass in growth the same sorts in open situations; indeed, the *Cryptomerias* grow so fast and dense, that they require supporting. The *Fitzroya* is one of the best plants for removal, readily forming a good mass of roots. I have planted a lot 6 feet or 8 feet high this season, which would stand alone on their balls of soil quite erect when placed in their position for planting. Many sorts of trees regarded as rather tender only require to be planted in suitable situations. I know of several specimens of *Picea Web-biana* which in first-rate ground, low down near the water, did not make an inch of growth a year, and were regularly killed back by the spring frosts; the same plants on a very elevated site, well exposed to every wind, are now making beautiful specimens. JOHN GARLAND.

Killerton, Exeter.

Pyrus sinensis.—The most prominent feature of this *Pyrus*—and that a very attractive one—is the rich bronzy red tint of the expanding foliage, by which it may be at once recognised. It is known as the Sand Pear, and forms a medium sized tree reaching a height of 15 feet to 20 feet. The leaves are produced early in the season, and are retained so late as sometimes to be almost sub-evergreen in character. The fruit is rarely produced in this country, but even where it ripens it is worthless from an edible point of view. This tree is quite hardy, and from its attractive foliage in spring should be made a note of by planters. By way of a direct contrast to the reddish foliage of this kind may be mentioned the Willow-leaved Pear (*P. salicifolia*), the young leaves of which are of a hoary whiteness, and though most pronounced now, the hoariness is characteristic of the tree throughout the summer.—T.

Pyrus Maulei.—This is among that class of shrubs which may be recommended for every garden. A good deal has been from time to time written in its favour, yet it has not been over-praised. Just now with the branches closely wreathed with bright orange-red flowers, it is extremely beautiful, and is scarcely less so in autumn when studded with rich yellow fruits, that on their sunny side acquire a rosy red tint. Though it succeeds best where most favourably situated, yet it will do well under disadvantageous conditions, and, like its ally, *Pyrus* or *Cydonia japonica*, makes a fairly good town plant. It is seen to the greatest advantage when planted in a clump or mass, as the depth of colouring is then apparently much intensified to what it is if single plants are dotted here and there. Having some good plants in the open ground well furnished with flower buds, we lifted them and employed them for greenhouse decoration, where their distinct tint caused them to be much appreciated. The flowers opened finely in a greenhouse temperature. This *Pyrus* can be readily increased, for in many cases good seeds are produced that ger-

minate freely, while if such is not the case, rooted suckers can often be detached, besides, which cuttings strike in the open ground without difficulty. The cuttings should be from 8 inches to 1 foot long, and inserted in the ground for nearly three parts of their length. This should be done in autumn or winter, and if possible a somewhat sheltered spot in not too dry a position should be chosen for them. Besides the conditions above enumerated under which it may be grown, Maule's *Pyrus* makes extremely handsome low hedges, and will, no doubt, when still more common be often used for that purpose.—ALPHA.

Aralia Sieboldi ripening seeds.—A correspondent in a contemporary says he has a number of fine plants of this which have ripened seeds in a conservatory. From these seeds of home-growth he has raised scores of seedlings, an event which has not hitherto been brought under his notice. The flowering, seeding, and raising of seedlings from this handsome Japanese shrub is by no means unusual, as it flowers freely in the open air every year; but, owing to the unseasonable time at which the flowers expand, glass shelter becomes absolutely necessary to the fertilisation and ripening of its large Ivy-like berries. As far back as 1862 I bought a pair of young plants and grew them for a few years in the conservatory. They flowered freely every year, and during the time I kept them under glass they became the parents, not of scores, but of hundreds of seedlings which have attained large dimensions. Finding all the Japanese trees and shrubs which I had rather extensively planted perfectly hardy, the original *Aralias* were planted out in the open ground, where they still stand without protection. No. 1, a tall, straight standard, with a stem some 3 inches in thickness, did good service as a handsome sub-tropical plant at the edge of a large group of root-work. Field mice, thanks to our gamekeepers for having killed cats, hawks, and owls, their natural enemies, silently and unobserved, one sharp winter, attacked my *Hollies*, *Aucubas*, and some of the *Aralias*. Hundreds died to the ground in the spring, amongst them my fine standard *Aralia*. Young shoots soon started from below the barked part of the stem, and it is now a fine flourishing bush, but considerably smaller than its companion planted at the same time on a closely-mown lawn. This plant (No. 2), fully exposed to the east wind, fortunately escaped the attacks of these hungry little rodents—which, by the way, seem to enjoy the bitter bark of the shrubs I have mentioned. It has never had a shred of protection or a particle of mulching, although it has on two occasions withstood 36° of frost, and now measures 13 feet through, 37 feet round the tips of the shoots, and 7 feet in height.—W. COLEMAN, Eastnor Castle, Leicestershire.

Lonicera fragrantissima.—The cold weather of late is answerable for the lateness of this Honeysuckle, which usually flowers in early April; indeed some plants of this and its ally *L. Standishi* in the open ground were, a fortnight ago, still in full bloom, and even now bear a great many flowers. The blooms of these two Honeysuckles are deliciously fragrant, and both being winter or early spring flowerers are shrubs for every garden. Though they are in general characters very dissimilar from each other, a good deal of confusion exists with regard to them, the names being often used indiscriminately, or one is quoted as a synonym of the other. *L. fragrantissima* is a climbing plant with broadly ovate leaves, quite smooth on both surfaces, and retained on the plant to a greater or lesser extent throughout the winter; while *L. Standishi* is of a stouter shrub-like character, with ovate lance-shaped leaves, hairy on both surfaces when young, but when mature almost smooth on the upper side, though on the lower the hairs are still retained. Though it may be trained to a wall and will then cover a considerable space, this Honeysuckle is quite a shrub in habit. From the early season at which the flowers of these Honeysuckles are usually borne they are seen to greater advantage when trained to a wall, as they are then protected to a certain

extent from heavy rains and cutting winds. They may also be used for indoor decoration during winter, as they only need protection to have them in flower at that time, provided they have had fair treatment during the preceding summer.—T.

THE GOLDEN OR CHINESE LARCH.

(*LARIX KÄMPFERI*.)

THIS interesting and ornamental tree, the only species in the old genus *Pseudo-larix*, may be distinguished from other Larches by the tufted stalked catkins and by the cone scales which fall off. In this country the Golden Larch has, generally speaking, proved tolerably hardy. It is the only deciduous golden Conifer at present introduced, and is at the same time the largest in growth. It is a highly ornamental tree, for the foliage in spring is of the most delicate pea-green, and towards autumn assumes a bright or clear golden yellow. In general appearance, but more particularly when in a leafless state, this tree reminds one of the common Larch, but some think it more formal in outline, the branches being beset with numerous short, stiff spurs. The leaves are flat, linear-lanceolate, ranging from 1 inch to 3 inches long, arranged singly on the young shoots, but tufted on the older branches. The cones are erect, $2\frac{3}{4}$ inches long by fully $2\frac{1}{4}$ inches broad in the middle, and are placed on stalks about half an inch in length by a quarter of an inch in diameter. Each cone is composed of from fifty to sixty triangular-shaped scales, and usually contains fully 100 seeds. The male cones or catkins are produced in bundles of twenty and upwards at the points of the short spurs on the branches, and have usually a dishevelled appearance from the short stalk, which is only about two-sixteenths of an inch in length. The bark is of a dark grey on the stem (somewhat resembling in colour and texture that of a medium-sized Lebanon Cedar), lighter on the branches, and of a beautiful and conspicuous yellowish green or golden brown on the young shoots. This latter tint on the branch extremities renders the Golden Larch during the dull winter months particularly effective, and as uncommon as it is beautiful.

Some difficulty is occasionally experienced in getting this tree to form a proper leading shoot, the tendency being to produce two or three each season, and that even when the tree is growing at an upward rate of fully 2 feet in the year. This, however, may be remedied, and it is probable that when the tree grows to 20 feet high or more, this habit of producing rival leaders will be discontinued. Few trees bear stem or branch-pruning with less impunity than the Golden Larch, so that the regulating of rival leaders or removing of even large branches, where such is deemed advisable, need not be feared. Judging from specimens here (Penrhyn), the branches of this tree are somewhat brittle, for rarely does a storm occur but the loss of several of these is the result, even in the case of specimens growing in what would be considered sheltered positions.

Various classes of soils would seem to suit the wants of the Golden Larch. It thrives fairly well in fibrous peat in which no traces of loam could be detected, gravelly loam, and loam with a large per-centage of thoroughly decayed vegetable matter. There can be no doubt, however, that the finest specimens in this country, and the most rapid growing, are those growing in sandy loam, and this should serve as a hint to those who intend planting this handsome Conifer. The present scarcity of this tree is not hard to account for, as it is very difficult to procure seeds, and also difficult to propagate it by other means. Cleft-grafting, if performed in March, is, however, a more or less successful method of procuring young plants, but the process, it may be well to state, is complicated, and attended with great care and attention. Forty years ago, or during 1846, the Golden Larch was sent to this country by Fortune from China. It was dedicated to Kämpfer, a German naturalist, who (nearly 200 years ago) mentioned a Larch he met with when travelling in Japan. The late Dr. Lindley thought that Kämpfer's Larch was identical with the tree that Fortune discovered in Japan, but this is probably a mistake, for it seems that this tree has



Cone-bearing branch of the Golden Larch.

not been found in a wild state in Japan, although a reliable authority asserts that in several districts it exists in a half-mutilated condition in Japanese gardens.

A. D. WEBSTER.

***Cratægus pinnatifida*.**—In early spring this Thorn stands out conspicuously from the rest on account of the tender green foliage being developed at a time when the others are still leafless. The foliage, too, is very handsome, and renders a specimen of it attractive throughout the season, for the leaves are as much as 6 inches long, and so deeply lobed as to become pinnate. The leaf-stalks are of unusual length, and so weak that the foliage is partially pendulous. It is a native of Eastern Asia, and is quite hardy in this country; so hardy, indeed, that even the young and tender foliage seems proof against spring frosts. The flowers are white, like the generality of Thorns, and do not possess any strongly-marked features.

—ALPHA.

***Dirca palustris*.**—This, the Leatherwood of the United States, is a pretty little shrub when in flower during April, when the branches are yet leafless. It is a much-branched bush of quite a tree-like character, but at most not more than a

yard high, and is closely allied to the Daphnes, which in many points it closely resembles. The flowers are borne in terminal clusters of three or four together, the most prominent part being the yellow pendulous stamens; indeed, a yellowish hue pervades the whole plant, extending even to the bark and leaves. It was introduced from America about the beginning of the last century, but is still quite a rare shrub in English gardens. It likes a cool and moist soil, as it is only when so situated that this *Dirca* can be seen in a thriving condition. Like most of the Daphnes, it forms but few fibrous roots, and consequently it dislikes transplanting, but when it is necessary to move it the operation must be carefully performed, and if possible in the autumn.—T.

ROSE GARDEN.

ROSES WITH SCENTED LEAVES.

"T. B.'s" remarks on this subject (p. 341) are rather calculated to perplex the would-be raisers of scented-leaved Roses than enlighten them. In effect he says, raise us the Roses we want somehow, anyhow; cross varieties likely and unlikely, especially unlikely; produce Roses that will grow anywhere with a minimum expenditure of horticultural skill and attention; but observe, the raising of varieties having scented foliage will be a step backwards! From this it must be deduced that seedlings from Sweet Brier (a parent whose vigour, hardiness, profusion in blooming, and fertility in fruiting would commend it to some raisers) that might inherit fragrant leaves would be at a disadvantage in the race for improved varieties; that is, Sweet Brier would be a variety unlikely to effect the end in view in raising seedlings; therefore, it should be used. This is a sort of logic that one has to get up very early in order to follow. But in raising the question of desirability, "T. B." is making a mere question of taste a basis for a discussion, to pursue which would be as futile as the celebrated and fatal problem as to which was the most absolutely beautiful colour for a woman's hair.

Perhaps the excellent advice on the arrangement of cut flowers, to keep similar sorts together and to avoid the indiscriminate mixing up of different and incongruous kinds, might be even more defensible from the point of view of effective appearance than of defective scent; but from one point or the other it would be certainly supported by almost everyone. And no doubt someone will catch the drift of "T. B.'s" last sentence which I seemed to have missed. But then I have so seldom used the foliage of even our favourite backsliding Sweet Brier in the faded brown (or any other coloured) state to associate with flowers, that I hardly feel qualified to pronounce on the probability of Roses being raised with scented leaves of any other colour than green.

This, however, by the way. My principal object in referring to "T. B.'s" remarks is to protest against the vague use of the expression "show Roses." The word "show" used as an

adjective is not a classificatory term in regard to Roses as it is in the case of Auriculas or Dahlias. In reference to the latter flowers the term indicates a special class only, or those varieties which possess certain defined characteristics; but of Roses, any Rose (whose flowers are not single) is a show Rose of which the exhibitor can produce and show a sufficiently beautiful bloom in first-rate condition. Thus, Princess Louise Victoria is generally considered merely a garden Rose; but in favourable seasons, numerous blooms may be obtained of this variety sufficiently beautiful to be included in winning stands at even large Rose shows. Not long ago I remember seeing a very fine first-prize box of twenty-four Roses, in which the most perfect flower was Blairi No. 2, a variety which "T. B." probably would not admit to be a "show" Rose at all. Or to take a more universally grown variety, is General Jacqueminot a show Rose or not? If not, how is it to be accounted for that two years ago it was exhibited almost everywhere, and on three occasions was selected as the best Rose in the show, including the great exhibition of the National Rose Society at South Kensington? If, on the other hand, in spite of being hardy, vigorous, prolific and brilliant, the General is a "show" Rose, why should it be subject to the contempt of "T. B." for bearing flowers of a shape so approved by exhibitors as to be selected by them for precedence over thousands of blooms of other varieties?

No good end is attained by such a vague and unsupported statement as that of "T. B." to the effect that "if the flowers are of the approved exhibition shape, they drop in about as many hours as the non-fashionable (poor Gloire!) kinds named will last days." It is notorious that those who exhibit Roses on an extensive scale have to cut their blooms during the afternoon of the day previous to exhibition, so that at the termination of any show the bulk of the Roses displayed have been cut fully twenty-four hours; and that this period, even when passed in a long journey and in exposure to the heat of an exhibition is not by any means the limit of show Roses' endurance, is well known to all those who have ever been present at clearing time and have seen the anxiety of the public to obtain possession of the numerous blooms that still retain a considerable measure of their first beauty. Now, does "T. B." really hope to get anyone to join him in his avowed belief that cut blooms of his non-fashionable kinds, Gloire de Dijon and Souvenir de la Malmaison, will remain fresh and attractive for from three to five weeks?

The fact is, that "T. B.'s" selection of varieties is rather unfortunate. I quite agree with him in his view of the pleasure of giving Roses away; indeed, I would go further, and maintain that the supplying of an appreciative recipient with Roses is far and away the greatest of the many pleasures of the Rose grower. But I should certainly be afraid of getting myself permanently disliked if I had never anything to offer but Gloire de Dijon and Souvenir de la Malmaison. Gloire de Dijon has that excellent qualification—a first-rate constitution; it is hardy, vigorous, and prolific, but its flowers are wanting in refinement, and are of an opaque and often dull colour. Souvenir de la Malmaison, though none too hardy, is prolific enough, but frequently the first or summer batch of flowers fails to expand and is liable to have a dirty appearance; while though the autumn blooms generally open better, yet when placed in water their petals soon lose texture. Nevertheless, if these varieties have the phenomenal powers of endurance claimed for them by "T. B.," how is it that they are not seen more in the flower market than they are?

Just lately I have been closely observing from day to day the displays made by a great number of West-end florists, including those of Covent Garden, but in all the profusion of Roses, I only noticed Souvenir de la Malmaison in one single window. Those who have watched the florists' windows morning after morning may have noticed the kind of progression through which especially beautiful blossoms pass. On their first arrival the flowers are placed loosely in large bowls of water, generally in separate kinds, to be used as required. Frequently an exceptionally fine Baroness Rothschild or Prince Camille de Rohan will attract one's attention among the crowd. Next morning this particular bloom will appear set up in a specimen glass, or form the centre of a breast-bouquet. If yet unsold, at last it will be included still beautiful in a large hand-bouquet, where a slight loss of pristine freshness on the part of one or two flowers will not be noticed.

This does not look much like the collapse after the three or four hours of existence that "T. B." graciously allows these fashionable beauties, for it must be borne in mind that the above history only commences after the Roses have already endured probably a long railway journey.

Again, does "T. B." refuse to give any credence to the facts, frequently recorded and familiar to all exhibitors, as to the successful endurance and repeated triumphs at two and even three successive exhibitions of individual blooms of such Roses as Comtesse de Nadaillac, Niphetos, Madame Welch, &c., and that, too, under conditions most trying to all flowers, namely, travelling and hot tents? For my part, I would be prepared to back the lasting qualities of numerous show Roses against those of "T. B.'s" selection; and if it comes to a matter of comparative beauty, take a bowl of equally well-grown flowers of each of the four varieties, Maréchal Niel, Niphetos, Gloire de Dijon, and Souvenir de la Malmaison; tell anyone with eyes in their heads to select the two most lovely sorts, and which two would be left?

Gloire de Dijon and Souvenir de la Malmaison have great merits for which we may well be thankful, and let us endeavour by all means to reproduce their good qualities in other varieties; but it seems a poor-spirited kind of proceeding to try and exalt certain plants into sort of deities among their race merely because they give us, not what we want, but what will serve, with the least trouble to ourselves.

I used to suppose that when people inveighed against exhibition-shaped Roses they referred to vegetables of the Paul Neyron and Madame Boll type, but as this form is nowadays disapproved (horticultural judging with scales and a foot-rule is not likely to be revived), and as "T. B." distinctly specifies that it is against the approved exhibition shape that he directs his aspersions, I was presumably under a misapprehension.

But I think I have said enough to make it clear that if the word show is to be applied as an adjective to Roses its meaning must be accurately defined, for its employment in the loose way adopted by "T. B." is vastly misleading to those who may not be intimately acquainted with the subject, and who would be likely to carry away the very erroneous impression that all varieties of Roses seen at exhibitions can only be grown with great trouble and small result, making a display of colour like lightning, dazzling, indeed, but transient, and producing flowers whose term of existence is only to be reckoned by minutes on plants with a constitution that succumbs to a frosty morning.

Just one word, *apropos* of arrangement of cut flowers, in reference to "T. B.'s" statement that

the possible raising of Roses with Sweet Brier leaves would be a retrograde movement. Suppose "T. B." had to arrange a bowl of Tea-scented Roses which had only leafless stalks, as is so often the case in late autumn, would he really prefer to use the coarse leafage of our favourite old Provence Rose (with Canon Hole, I would vote old Cabbage to the pigs!) rather than the elegant foliage of say *R. pulverulenta*? Perhaps, too, it would be allowable to put the case of the scented-leaved Roses the other way, and call it an attempt to improve the flowers of the Sweet Briers, or to obtain handsomer flowered varieties thereof. Or would that be a positive retreat?—T. W. G.

—I am glad to find "T. B." turning his attention to this subject. It matters little whether his views are in accordance with mine or not. What the subject most needs is discussion, and "T. B.'s" views (p. 341) will contribute to this result. There is also great force in "T. B.'s" protest against the mixing of odours, however rich and sweet they may be, and there is little doubt that some of them are most satisfactory singly and alone. Still, I cannot help thinking that a suspicion, or even a strong whiff of Sweet Brier in such Rose leaves as say Charles Lawson and Gloire de Dijon, to take very common types, would be generally accepted, as most welcome additions. But, as "T. B." truly says, there can be no hard-and-fast lines drawn in the matter of scents. Like the taste of the palate, those that are pleasing to some are not liked by others. This is most true. A clever horticulturist and almost life-long friend of mine never could endure the perfume of Stephanotis, and on one occasion, to my knowledge, carried his prejudice so far as to disqualify a beautiful bridal bouquet largely composed of this flower on the ground that no delicate bride could endure its fulsome odour. I considered that a marvellous instance of perverted perception of sweet odours. But "T. B.," who may be said to have lived the greater part of his life among Nature's most brilliant and most fragrant treasures, almost matches it in selecting Clerodendron fragrans as another of the finest of all scents. To me the odour of Glasgow pea-meal, newly ground or made into brose, predominates in this useful old-fashioned flower, now all too seldom grown or seen. But "T. B." will probably quote this as an instance of perverted perception of odour on my part. I thoroughly agree with "T. B." about the decorative value of our Rose foliage and twiglets as they are, and the undesirability of reducing their size to that of Sweet Brier leaves; but, supposing the present size and general character of our best samples of Rose foliage could be even slightly perfumed with the odour of Sweet Brier, surely the majority of rosarians would welcome the addition with enthusiasm. "T. B." obviously likes Sweet Brier best at a distance and in small quantities. He draws a distinction between the aromatic character of the Brier and that of delicate perfumes which are sweeter the nearer you get to them. This is ingenious, and has quite a legitimate meaning. But then he goes on virtually to declare that the Sweet Brier is most enjoyable when it is most aromatic or fullest of odour, for so I interpret his next sentence, which is a well-known fact, "that the scent of the Sweet Brier is never so enjoyable as when passing by the plant in an evening after a shower of rain." Exactly; were our Roses but endowed with its perfume, we could never visit them at early morning or dewy eve without enjoying to the full this delightful feast of sweetness. Why, the odour of Sweet Brier would compensate us for the trials of maggot-hunting and the disgusts of maggot-squashing, that must begin forthwith if our Roses are to be safe in bud and perfect when full grown. But really I fear that neither "T. B." nor myself are likely to live long enough to be perplexed or pleased with a profusion of the odour of Sweet Briers in our common or choice Rose leaves or twigs. The difficulties seem too great and the past progress

in this direction too slow to warrant any sanguine expectations of success. But I confess that I should even enjoy the old Cabbage, La France, Devonensis, and the Maréchal Niel the more were their foliage perfumed with the odour of Sweet Brier. The love of this odour is well nigh universal, and I have never known an instance in which a vase or basket of Roses has not been more enjoyed when their perfume has been heightened by the addition of more or less Sweet Brier, seen or unseen. Still, in the main, I agree with "T. B." that not a few perfumes are more satisfying unmixed. I go further, and contend that few treats within the domain of Nature are more satisfying than a posy of buds and half opened Sweet Brier blossoms, plentifully garnished with foliage and twiglets. Where the Sweet Brier thrives, which is by no means everywhere, and while waiting for Rose leaves enriched with its inimitable fragrance, the rosarian has a simple means of practically combining Sweet Brier odours with the beauty and sweetness of his Roses by merely enclosing his rosery with a Sweet Brier hedge, or scattering a few bushes or clumps about, amongst, or around his Roses.—D. T. F.

Pruning Banksian Roses.—I am much obliged to "D. T. F." (p. 324) for his endeavour to set me right in the pruning of Banksian Roses, but what I stated I adhere to, viz., that the way to treat them is to thin out the breastwood by cutting away the strongest, as it is only on shoots of short length and moderate strength that blossoms are formed. I quite agree with "D. T. F." about the right time to prune, which is, as he says, immediately after the flowers fall, and that is when we always operate on ours, but so strong and vigorous are the plants, that we have to go over them again after they have made their growth in order to remove long shoots that are too unripe to bloom, although I note that "D. T. F." says they will do this whether strong or weak, a statement quite against his remarks on extension, and also my experience. If Banksian Roses are grown where they can have unlimited space, instead of being confined to a moderate area on a wall, then I should say the less pruning they have the better, as they are not plants that bear restriction well; they are naturally vigorous growers, and do best when allowed to run as they like.—S. D.

KITCHEN GARDEN.

SUCCESSIONAL TURNIPS.

For the earliest crop sow Early Munich on a slight hotbed early in March. Towards the end of the month make a small sowing of the same variety and the Strap-leaved Stone on light well-cultivated and pulverised land in the open air. Sow again the same kinds about the middle of April. In May sow on rather strong land Early Snowball and Veitch's Red Globe. Sow the last-named and the White Stone in June, and also in July in larger beds for an autumn supply, and about the end of July sow Orange Jelly, Red Globe, and Chirk Castle Black Stone for standing the winter. For use in spring sow the Early White Stone in August. The last sowing may follow early Potatoes with only a sprinkling of artificial manure, raked in by way of preparation. The Black Stone is very hardy, and if the best are pulled, the tops cut off, and the bulbs stored in pits like Potatoes, they will keep in good condition a long time. On difficult soils there is an advantage in using superphosphate or some other artificial manure, as quick growth is necessary if good quality is appreciated. The manure should be sown in the drills with the seeds. On dry, poor soils salt may be used with advantage. This also I have sown with guano in small quantities in the drills just previous to sowing the seeds. In a dry time soaking the drills with liquid manure just before sowing has brought the plants up quickly and in vigorous condition. The young plants should be thinned early, giving each space enough in which to grow. A square foot will be

sufficient, as large roots are not required. A little less may be given to the early sowings, and a little more room allowed for the July sowings, as they will occupy the land for a longer period; and a free circulation of air would make them more hardy and better adapted for standing the winter. Dustings of soot, lime, and wood ashes early in the morning when the dew is on the leaves will, in connection with frequent hoeings, keep the Turnip fly at bay—i.e., if the preparation of the land has been right. E. HOBDAV.

WINTER GREENS.

MARKET GROWERS are finding considerable difficulty in raising all kinds of winter greens this year, not because seed is bad, but because the season and the soil remain so cold that seedlings make no progress; hence they do not get out of the way of slugs and birds. Covering up of beds of seeds with litter may be resorted to and has been largely, with the result, as I have seen in many fields, of the litter being lifted and driven off to considerable distances by the force of the winds which have prevailed. The litter on seed beds affords welcome shelter to slugs, and now they can play havoc with the seedlings not only by night, but by day. It is very much a case of being out of the frying-pan into the fire. Without any protection of this kind and liberally dressed with fresh-slaked lime or soot at night, no doubt the best conditions for germination are found, as the soil is scarcely warmer under a thin coating of litter than without it. Still, there remains the difficulty incidental to the birds, and these seem this year specially ravenous, owing to the absence of ordinary food. The winter, whilst apparently doing them little harm, destroyed their usual food largely, and they have for some time been ready to seize upon anything; hence all exposed seed beds have had a bad time of it, and the plants are generally thin, and in many cases quite eaten up. The only means of protecting seed beds from birds, therefore, if not covered with litter is by human agency, and that again is not always available, as no doubt the greatest mischief is done by birds very early in the morning. Having regard to the serious inroads made upon their green crops last year by the long drought and the effects of the winter upon what was saved, market growers are far from being exhilarated at the prospect already open before them of a scarcity of plants to put out during the summer. Second sowings are, of course, a month later, for it is not easy to determine earlier how the March sowings of seed have fared, and that month cannot easily be made up, whilst even these later sowings, because of the lateness and coldness of the season, are not delivered from the troubles which afflicted the earlier sowings. When sowings of seed of winter greens intended to give 100,000 plants fail it is no small loss, and is not easily recouped. The chief market greens are Coleworts for the autumn and winter; Giant Autumn Cauliflower for early and late autumn; White Cabbages for autumn; Purple Sprouting Broccoli and Savoy Cabbages for the winter, with some Scotch Kale and Late White Broccoli, but of the latter not a great quantity, because it is so long on the ground. As far as possible, it is desirable that all winter crops should be cleared off by the end of March, to enable spring croppings to take place, and Potatoes, Peas, or Runner Beans follow after green stuffs as far as possible. Few winter crops can make up for the loss of a summer crop. Giant Autumn Cauliflowers usually follow first early Potatoes, planted wide apart, and Brussels Sprouts between Runner Beans, sown 4 feet apart; and if both these kinds are not got out early, their produce is far from being profitable; but when good, they, in combination with early Potatoes and Runner Beans, make some of the best paying crops that can be produced in fields. Peas are an uncertain crop, and this year promise to be dubiously profitable, because early and second sowings will all turn in together, sending down the price considerably. Many market growers hold that Peas give to their workpeople, the women pickers especially, more

profit than the growers get, and that seems very probable. If, therefore, it is not possible to follow Peas with some good winter crops, then the prospect for the grower is a poor one; hence the natural anxiety shown just now with respect to the seedling stock of winter greens. The past year's drought and the severe winter following have also materially affected for the worse the stock of plants preserved for the production of seed, and the quantity may prove short. Such deficiencies occasionally occur, but are usually got over in some way by our seedsmen. Still, it is well to impress upon all who grow from seed that sowings in the open ground should usually be regulated somewhat according to weather, and whilst in some years it may be safe to sow early in March, at other times a few weeks later may prove to be the wisest course. A. D.

SALAD VEGETABLES.

LETTUCES.—The time of year is fast approaching when these will be in great demand, and one of the chief things to help to fill the salad bowl is Lettuce, of which there are a number of varieties, but few, if any, are superior to the good old Paris White Cos, which, when well grown, attains a large size, hearts up closely, and is very crisp and fine in flavour when ready for use. To have this kind early, seeds should be sown thinly at once, on a warm sunny border, in light rich soil, and as soon as the plants are large enough no time ought to be lost in getting them out, but when moving them it is necessary to be particular to lift them with a trowel, so as to secure good balls and not break the roots, as then they start away and grow rapidly without any check. Later on, or when the sowings are made for summer, the best way is to sow in drills where the plants are to stand and thin out, as the transplanting is difficult to effect during hot weather, and not only that, but Lettuces that have not been moved bear the drought, as they send their tap roots down and find the moisture they want. To enable them to do this, the ground for them should be deeply dug and heavily manured, or to save the labour of this it is a good plan to have the rows between Celery trenches, where, if the soil is levelled down and made flat, the plants are sure to do well. For very late autumn use, or to stand the winter and turn in early in spring, none is equal to the Bath Cos, which is a hardy kind, beautifully crisp and excellent in flavour. To have a supply at the seasons referred to seed should be sown about the middle of July and again during the second or third week in August, the plants from the later sowing to be planted on a warm sunny border, or, better still, close up to the foot of a south wall, where they escape hard frosts and cold cutting winds.

RADISHES.—These are general favourites, but they can only be had really good and tender by frequent sowing and using while they are quite young, as when they get beyond that stage they are either stringy or hollow, and hot and strong in flavour. It is useless, therefore, unless the demand is large, to have big beds, the thing being to sow a few every week, and when the weather gets warm it is necessary to have them on a shady border, and keep them well watered when dry. The best sorts to grow are Wood's Early Frame, the Olive-shaped, and the Red and White Turnip, the latter being perhaps the nicest of all, but the colour of the others is much in their favour.

CHICORY.—Although this is of no service during summer, it is exceedingly valuable for winter, and to have it then seeds must be sown now, so as to get the roots, which in size and general appearance resemble a Parsnip, and these in the autumn are dug up and stored till the time comes round for forcing them. The way to grow Chicory is to draw shallow drills in deep soil, about 15 inches apart, and sow in them, and when the plants are up they should be thinned out and left standing 1 foot or so from each other.

BET.—This is also indispensable for the same time of year, and is a fine adjunct to a salad, as

besides improving its appearance greatly the Beet increases the flavour, and makes the mixture quite tempting. The best varieties to grow are Dell's Crimson and Pragnell's Exhibition, both of which are very handsome in shape, and deep and rich in their colour. In growing Beet the great thing to guard against is in having the roots forked or fangy, and the way to prevent this is to have the ground free from fresh long manure and in good deep tilth, so that the tap can get down without meeting any obstruction, as it is that which causes the deformity, and sometimes spoils the greater part of the crop. If the land is in the condition named, the seed may be sown at once, and this should be done in drills drawn about an inch deep and 15 inches apart, the right distance for the plants to stand when they are up being a foot, which gives them plenty of room.

TOMATOES.—These are much liked, and are most excellent for affording a change in the ingredients of a salad, but to have nice ripe fruits for the purpose, the plants ought now to be strong, ready for putting out in May, and they must have a very warm sheltered position, the best place being a south wall, against which they can be tacked up and trained. To get them to set freely, the branches must be kept thinned out so as to expose the clusters of bloom, and it is necessary also to water freely, or, better still, to give frequent soakings of liquid manure.

CUCUMBERS.—Anyone with an ordinary frame may grow plenty of these, as all they require after this is a little bottom heat to give them a start, and the requisite top warmth can be secured by shutting up early and opening late, and if this is done and plenty of tepid water used to sprinkle and water the plants, they will grow freely and bear abundantly all through the season. One of the most prolific Cucumbers to have, and one of the finest in flavour, is Lord Kenyon's, which bears fruit about a foot long, and is very juicy and tender. Ridge kinds are also good, and these may either be cultivated in frames the same as the others, or planted under handlights placed on beds made up of fermenting manure, which may be done early now, and the handlights should be kept close till the plants get a fair start.

WATERCRESS.—Although this is best from a running stream, it may be grown without, but to have it tender the seed must be sown on a damp, shady border in rich soil, and the plants frequently sprinkled, so as to keep them continually moist, or the Cress will be hot and pungent in flavour.

MUSTARD AND COMMON CRESS also are very desirable in salads, and these, too, during summer are best grown on a shady border, and cut as soon as ready, or before they show the rough leaf, and, therefore, small and frequent sowings are necessary to keep up a supply, but the seed should not be covered with soil, or the Mustard and Cress will be dirty and gritty. To get it to germinate freely, it is a good plan to lay a slate or board over it for a day or two to keep it dark and moist, but as soon as it begins to sprout it must have light and air at once.

ONIONS.—Small young Onions are a great improvement to a salad, but very few of them are required, and all that is necessary is to sow a pinch of seed every fortnight or so, as the whole, except just the roots and bottoms and tops, can be used.

ENDIVE.—This comes in when Lettuces are getting scarce, but it is quite time enough to sow about the middle of July, which should be done in beds, and when the plants are large enough they ought at once to be planted out in the open. The soil that suits them best is that which is light and rich, and the proper distance to plant them is 18 inches in the rows and a foot apart, when they should have a good watering to give them a start. The best kinds to grow are the Improved Broad-leaved Batavian and the Green Curled, both of which may easily be blanched, when fully grown, by tying them round with a

piece of matting to keep them close enough to exclude the light from the hearts. As Endive is somewhat tender, it must not be left out in sharp frosts, but stored under cover, the most suitable place for it being a cold frame, where it should be laid in, after being lifted with good balls, and kept with plenty of air to prevent damping and rotting.

HERBS.—Herbs for flavouring salads are not so much in request as they were, but a little Tarragon, Chervil, and Burnet are generally considered an improvement, and a root or two of each should always be provided and grown ready to hand in case they are wanted. S. D.

OLD AND NEW POTATOES.

THEY certainly do some things in France different from us, and amongst peculiarities of that nation is the fashion of giving honour as well as honours to things as well as to persons. In this country we date the introduction of the Potato from the Elizabethan era, and chiefly with that enterprising and erratic knight, Sir Walter Raleigh. History fails to afford us much information as to its reception and adoption here as an article of food, but it is very possible that the original form or species introduced was not of the most enticing kind as an edible esculent, and that many years elapsed before the Potato really became an accepted and general article of food. In France abstention from the use of the Potato seems to have been the rule for a century after its introduction into Europe; indeed, we now learn that until Parmentier, the gardener to Louis the Sixteenth, induced that unfortunate monarch to partake of the Potato at his table, it was the subject of much prejudice. As showing how history repeats itself, we find that even now Potatoes are being sent in large quantities to relieve the famine-stricken denizens of the Irish island of Achil, and it seems that in the eventful year for the Potato when Louis the Sixteenth made it so far popular in France there was a famine in that country, and the Potato was, through the popularity given to it by the King, enabled to play an important part in the relief of hunger. All honour to the old gardener Parmentier, and the French people are about to celebrate at Montidier the centenary of the introduction of the Potato chiefly through his means to popular favour. And yet, much as the French may esteem the esculent and use it as an article of food, it is doubtful whether they appreciate its many and exceeding merits so fully as is the case in this country; certainly the samples produced in France fail altogether compared with the exceedingly fine and handsome ones we obtain here. Putting aside altogether our practice of exhibiting Potatoes—and without doubt that practice has had much to do with improving them—there remains the unquestioned fact that, either because of the sorts we grow, or of the more retentive nature of our soil, or because we bestow upon the tuber higher cultivation, our average samples are better and finer, and that the resulting crop must also be greater. In years past, when the disease so largely decimated our stock, we were materially dependent upon both France and Germany for the importation of considerable quantities, especially of that particular kind known variously as French, Belgian, or German Reds. Without doubt the substitution of such kinds as Magnum Bonum and Champion for the less robust Regents, Victorias, and Flukes gave a turn to home Potato cultivation which resulted in the production of such abundance, that Potatoes have rarely been cheaper or more plentiful in this country than they have been during the last three or four years. It seems now doubtful whether, having regard to fine and heavy cropping kinds now so abundant, that we shall ever have again to purchase largely from our foreign neighbours. They, when the English demand runs short, convert the surplus stocks of that esculent which the French are about to honour into such ignoble uses as the manufacture of gin. We perhaps employ no inconsiderable quantity in the more homely manufacture of starch, but even this proves no for-

midable competitor; hence here Potatoes generally are left to become useful and honoured articles of food. Whilst our Gallic neighbours purpose to honour the Potato presently by means of fêtes, we have, perhaps more characteristically and substantially, honoured it by making it one of our most popular of garden products. If bread, the product of wheat, be the staff of life, the Potato certainly is one of life's props, and comes second to wheat in national estimation as an article of food. We do not care for the Potato appreciably served up *à la Française*. Without doubt, to the mass of average Britons, it is never more popular than when served with or without its coat, but still whole, dry, mealy, and with just a dash of salt; then it becomes, in our estimation, fit food for kings. Happily with us, a good, well-cooked dish of Potatoes is not the monopoly of kings—indeed, of no one. The poor cottager may have his dish served, if in homely ware, at least with perfect cleanness and as perfectly cooked. That is a species of national honour which excels all spasmodic manifestations, for it means the highest appreciation combined with permanence. A. D.

GARDEN FLORA.

PLATE 542.

THE ALLAMANDAS.

(WITH A COLOURED PLATE OF A. HENDERSONI.*)

Two or three kinds of Allamanda have long been recognised in gardens all over the world as among the very finest of flowering plants, their large, freely-produced rich yellow blossoms, together with the accommodating nature of the plants, placing them in the same category with Bougainvilleas, Dipladenias, Stephanotis, and Hibiscus. In the stoves of our gardens we rarely fail to find at least one Allamanda gracing the roof of the house or trained against a pillar, and even upon balloon trellises, whilst a few cultivators treat their Allamandas as Nature does, and allow them to assume the habit of a self-supporting shrub. Whether the house be large or small, an Allamanda can be made to lend itself to whatever space is available, and a square yard, with a little management, will suffice for a plant, or, on the other hand, a 40-foot wall may be covered in about two years by a single specimen. But there are one or two kinds which are comparatively small growers, although their flowers are as large and beautiful as the robust and large-growing sorts, and it is better to grow one of the former in small houses than one that requires a wide space for the development of its full beauty. We shall give below a short description of each kind known in gardens, but before doing so some attempt at fixing the right names to the right plants must be made, for Allamandas, like Dafodils, have got very much mixed in respect to names.

The species of Allamanda that first appeared in England was *A. cathartica*, which was introduced in 1785, and was figured in the *Botanical Magazine* ten years later. This plant appears to be distributed over a very wide range in South America, from Panama and British Guiana to Rio Janeiro, and, as might be expected, it shows considerable variation both in habit and flowers. Botanists who are aware of this fact do not hesitate to call only forms of *A. cathartica* most of those kinds which to gardeners appear very widely distinct. Thus the latest monographer of the genus reduces *A. Schottii*, *A. grandiflora*, *A. Aubletii*, *A. Hendersoni*, and *A. neriifolia* to the position of varieties of *A. cathartica*. Of course, such an arrangement for garden purposes would be worse than useless, and we mention it here

* Drawn from Mrs. Tredwell's garden, Leigham Court, Streatham, in August.



only to show that the term "species," as understood by botanists, cannot be correctly used for the above-mentioned *Allamandas*. *A. Schottii* was introduced in 1847, and in the following year *A. Aubletii*, now called *grandiflora*, was obtained by Messrs. Lucombe, Pince & Co. Then came *A. neriifolia*, in 1851, and in 1868 the prince of the lot, *A. nobilis*, was introduced by Mr. Bull. By this time, however, other names had appeared in gardens, whilst the names of the above-mentioned kinds had somehow got transposed—*A. neriifolia* was called *A. Schottii*, and the latter had been re-named *A. Hendersonii* and *A. Wardleiana*. This confusion led to much dissatisfaction, and gave judges at exhibitions where these *Allamandas* were shown a good deal of bother. So far we have dealt with only the yellow-flowered kinds, but there is also a purple *Allamanda*, which found its way into English gardens about twenty years ago, but which has apparently now disappeared. There is also a very distinct species called *A. angustifolia*, having long linear leaves, and terminal racemes and yellow flowers as large and handsome as those represented here in the plate. The plant is said to grow to a height of about 3 feet. It is also a native of Brazil. There is a plant in some collections, notably at Kew, which is called *A. Aubletii*, but which is most likely *A. puberula*, a dwarf-growing, slender-branched species, and a very shy bloomer under cultivation. Another unknown, but evidently distinct, *Allamanda* is one which we saw some time ago in the Birmingham Botanic Gardens, where it is called *A. verticillata*. In Baines' "Stove and Greenhouse Plants" we find the name *A. Chelsonii* applied to "a profuse large-flowered kind from Western Africa." But whatever the plant may be, it cannot be African, as the *genus* *Allamanda* is limited to South America. In the following descriptions we give the names in use in gardens:—

A. CATHARTICA.—A scandent shrub if allowed its own way, but by pruning and pinching the shoots it may be kept moderately compact. Branches round and spotted with brown; leaves oblong, pointed, arranged in whorls or scattered irregularly along the shoots. Flowers terminal or axillary, generally in bunches of two or three, each about 3 inches long and broad, the lower part of the tube very narrow, the upper part a shallow wide bell; colour a bright orange-yellow, with a few streaks of red on the tube inside; flowering season, summer. A double-flowered sport was obtained from this in 1868, the stamens having changed to petals, but it does not appear to have been perpetuated. The large prickly fruits, like those of the Horse Chestnut, are sometimes produced by this species under cultivation.

A. NERIIFOLIA.—This is a most useful pot plant, as it flowers when quite small, and produces its large bunches of handsome blossoms almost all the year round. The first plant introduced was only 18 inches high when it bore a cluster of thirty finely expanded flowers. It is evergreen, the foliage being large and Laurel-like and the branches short and sturdy. The flowers are developed on the young shoots, which continue to grow and produce bunch after bunch all the summer through, the first flowers usually appearing in April, as may be seen by plants in the stoves at Kew. Each flower is about 2½ inches long, and the same in width across the spreading segments; the tube is widened almost to the base; colour deep yellow with a few streaks of orange on the inside of the segments and tube. The flower-heads are compact and generally upright. For small houses this *Allamanda* may be specially recommended, owing to its early flowering and dwarf habit; indeed it ought to find a place in every collection of stove plants.

A. SCHOTTII OR *HENDERSONII*.—A strong-growing scandent shrub, losing all its leaves if kept dry in winter, and flowering on the young shoots which push into vigorous growth in spring. Branches

growing to a length of 15 or 20 feet and bearing long dark green leaves with elongated tips and slightly thickened margins. Flowers in a terminal panicle on the short shoots, as is shown in the accompanying plate, where also a correct idea of the form and colour of the flowers may be obtained. The purplish tint of the buds is a pretty feature in this kind. The colour of the corolla, when the flower is well open, is a rich full yellow. Where room can be afforded for this plant to grow to a large size it becomes a wonderful sight when covered with its hundreds of large trumpet flowers, and it continues to grow and produce them in abundance all through the summer if the conditions in the house are favourable.

A. GRANDIFLORA.—A slender-branched and distinct-habited kind, and one of the most beautiful of stove-flowering plants. The branches are rather wiry, and bear leaves not more than 3 inches long and 1 inch wide, which are arranged in whorls of three at intervals of about 4 inches. Flowers in terminal bunches, large and spreading across the top, their colour a rich canary-yellow, almost primrose. It blooms in the autumn, and when in good health its thin shoots are weighed down by the large clusters of flowers. Curiously enough, it will not thrive on its own roots, but must be grafted upon one of the stouter kinds such as *A. Hendersonii*. As an exhibition plant it is one of the choicest, and we well remember its glorious appearance at the Manchester Exhibition of 1881.

A. NOBILIS.—This is the largest flowered *Allamanda* known, and is described as surpassing all other kinds both in habit, in the size and full green of its foliage, and in its flowers, their regular contour and bright colour, their number, and their Magnolia-like odour altogether rendering it one of the most gorgeous free-flowering stove plants introduced into Europe for many years past. It is a tall, stout, pubescent climber, the stems green and purple, and the leaves generally in whorls 8 inches long, covered with short hairs on both sides. Flowers in axillary racemes, the tube 4 inches long, the lower half narrow, the upper an inch in diameter; the segments are broad and overlapping, and they spread out so as to form an almost flat expansion at least 6 inches across; in colour the whole flower is bright golden yellow with a few narrow streaks of a deeper shade in the throat. The buds are prettily tinted with red. This fine plant flowers in the autumn, strong shoots producing as many as sixteen flowers in a cluster. Although only recently introduced and apparently easy to manage, we do not know of living plants of it in any collection that we have visited.

A. VIOLACEA.—This has the habit of *A. cathartica* and somewhat similar foliage, but differs from all others in having flowers 3 inches long and nearly as much wide, their colour a beautiful purple. Gardner, who collected it in the Ceara province of Brazil, speaks of it in the most glowing terms, and, judging by herbarium specimens, we conclude it must be a fine plant. Does anyone know where it is to be found in cultivation?

W.

Anemone fungus.—I send you specimens of a fungus which has destroyed a fine patch of double wood Anemone. You will see that it grows out of the tuber of the Anemone. I shall be obliged to you for its botanical name, and it will be interesting to know if others of your readers have suffered from the same cause. Up to this spring our Anemones have always been strong and healthy and a mass of flower; now they are entirely destroyed. — WILLIAM WICKHAM, *Alton*.

*** The fungus herewith sent grows from the tubers in dense caespitose brown masses 3 inches in diameter and nearly the same in height. It is *Peziza firma*, a fungus which we have generally seen growing on dead sticks or decaying Acorns. Dead sticks in the soil are apt to harbour such fungi. The fact of this fungus growing upon the

tubers of the Anemone is new to us. Were the tubers dead before the fungus grew upon them?— W. G. S.

INDOOR GARDEN.

FUCHSIAS IN SPRING.

By many Fuchsias are regarded as summer and autumn blooming plants only, but they can be made to play a by no means unimportant part in the decoration of the conservatory during the spring months. The Fuchsia season in Covent Garden commences quite early in spring, and an inspection of the glasshouses in a market garden where they are specially grown is very interesting at this time of year. One there sees thousands of plants in all stages of development, from the cutting just potted off to the bushy little specimens in 4½-inch pots, which bristling with buds are soon to recoup the owner for his care and skill. A light house is necessary for the growth of Fuchsias, which are to be pushed steadily along at a time which is their natural resting period. Any happening to have control over a span-roofed structure where a temperature ranging from 50° to 60° from November to March, with an increase of 5° to 10° according to the weather in March and April, may expect to have Fuchsias well in bloom by May. By giving more heat, say 5° more than the temperatures above mentioned for the winter months, they may have them from six weeks to two months earlier. The foundation for success must, however, be laid in the previous summer, by setting aside a few plants for the supply of cuttings. These should be struck in the latter end of August, and the right kind cannot be had from plants which have been blooming freely all the early part of the summer, as the wood becomes so hard and wiry, that even if the cuttings make root, and they take a long time to do so, they do not go away into free growth, and even with the best care they do not grow so quickly and strongly as is desirable. The plants intended for propagating from should be moderate-sized specimens, and they should be cut in rather hard. If no pains are to be spared, the old soil may be shaken away and some new compost given, but this is not an indispensable detail, occasional doses of liquid manure or a top-dressing of some kind sufficing to give strength and succulency to the young growths.

PROPAGATION will be effected in the usual orthodox manner, but it is preferable to insert each cutting singly in a small pot, as the less root disturbance the better at that late period of the year. Let the soil be light and well sanded, and do not coddle the young plants, letting them have an abundance of light and plenty of air through the autumn. If each cutting has a pot to itself, this will be fairly well filled with roots by the middle of October, and the young plants should then get a shift into 3-inch pots, keeping them quite cool until the middle or end of November, when they ought to have a very light position in a warm house. When they have made about three pairs of leaves the formation of a bushy habit must begin by pinching out the points. This will cause them to break down to the soil, and will give some half-dozen vigorous young growths, which are quite enough to form bushy plants in 4½-inch pots, which are large enough for the earliest lot. About the middle of January they may go into their blooming pots, this time using a rather stronger compost, say two parts good fibrous loam and one part of leaf-mould and thoroughly decomposed manure in equal parts, or in place of the latter a 4½-inch potful of Clay's manure to a barrowload of soil. In potting at this time of year it is well to press the com-

post in rather firmly round the roots, as when the particles of soil are closely packed together there is not so much danger of the compost becoming sour or waterlogged by injudicious watering. This is a rule pretty generally followed by market growers in the case of all plants which have to make their growth at a time when root action is dull, the very same kind of plants that are potted up rather loosely during the warm weather being tightly potted at other periods of the year. The foundation being laid as above mentioned, as soon as the young shoots show signs of vigorously developing, each plant should be firmly tied to a neat stake about a foot high, no other stake being needed, the branches being looped to it with raffia twisted very fine. Drainage should be effective, but not too abundant. For a 4½-inch pot a good sized crock and some rough material on that is quite enough. The elaborate crocking considered by many to be necessary for soft-wooded plants in small pots is a mistake, and is not practised in market gardens. There is no good result to be obtained from such a rapid passage of water through the compost; provided it drains away steadily, the object of the drainage is effected.

A LITTLE COCOA FIBRE or Moss is much better than so many crocks. Careful watering is the very foundation of success in the culture of Fuchsias for early bloom; a little carelessness will so injure the roots, as to completely paralyse the growth. It is better to err on the side of dryness, as the absence of sun and an arid atmosphere will guarantee the foliage against those evil effects which a dry condition of the soil produces in the summer season. The soil should become almost dry before any water is given, and the amount thereof should be carefully calculated, so as to admit of a thorough wetting of the compost, and no more. When the roots become laced round the pots, they will of course take more, more especially as a stronger light with a return of the power of the sun and a consequent higher temperature will stimulate the functions; and if they have thriven as they ought, will render them capable of taking a little stimulant. Let this, however, be of a weak nature, as Fuchsias at no time will take such strong doses of manure as many flowering plants are capable of doing.

DURING WINTER but little ventilation will be needed, but as the days lengthen and the power of the sun runs up the temperature suddenly, abundance of air must be given, always, of course, avoiding draughts. At such times, too, syringing the foliage will be beneficial, sprinkling them well and shutting up early in the afternoon. If larger specimens are wanted, a portion of the stock can be shifted into 6-inch pots, previously stopping the shoots and waiting till the new ones are about an inch long before repotting. These will make handsome plants to come in about June, and if they are again shifted, they make splendid specimens suitable for the embellishment of large conservatories. For flowering in early winter, or indeed at any time up to April, a rather different plan must be followed, and one which is similar to that pursued in the preparation of winter-blooming plants generally. The cuttings should be struck about the end of May, and the plants grown along in the usual manner, putting them into the open air in a cool situation from the beginning of August to the middle of September. They should fill the pots in which they are to bloom with roots by the last-mentioned date, and will then want to bloom, but the buds must be picked off for a time, the plants placed in a light airy house, and be kept moving along by means of weak liquid manure and an occasional wash-

ing with the syringe. The buds which form from the middle of October onwards are to remain, as these will open in a temperature of 55° in November and December. They do not, of course, bloom quite so well as at other times of the year, the flowers coming smaller and paler, but they are very welcome at that period when there is some difficulty in securing variety. When these plants are done blooming they may be rested a time in a cool house, but not drying them off. Then if cut back they will start away again into vigorous growth, and if shifted on as required they will in due course develop into fine specimens in 12-inch pots. To have good Fuchsias all the year through propagation must be continuous from early spring till autumn.

J. C. B.

NOTES ON CHRYSANTHEMUMS.

CHRYSANTHEMUMS grown for the production of large blooms for exhibition or for home decoration will now require a second shift into pots 5½ inches in diameter. Circumstances must, however, guide the cultivator in this matter. Pots of 9 inches diameter (inside measure) are the best size in which to bloom Chrysanthemums; where 10-inch or 11-inch ones are at hand it is better to place two plants in each at the final potting than one, as by doing so a greater number of plants can be grown in but little space, and most varieties thus treated succeed better than when such large pots are used for single plants only. In the latter case, some of the more robust kinds, of which Prince Alfred and Boule d'Or are examples, should be used. Such plants can now be shifted into 6½-inch pots, and from these into the 10-inch ones. Where it is decided to place two plants in one pot, the weaker sorts should be selected for that purpose. Chrysanthemums will now be in cold frames, and will, if due attention has been paid to their requirements, be stocky and strong, and from 6 inches to 1 foot 6 inches high, according to the variety. Some run up much quicker than others.

When the pots in which they are now growing are filled with roots, and before they get pot-bound, shift them into the sizes named, using the following compost, viz., two parts fibry loam, one part leaf soil, and one part spent Mushroom bed materials, with a free admixture of sharp silver sand; if the loam be inclined to be heavy, add crushed charcoal freely, which keeps the whole porous; add an 8-inch potful of finely crushed bones and a 5-inch potful of soot to four bushels of soil. Heavy loams should be passed through a fine sieve, and only the rougher parts retained, the fine particles being liable to run together when much water is used during summer. Where, however, the loam is sandy, no danger need be apprehended from this circumstance. The pots should be perfectly clean when used. When dirty, the roots cling to their sides, and when the plants are turned out they get broken; drain freely and carefully, and ram the soil firmly around the plant. The day after potting water may be given; replace the plants in the cold frame, which should be kept somewhat close for a few days till the roots are beginning to run into the new soil. Then more air may be given; on fine warm days remove the lights altogether, and after a hot day syringe the plants overhead; never allow them to suffer from want of water, as that results in the loss of the bottom leaves at an early stage, an evil which should be guarded against. Later in the year this does not matter so much as some growers think; still, all should be done that can be to preserve them as long as possible.

Some few plants will now be breaking into three or four growths, and presuming that they have not been stopped by pinching out the points of the shoots, three of these should be retained if strong, but if weak two only. On large-bloomed sorts three flowers are enough, but on smaller varieties, as Bouquet Fait and Mrs. Geo. Rundle, four blooms on each plant may be allowed to develop; but as regards this cultivators must be guided by their own requirements. It should be remembered that the fewer flowers the larger in size, and for exhibition purposes size is the first consideration. Allow the plants sufficient room in

the frame; the foliage of one should never overlap that of the other. As soon as all danger from frost is over, say about the middle of May, remove the plants to a sheltered position out of doors, placing them so that strong winds will not injure them, at this stage, somewhat tender foliage, and towards the end of that month they will require their final shift into the pots in which they are to bloom, and be removed to the position which they are to occupy during the summer.

Although Chrysanthemums are hardy plants, they will not stand with impunity cold draughts to which they are sometimes subjected—that is before removal from the frames to their outside position. Cold east winds blowing across them turn their foliage yellow. This may be avoided by admitting air on the lee side. Yellowness of the leaves causes a certain check, and I know of no plant which resents sudden checks more than the Chrysanthemum. Some may think these little matters too trifling to be noticed, but it is by strict attention to details that success is achieved.

E. MOLYNEUX.

Swanmore Park, Bishop's Waltham.

AZALEA MOLLIS AND ITS VARIETIES.

WHEN these showy, free-blooming plants first made their appearance, they were expected to become a leading feature amongst hardy outdoor spring flowering shrubs. Their large attractive flowers, produced as they are in such profusion as to be equalled by few things, possess the colours and shades of colour that have now for some years been fashionable. But the plants have failed to realise in the open air that which was looked for through the fact that they come into bloom too early and before the time when frosty nights are past, even in the southern counties. Yet if they have thus failed out of doors to turn out as well as desirable, they have done something towards making up for it by the way they answer in pots for winter and early spring flowering. So treated, their natural disposition to bloom early is an advantage, as on account of this tendency they require less forcing. There is one thing connected with the forcing of these Azaleas that should be borne in mind, which is that they should not be hurried into bloom by subjecting them to a high temperature, as if so treated the flowers do not last half the time either when cut or on the plants that they will if brought on slowly; this is what occurs with the flowers of most things when hard forced, but more so with the mollis Azaleas than the generality of plants.

Much of the trade in growing these Azaleas up to the requisite size for blooming in pots has hitherto being in the hands of the Continental nurserymen. Why it should be so is not clear, as there is no difficulty in their cultivation. Evidently large numbers are raised from seed, but they can be readily propagated from cuttings, as I proved when first they came into use for pot culture. Plants that have been forced early if kept in a little warmth after their flowering is over soon break into growth that affords cuttings early in the season, so that there is time for them to root and get established during the summer. When the wood of the young shoots has got firm enough, that is, in a similar state to that which is used for cuttings of the Indian varieties of Azalea, they will strike in a few weeks if kept close and moist in an intermediate temperature. As soon as the cuttings begin to grow the points must be pinched out. It is essential to attend to this in good time when the plants are required for flowering in pots, as they should be as close and compact in growth as they can be got, for on this depends their ability to produce the most flowers on small plants. Directly the little plants have got well rooted move them into 3-inch or 4-inch pots, and transfer them to a cold frame or pit, where

they must be encouraged by keeping them moderately close and moist, to make all the growth possible. Those I raised in the way described from cuttings produced by early forced stock made nice little plants with several shoots each before autumn; the pots were plunged in ashes during the winter in the frame they occupied in summer, covering the frame to keep out frost. In March they were turned out of the pots and planted in a bed made up of peat, sand, leaf-mould, and a little rotten manure, the points of all the strongest shoots being cut away before they began to move, the effect of which was that they were as full and compact in growth as possible. Some flower-buds were set in autumn, but another season's growth was given them before the plants were taken up and potted, at which time they were so full of buds that when they came into bloom the flowers all but hid the wood. The treatment described may seem to entail a good deal of labour to bestow on a hardy shrub, but there are few things that give a better return for the attention they receive. As anyone who has grown these Azaleas knows, there is a great difference in the quality of the flowers produced by seedlings, and one of the advantages attendant on growing one's own plants is that the propagation can be confined to such as bear the best formed flowers of the colours that are most liked.

When these Azaleas are forced, like most other hardy shrubs, the plants are often very badly treated afterwards; when the flowers are off them they are crammed into any out-of-the-way corner, not unusually out-of-doors exposed to the cold cutting winds and frosty nights, and this after having been subjected to the exciting influence of a temperature higher than they like. The plants forced are mostly not larger than will admit of their being grown on and prepared for doing duty in the same way a second time; to prepare them for this, as soon as they are out of bloom all the shoots should be cut well back, after which the plants ought to be placed in a cold pit or frame, giving them air in the daytime when the weather is suitable, with as much water as will keep the soil in a healthy state. So managed, they will be in a condition for planting out as soon as the cold weather is past. A suitable bed should be prepared if the natural soil is not such as will suit them. Similar to most other things of a like nature, they are fond of peat, but they will thrive in good free loam if not too sandy. As a matter of course plants that have been forced will not move nearly so freely the summer following as others that have not been so treated; but the second season, if all goes well, will see them quite recovered, so that they will make plenty of growth and mature flower-buds in quantity that will make a display much exceeding that which is obtainable from smaller examples. By adopting a course of procedure such as here indicated, a selection of varieties of these Azaleas may be secured as much superior to the ordinary run of seedlings as the present race of greenhouse varieties now in cultivation is to those first introduced from China and the hills of India. Take, for instance, the variety of *A. mollis*, Lord Shaftesbury, exhibited by Messrs. Cutbush and Sons at a recent meeting of the Royal Horticultural Society, and which was such an advance on what has been seen before, that by a unanimous vote of the committee it was awarded a first-class certificate.

One advantage which these Azaleas possess is that they are equally adapted for pot culture by those who have no place where a higher temperature than that of a greenhouse is kept up, as they are for forcing, as if the plants are potted in autumn and at once moved to a greenhouse, they

will bloom to perfection at the end of winter and beginning of spring. So managed, the flowers naturally have more substance in them, lasting proportionately longer, whilst the much-prized pink tint which many forms of the plants possess is more intense. T. B.

SOME GOOD-HABITED FUCHSIAS.

A good many of the new Fuchsias introduced disappear almost immediately, but a good-habited kind, if not a joy for ever, at least remains with us for a good many years, and it is better for home decoration to grow duplicates of a really good thing than for the sake of variety to grow plants of a loose, straggling habit. Plants that require much pinching and pruning into shape never acquire that graceful habit which a well-grown Fuchsia should possess. The following are good kinds that fully illustrate my meaning, viz.: Miss Lucy Finnis, double white; Abd-el-Kader, double white; Delight, single white corolla, rosy crimson sepals; Crown Prince of Prussia, single red; Lady Heytesbury, rosy purple corolla, tube and sepals white; Red Marshall, single red; Arabella Improved, single white; Dr. Kitto Giddings, single red; Cannell's Gem, single white corolla, tube and sepals scarlet; and Mrs. J. Lye, single white. Fuchsias should be grown rapidly in a warm, moist, light house, and shifted on into larger pots as the roots work through the new soil. When the roots reach the sides of the pot and begin to coil round the ball of earth the plant will flower, and then there is no further growth. Therefore, if we want large plants, there must be no check of any kind till the desired size has been acquired. Rough turfy loam mixed with a third of old manure and some sand and crushed charcoal to keep the whole open and porous suits them well. Large shifts should be avoided; they encourage grossness of habit and spoil the symmetry of the plant. A pyramid or cone is the natural shape of the Fuchsia. While in active growth a light shade should be used during bright weather. E. HOBDAY.

Watering with cold water.—We were assured last week by the advocate of this practice that he only suggested a trial of it for a few examples of the different kinds of plants grown in peat, and he adds that anyone must be cautious in its use, thus giving one the impression that he was far from sure about the matter himself. There is no fault to be found with teaching of this sort, but what "T. B." wrote before his recommendations were questioned was (p. 289) that "it had been proved, and proved in a way that admits of no question, that Orchids can not only be grown, but grown well, though cold water and none other is given them, either at the roots or overhead." This was "T. B.'s" original statement, and I fail to see how I or anyone else could recognise in such a statement "a mere suggestion," and nothing more. What, pray, is the use of cautiously testing anything that admits of no question, and what is likely to be the effect of such statements on inexperienced cultivators?—S.

SHORT NOTES.—INDOOR.

Eucharis mite.—Will this attack the roots of Melons and Cucumbers? I have plants of Eucharis in my Melon house, and I am afraid that the mite may be left in the house and do some mischief.—W. J. M.

Gloxinia gesnerioides.—This is a hybrid raised by M. Luitze, of Weissenfels. It was obtained by crossing *Gesneria Donckelaari* itself of hybrid origin, with an erect flowering Gloxinia. The flowers, which are large and fiery red, are carried on a stem about a foot in height and are abundantly produced. It is said to reproduce itself easily from seed.—J. C. B.

Cannas and tuberous Begonias.—These have wintered safely on the borders of an orchard house placed close together, without soil or anything over them, or any warmth beyond keeping out frost. In the spring they break strongly, and are planted out without potting or any intermediate treatment. They never get quite dust-dry, as the borders are not permitted to get unhealthily dry, but they are not specially watered; in fact, they are much less trouble to winter than *Geraniums*.—E. H.

Sweet-scented Camellia.—Some days ago I was told that a sweet-scented Camellia was in bloom in a garden near Nantes. At first I would not believe it, but I went at once to ascertain the fact. There I saw a plant about fifteen years old, growing in the open ground and bearing a quantity of very double, fine red medium sized flowers, all very sweet-scented. Have any of your readers heard of a sweet-scented Camellia before? I was told that the flowers have always been sweet-scented, and that the plant has not been propagated on account of its flowers, which are not so large as those of many other varieties.—D. GUIHE-NEUF, Nantes.

WORK DONE IN WEEK ENDING APRIL 27.

APRIL 21.

FROM winter to summer at one bound best describes the weather of to-day, and tiffany shadings were for the first time this year applied to Pine pits, and thicker shading to the plant stove and fernery. The sun was so hot that even the foliage of early Vines and Figs flagged, but in preference to applying shading to these abundance of ventilation was given, and floors and walls damped down several times in the course of the day, which treatment has served to keep the foliage from scorching, there being no trace of injury this evening. All forcing houses were closed up as early as it was safe to do it, and the firing required this evening will in consequence be of the smallest description. Partly disbudded latest Vines—Lady Downes and Alnwick Seedling, and stopped the shoots of Alicante and late Hamburgs, and pinched off a quantity of superfluous bunches, or rather "shows," which work we like to do early to prevent unnecessary exhaustion or waste of the productive properties of the Vines. Finished thinning early Muscat Grapes, and thinned out fruit of second house of Peaches. Potting off and propagating bedding plants make up the round of to-day's work in the houses. Trenching and manuring terrace flower-beds; our planting arrangements were all completed long since, that the needed plants might be propagated, and this fact enables us to prepare the beds accordingly—that is, to manure heavy or light as the various plants require. For all sub-tropicals we give the richest dressings of manure; for tender plants, as *Alternantheras* and *Coleus*, we apply abundance of light vegetable mould; to *Violas*, *Calceolarias*, *Marguerites*, and *Verbenas* we give a full dressing of well-decayed manure; and for *Pelargoniums* deep trenching without manure suffices—in fact, they are far more floriferous than when manure is added.

APRIL 22.

Summer weather continues, and the change in vegetation in but two days is very great. Plums and Pears are in full bloom; Peaches have set well; Apricots not so well; the flowers were weak and many dropped before they unfolded, the long winter and the prominent state of Apricot buds before the greatest severity set in being no doubt the cause of this partial failure. Fruit tree blossom protection is now our greatest concern, and the coverings will be kept down till the sun has, as it were, thoroughly penetrated the canvas, and when the sun is exceptionally bright the coverings will remain down till the afternoon. Earthen up Potatoes on south borders to protect them from frost, till they are some 9 inches in height; the soil drawn over them suffices, but after that we cover with long litter. Surface-hoed between the rows of early Carrots, Cabbages, Peas, and Spinach. Sowed dwarf French Beans on a sunny bank in drills 2 feet apart; trenching flower beds, machine mowing. Put in another batch of *Alternanthera* cuttings in frame on shallow hotbeds, and other cuttings of *Iresine* and single *Dahlias* in propagating pit. Picked off surplus fruit in Fig house and pinched out the points of some of the growths and tied others to trellis; Melons the same, and thinned out shoots of Tomatoes, the fruit-bearing shoots being stopped back to one joint in front of the clusters of fruit, which in due course will be reduced to some four or five fruit to the cluster. Potted off seedling Gloxinias, and gave the first batch of tuberous Begonias a shift into their flowering pots, the size of pot being regulated by the size of tuber and growth. Thinned out fruit

on a quantity of Strawberry plants, and put in heat other relays of plants. Watered Pines, and those now swelling up their fruit were given manure water of greater strength than previously this season; strong successions were also given manure water, but of a weaker description. When closing up in such fine weather as we are now having, all except the plants in flower are dewed over with syringe, and a good lot of water is thrown about the floors and walls to create a humid atmosphere. There being faint traces of the presence of red spider in early vinery on the foliage immediately over the hot-water pipes, we have had the affected leaves sponged with soapy water, which usually stays the spread of the insect, and preventive measures will be at once taken against its further increase by pouring down daily a canful or two of manure water on the floor-surface beneath the pipes, and by keeping up till colouring begins a greater degree of humidity.

APRIL 24.

Fine and sunny the greater part of the day. Finished trenching flower beds, and began to plant edgings of *Herniaria glabra*, variegated Thyme, *Sedum glaucum*, and *Veronica incana*. Machine mowing and clipping Grass edgings of walks. Hoed Rhubarb plot, and cleaned away ashes from crowns of Seakale, and dug over the ground. Cut the first dish of Asparagus from the open garden; on several occasions we have cut before March has been out, and on very many occasions the first week in April—the present year is the latest date we have ever had to wait for a supply, a fact that shows how late the season is even in this southern part of the kingdom. There is now abundance of Broccoli, and as we shall have no Cauliflower for a long time, the most is being made of Broccoli in the way of retarding them as they become fit to cut by lifting and heeling them in in a cool position. Planted in drills between the rows of Peas another batch of spring-sown Cauliflower plants. A plot of ground that has just been cleared of Broccoli is being cleaned and the ridges levelled in order to mark and dig out trenches for Celery. Thinned out Broad Beans; we always plant thick as a safeguard against the purloinings of pheasants, pigeons, and rooks, with all of which we are more or less pestered, and in consequence thick seeding or planting is a necessity. Besides our usual Saturday's overhaul and clean-up of every house, pits and frames that were getting overstocked with plants have been rearranged, and the plants thinned out by potting out of doors under the shelter of walls and trees the hardiest Pelargoniums, *Koniga variegata*, *Ageratum*, *Lobelia*, and *Petunias*. *Lilium auratum* that are being grown in pots have also been stood outside, as they are not required to flower before the end of August. Staked single Dahlias, and potted those first struck into 4-inch and 5-inch pots; these are now given cold frame treatment, but are thickly covered with mats at night, otherwise, coming out of strong heat, they would be likely to suffer even if there were but a couple of degrees of frost. Finished the disbudding of late Peaches, and gave the border a thorough drenching of tepid water, and afterwards mulched it with long stable litter. A little air is now kept on regularly, and this will now be increased for a few days; then there will be no risk of injury to the tender foliage from the fumes arising from the fresh litter we have put on to-day. Grape thinning and tying to trellis the shoots of Peaches in second house. We have no rule as to distance except it be that our main endeavour is to have the shoots clear of one another that sun, light, and air may fall on all alike.

APRIL 26.

Fine weather continues, and is most acceptable, aiding alike our garden operations and the rapid growth of crops of both fruit and vegetables, the latter being more scarce than we have known them at this date for years past. Staking Peas, sowed Scarlet Runner Beans, earthed up Cabbage, digging Seakale plot, and digging out Celery trenches; disbudded newly planted cordon Peas. This is necessary in order to get a good leader, for the terminal bud does not always—indeed, seldom—make a good leader. Our plan is to select the one for lead that is starting into the strongest growth, even if it be several inches down the stem, and all above that shoot are

as a matter of course, rubbed off, and all other strong shoots pinched back to two joints from the main stem. Apples and Plums we serve in the same way. That the trees may not suffer from drought the mulching has been well trodden down all over the roots, and particularly hard against the wall, as the soil cracks away from the bricks soon as ever we get a few sunny days, the consequence being that the soil gets dry before we are aware of it, and growth stops before half the desired amount has been made. We look upon this matter of keeping the soil about fruit-tree roots in a solid state of so much importance that several times in the course of the summer we have the mulching well pressed or trodden down, and special pains is always taken with trees on walls to prevent the formation of a cavity between the wall and borders. The getting of plants out to harden and forming temporary protection for the same has taken up nearly the whole of the time of indoor hands to-day. The hardiest we place under trees and walls; then no protection is needed; others are arranged in turf pits and covered with mats or canvas stretched over strong poles, and in the daytime, when sunny, to prevent the foliage scorching, shadings of tiffany are spread over the plants till they have got inured to their new conditions. Pricked out under handlights seedlings of *Anemone coronaria* and Carnations and Pinks that have been raised in heat.

APRIL 27.

Still fine. Planting hardy plants as edgings to flower beds, and planted Violas in groups of from five to nine in mixed flower borders, in some sparsely furnished parts of which we have also sown *Mignonette*, *Candytufts*, and *Nemophilas*. Digging out Celery trenches and digging a border on which to plant out a few Strawberry plants that have been forced, and from which plants we hope to have a supply of fruit in autumn. Began to disbud Peaches on open walls; we have three turns at this, a third being taken off now, another lot a week hence, and the remainder in a fortnight's time. We have seen no fly as yet, but should any be discovered during the course of disbudding, tobacco powder will be dusted over at once. "Prevention is ever better than cure," an axiom we carry out by well dressing the trees whilst dormant in winter; hence we are seldom much troubled with parasites in spring and summer. Potted on more *Chrysanthemums* and arranged separately those to be grown as bushes, as standards, and for cut flowers; the two last give us most trouble at the present time, as they require more head room than our cold pits allow, a difficulty that we have surmounted by fixing the lights open with stakes and covering up the apertures at night with mats. Plenty of air is now given to the plants in every stage of growth, but cold currents of air, which are productive of mildew, we strive by every means to avoid. On these sunny afternoons the plants are syringed, and this aids the quick revival of foliage, which always droops more or less in bright sunshine. Put in more cuttings of *Iresine*, *Coleus*, *Ageratum*, and variegated *Mesembryanthemum*. Finished thinning of Muscat Grapes and tied down all the shoots. Partially disbudded late Muscat Vines, and gave the inside border a watering and fresh mulching of straw litter. Potted Vines from 5-inch to 8-inch pots. They are being grown in one of the succession Pine pits, where there is a temperature of from 65° to 70° by night and a few degrees higher by day, and being well syringed twice a day, there is little fear of insect pests getting on them.

HANTS.

FRUITS UNDER GLASS.

CUCUMBERS.—Old plants in houses which have passed well through the winter will now require copious syringing twice a day, not only to induce quick growth, which is the great secret of the production of sweet crisp fruit, but also to free them from spider where it has gained a footing during the long period the houses have been kept under continuous fire heat. Growth being free and rapid, colonies of this troublesome little insect may be weakened by the steady removal of a few of the oldest leaves and vines as fresh breaks from points nearer home require more space. Cutting out alone will not, however, produce a clean bill of health, as these pests seem to migrate from one pasture to another as

insecticides, or good cultivation, the best of all antidotes, make their quarters too rich or succulent for them. Weak sulphur water, or water with a small piece of soft soap dissolved in it, syringed over as well as under the foliage every night soon puts a stop to them, while the first is an excellent preventive of attacks of mildew. Top-dressing with light rich turfy loam, old lime rubble, or burnt earth, little and often, and thorough waterings with warm diluted liquid will now play an important part in fruitful culture, care being always observed in the avoidance of a gross habit of growth. Many people entertain an idea that Cucumbers cannot be overfed; but this is a delusion, as I have lately seen a set of winter pot plants whose roots had escaped and rambled over the whole of the plunging bed of decaying leaf mould. The growths were long-jointed and sappy; the large soft leaves flagged on gleamy days; shows were few and far between, and the fruits which set and started kindly suddenly became obese in the centre and spindle-pointed. My advice was as follows: Remove the leaf mould, save all the roots near home and relay them in pure light turf liberally mixed with old plaster rubbish; avoid the use of manure, but water when re-established with weak liquid at a temperature of 90°. The weather being dull at the time the roots were disturbed the foliage never flagged, and they are now fruitful and in every way satisfactory.

Spring-sown plants are very apt to run too much to foliage, a sure sign that their diet is too rich for them. When this happens it is, of course, easy to cut off the supplies, but a plant started with stimulants does not always take kindly to plain wholesome feeding. It is therefore the wisest course to avoid the use of all solid manure, not only at the outset but throughout the season. The most successful all-the-year-round grower I ever met with confined himself to pure fibry mountain turf chopped into cubes 2 inches square, packed and beaten on the surface of the bed like paving-stones, and faced with old lime rubble. A few waterings with warm liquid drew thousands of feeders to the surface, and when they had transformed the little cubes into a white wig the paving process was repeated. All cannot obtain mountain turf that will retain its fibre for many months; but the man must indeed be hardly sat upon, and some are by short-sighted employers, if he is denied a few square yards from an upland pasture, or, lacking this, he may repair to the well trodden limestone roadside. Plants grown in turf make short jointed vines which show fruit at every leaf, and under bi-weekly pinching and regulating may be kept for an indefinite time in bearing.

Frame Cucumbers.—Any time during the month of May is a favourable season for putting out frame plants for summer fruiting. Where all the year round Cucumber houses are kept going many gardeners do not think the light from frame plants worth the candle; others are obliged to root out winter plants to make room for Melons, when, having pits and frames devoted to bedding plants and forced vegetables, necessity, the mother of invention, leaves them no option. Artificial heat is, of course, necessary, but a moderate quantity of half-spent manure and leaves for giving bottom heat from this time forward will be found quite sufficient. Then where a little fresh stable manure is constantly forthcoming, this, combined with mowings from the lawns, can always be used for renovating the linings. Two great factors in frame culture are early closing with moisture and the retention of heat so secured by the use of dry night covering. Prickly Cucumbers are generally used for frames, but a good strain of Telegraph does equally well and is not easily beaten.

Thin sowing.—Seeds sown now in small pots or on squares of turf and placed in a close single light frame will be fit for planting out in three weeks, or earlier if the beds are ready for them. They should be pinched once when they have made three or four leaves to induce side breaks, and they should be planted out before they become pot-bound. Like house plants, they should be compelled to work for their living; that is to say, good sods, Grass side downwards, should form the base of the hills to prevent the roots from striking into the manure and sound turfy loam that will produce an endless array of feeders will answer better than the old-fashioned

fluffy bed of light soil and flaky leaf-mould. If beds composed of new materials have to be made, the manure should be well turned and worked and ready for putting into form on the day the seeds are sown. When the London market gardeners grew their summer Cucumbers on manure beds, many a private gardener residing in the neighbourhood often against his will learned a valuable lesson by watching their movements. The frames were buried up to the glass in fermenting material; the lights were tilted early; pinching and regulating, deftly performed, preceded the early sprinkling and closing. Every frame was shut up under the full blaze of the afternoon sun teeming with atmospheric moisture and a volume of tropical heat that would make a slow-going grower of the present day tremble. Express speed did not, however, end here, for no sooner had the sash-bars commenced casting their shade across the glass than dry, neatly-folded mats were brought out, covering was dexterously performed, when, under the influence of confined heat and moisture, the fruit elongated as if by magic.

ORCHARD HOUSE.

The fruit in the earliest house will now be sufficiently advanced to admit of sharper forcing and higher feeding; 60° at night and 70° to 75° by day will not be too high if time is an object, otherwise a few degrees lower will lead to the production of fruit of superior size, colour, and flavour. The period over which the feeding of the fruit extends is not a long one; the material used, therefore, should be of the best quality and fresh supplies should be placed on the pots as fast as the old is consumed or washed away by repeated waterings. Solid food, as previously advised, should always be prepared well in advance and kept covered up with fresh horse litter in a dry, airy shed, where the forcing stimulants will become thoroughly absorbed by the turf or loam before it is wanted for use. Pot trees having such a limited root run, liquid manure as well as solid becomes a very important factor, and for this reason should be supplied at every watering. It should not, however, be used too strong, neither should the same stimulants be too closely adhered to, as plants, like animals, like a light, digestible, ever-varying diet. Good liquid from the manure tank of course forms the foundation, and it is questionable if a better standing dish can be manufactured by the best horticultural chef. Then, by way of change, there is good Peruvian guano, for making foliage, and soot-water for giving it a fine deep colour as well as keeping it free from insects when applied through the syringe. This excellent stimulant and insecticide can always be had ready for use by dropping a small bag of soot into cisterns from which the water for roots or shoots is taken daily. The early pot trees may now be syringed twice a day—the first time before the house is aired, the second after it is closed in the afternoon. Soft water or water free from sediment should always be used for Peaches, as lime in suspension soon disfigures the woolly-coated fruit. Tanks or large cisterns, inside and open to the atmosphere of the house, should therefore be provided for catching the water from the roof for this special purpose.

Stopping and shortening back where plenty of fruit has set near home and the general manipulation of the trees must now receive daily attention, and last, but not least, a keen eye must be kept on insect enemies. The appearance of the first green-fly will, of course, be followed by one or two mild smokings; and spider—although it should never obtain a footing in the orchard house—must be washed out by the syringe.

General house.—The fruit in this structure will now be setting if many of the trees have not already passed this stage. If well fumigated before the first flowers opened, there should be immunity from fly until after the latest trees are safe, when prevention being better than cure, a moderate smoking followed by good daily syringing, right and left, will most likely keep them free the remainder of the season. When all the fruit is set we ply the syringe with considerable force to wash out the decaying petals, and at once set about thinning. Triplets are first of all reduced to one and the best; pendent fruits, where they can be spared, are then removed and fruits apex upwards are left for thinning down to the future crop. Conjointly with thinning, pinching and disbudding

are always carried on, as we find the little and often system the best mode of managing pot fruit trees. The disbudding of well-formed pyramids is a very simple operation, when it is borne in mind that one shoot from the base of each fruit-bearing branch and another from the point to which we shorten back are quite sufficient for our purpose. The shoot from the base is allowed to make 12 inches to 14 inches of growth before it is pinched; the terminal in front of the fruit, if strong, is pinched about the fifth leaf; if weak or near the base of the tree, it is allowed to grow and form a terminal bud. All intermediate shoots are pinched close to form spurs or to draw food to the fruit. When a mixed collection of trees is grown, an abundance of air is an important point in good management; the ventilators should therefore be opened early on fine mornings to let out moisture when the rising temperature begins to condense it on the glass, and the circulation should be steadily increased until the time arrives for reducing and closing. Cherries, Plums, and Pears require the coolest and most airy end of the house. Strawberries when set, and Figs will stand a very high temperature; these plants being gross feeders and subject to spider, the application of good liquid to the roots and copious syringing under as well as over the foliage must not be neglected.

CHERRIES.

It is important that the trees in the Cherry house be perfectly clean and free from insects when the fruit, now well advanced, begins to change for ripening. Also the roots must be in a satisfactory state, neither too wet nor too dry, as the first extreme will cause them to crack, while the second will result in premature ripening. Under the impression that a low temperature forms the mainspring of success, young beginners sometimes shut off the heat to keep the thermometer right irrespective of ventilation. This is not good practice, as a low stagnant atmosphere is more likely to induce dropping than a higher temperature with abundant ventilation. To escape this dilemma the first essential in every stage is a free circulation of air with sufficient fire heat to prevent the temperature by night or day from falling below the minimum. When the fruit is decidedly on the change, all the borders, previously well watered, should be mulched with rather dry short manure to keep in the moisture, and the syringing of these particular trees must be discontinued. The ventilators opposite may be left slightly open through the night to prevent condensation of moisture, and airing through the day must be on a very liberal scale. If late sorts, including Bigarreau Napoleon and Elton, two of the best, are trained side by side with the early sorts, the first may be syringed until they also begin to colour, when a drier atmosphere, full air and protection from birds will become necessary. If young trees persist in pushing laterals, pinch them at the fourth or fifth leaf to force the sap into the leading shoots, which must be laid in full length to cover the trellis.

PLUMS.

The treatment of these and Cherries up to the time the latter begin to colour being identical, rules for the general management of one apply to the other. Plums, however, require a longer period to finish them properly, and for this reason they should be grown in separate compartments, or on blocks to facilitate the process of occasional syringing after the Cherries are ripe. If soft water of the purest quality can be procured, it may be thrown over the trees every day until the fruit is fairly on the change, but on no account must water which leaves a deposit of lime on the bloom be used. Plums, unlike Peaches, seem to resent hard forcing through the latest stages of their growth; indeed, they positively refuse to go forward. In order to get a dish of early fruit I have placed a few pot trees in the high temperature of an earlyinery, but they never coloured, while those left in the cool, well-ventilated house have finished well and been first ready for use.

Eastnor Castle, Ledbury.

Pear insects (W. J. H.).—The leaves of your Pear tree are affected I believe (but the leaf was much withered when it reached me) by one of the gall mites (Phytoptus pyri). I can suggest no other remedy than picking off the infested leaves and burning them to prevent the mites spreading. No insecticide would reach them, as they are within the leaves.—G. S. S.

FLOWER GARDEN.

LILIUM HARRISI.

THIS charming Lily should have a place in every sunny window in the land. It is one of the most beautiful in the entire family of Lilies, and its habits and requirements are not of the fastidious nature common to many of its class. Although a flower of the most exquisite delicacy and spotless purity in colour, form, and texture, it is not inclined to be over-sensitive as to the precise nature of the soil about its roots, the exact temperature or humidity of the atmosphere, or regarding the various other details of plant culture, which must be so carefully observed in the growth of so many of our choicest plants. Treat it like any respectable bulb of the Lily class, and a profusion of flowers is almost sure to follow in due time.

There has been much uncertainty as to the precise origin of this Lily, and florists have differed in regard to the sub-genus to which it belongs. Mr. Baker, in his excellent "Synopsis of all known Lilies," classifies it in the Eulirion group, and says it is a variety or sub-species of *L. eximium*. Henderson considers it a variety of the well-known *L. longiflorum*, or Trumpet Lily. Mr. Wilson calls it a tropically developed form of *L. longiflorum*. Mr. Hovey does not agree with him, and still inclines to consider it an open question. John Saul regards it as a variety of *L. eximium*. Mr. Hovey finds it distinct from *L. longiflorum* both in flower and foliage, and he says the bulb is much longer, tapering to the base, and also that it differs in habit. Nor is he content with the *eximium* classification. Thus, there is a multitude of opinions on the subject, and I shall not undertake to decide from my limited experience who is wrong and who is right. That it came here from Bermuda some five or six years ago seems to be settled. It was brought first to Philadelphia, I think. But that it originated in Bermuda is not so certain, though it is highly probable, as it has been growing and blooming there in the greatest profusion for many years. But so was *L. longiflorum floribundum*, brought from Bermuda. Hence to call *L. Harrisi* the Bermuda Lily, as is commonly done here, seems a little indefinite unless they are indeed identical. Then to name it the Easter Lily is quite as ambiguous, as this title has been applied to a number of our white Lilies flowering at that season, especially the old *L. candidum*. However, call it what we will, it is indeed a grand Lily. Surely the flowers are much larger than any *longiflorum* I ever saw, nearly twice as large, in fact, and larger also than any other of the *eximium* class. I have them now measuring 8 inches long and about the same across. They are delightfully fragrant, and a single plant will fill the house with grateful perfume. The plant itself is a stately object in any room, growing nearly 4 feet high, and being well provided with neat foliage. The substance of the flower is such that it lasts for many days after being cut, and it remains fresh and beautiful on the stem after expanding almost without change a long time. The habit of forming new bulbets in the pot around the base of the parent plant, which throw up new stems on their own account with great rapidity, producing fine large flowers, is a distinctive and most valuable feature with this Lily. This peculiarity has led some to believe that these were secondary stems proceeding directly from the old stem. But I have not found any such instance, although the little young bulbets do produce such new flowering stems.

This Lily has not been widely disseminated in this country as yet. The bulbs have been com-

W. COLEMAN.

paratively scarce, and high in price, and its many valuable qualities have not been generally understood. It began to be advertised quite extensively by leading American florists last autumn, and it is now being planted more largely. It seems to me it is destined to become one of our most popular and valuable Lilies in the immediate future. Henderson says it is entirely hardy south of Washington, and nearly so in all our Northern and Western States, requiring only a protection of a few inches of leaves and litter in the latter States. I hope this will prove true. But Mr. Hovey finds that it is not hardy in the New England States, and he says it can only be grown in pots, and I really fear that he is nearest right. But no matter for that. This Lily is too beautiful to be allowed to remain under our northern snow-banks all winter. We want it in our rooms and our dwellings, where we can enjoy its beauty and sweet fragrance during the long months of frost, which seem to be growing in bitterness and intensity as the years advance. We want its white and spotless purity to look upon in our daily lives as we mingle with our fellows and our families in our homes, and rub against the asperities of human existence. We need to inhale its sweet breath in mollification of our petulant dispositions. But if they can be so protected in the open in winter, so much the better. Such plants will then come into bloom early in summer, thus supplementing the production of our house pots. I hope we may hear from those who have made the trial.

H. HENDRICKS.

Kingston, N.Y.

Narcissus calathinus.—Referring to THE GARDEN (pp. 338 and 344), permit me to state that I do not know the Portuguese *N. calathinus*, but it is strange that the same plant should grow wild in the damp foggy climate of Brittany and under the dry hot sun of the south. Should it be the same plant, differences of climate might have changed its characters. This I shall know next year, as I am procuring bulbs of it and will grow the two together. It is said that *N. calathinus* is very difficult to cultivate; it may be, but I do not find it to be so. I grow it in ordinary loam in the open ground, and I have now a bed of it in full bloom, and really a beautiful sight. There are one, two, and three flowers on each stem, and in many cases the corona is much shorter than the perianth divisions. I have a hybrid, a cross between *calathinus* and pseudo-*Narcissus*, which is really beautiful.—D. GUIHENEUF, Nantes.

Blue Primroses.—The praise bestowed upon Mr. G. F. Wilson's pretty blue Primrose certificated the other day is fully deserved, as when exhibited the three or four blooms which it bore were very charming. On the other hand, we have myriads of Primroses producing finer blooms of better form and greater substance, but as they may be ever so rich in hue, yet lack the novel blue tint found in the Scott Wilson strain, they escape attention. I should have liked to have seen a duplicate plant of Mr. Wilson's Primrose as lifted from the open ground after having had to endure the several white frosts which prevailed just previous to the 13th; indeed, there was a sharp white frost on that particular morning. My reason for mentioning this is, that having found a large number of blues amongst my Primroses for several years, I have also found that these when in bloom invariably suffered more from white frosts than did the flowers of any other hue, and both for that reason, although many were the bluest I have ever seen, and also because I found these blues invariably the most lacking in robustness, I ignored them altogether last year as seed parents. For decorative purposes rich reds, lilacs, pinks, whites, yellows, purples, and crimsons are best, and produce the most effective results florally. The deepest coloured of the blues, some quite of the hue of *Lobelia speciosa*,

were the most difficult to keep, although apparently robust looking. It is somewhat strange that blue in the flowers should be allied with a delicate habit in the *Polyanthus*; and the old blue form of *Primula elatior cœrulea* invariably proved too delicate for ordinary border culture. It is still further strange that blue tints, in spite of the existence of this old bluish form, are quite absent in all other *Polyanthuses*, and present themselves only in Primroses. The why and the wherefore of this characteristic might well have been threshed out at the *Primula* conference could anyone have tackled it. I should like to add that possibly to that very pleasing kind of pale mauve hue once known as *Primula altaica* we may owe the bluish tint which Mr. Wilson's and some other Primroses show.—A. D.

SOME GOOD HARDY PERENNIALS.

IRISES.—THE GARDEN has done so much to popularise these as well as many other hardy flowers, that every year sees them increasing in numbers. The germanica group once planted in fairly rich soil, or in tufts in borders, take care of themselves for years. At this time I like giving them a top-dressing of some rich concentrated manure that the rains will carry down. In a less backward or late season this would be done a month earlier, but there has been little growth hitherto. The same treatment will be *appropos* for all the spring flowering kinds not yet blooming in the open ground, such as *I. sibirica*, from Siberia; *I. pumila*, including *I. obliensis*, the former from the Crimea, and latter from Turkestan; *I. ensata*. Some of the better kinds of *I. Kämpferi* (Japanese) I kept in a cold frame during the winter, and have just planted them out of the pots in the borders, but this was not indispensable. However, I prefer treating the Peacock Iris, *I. reticulata*, *I. stylosa*, and *I. susiana*, and I may add, the beautiful and too seldom seen *I. Robinsoniana* (from Howe's Island) in that way, for even if some of those lived through mild winters, the flowering would not be so satisfactory. As a rule, the bulbous Irises bloom best on a raised, sunny, warm border thoroughly drained. There being more than 300 species and varieties, a garden might be kept brilliant with Irises alone. This would be a good time to procure many of them in pots, and plant out for the summer's ripening.

POTENTILLAS.—As a rule these are too much neglected, remembering their comparative merits, especially for cutting. In the south of Ireland and England they do best in a somewhat shaded position, as they bloom when the sun is almost at his maximum strength and readily get scorched up. For cutting, then, the better plan is to take blooms commencing to open in the early morning; thus treated and the water occasionally changed, they last for weeks perfect rosettes, varying in colour from the richest shades of orange and yellow to the most intense velvety crimson, and for months together. If seed-pods are formed, all but one or two must be kept picked off, or exhaustion supervenes. I recently lifted a small collection, removed the old soil and buried old rotten manure beneath them. The different varieties of *Potentilla*, like the *Pansy* and a few other things, are invariably found to be finer in the north than in the south.

COLUMBINES (Aquilegias).—Many of the foregoing remarks apply to these when one wishes to retain old friends. If you try to grow them from seed you may get hybrids of various kinds, but almost for certain inferior to the types. The types (single) are about four in number. That from California (*A. truncata*) has bright scarlet flowers; *A. glandulosa*, flowers a rich contrast of deep blue and white; the deep golden yellow kind *A. chrysantha*; and last, but to my mind first, *A. cœrulea*, the Rocky Mountain Columbine. I have numbers of other garden kinds that spring up everywhere, but inferior to the foregoing. There are no flowers so easily grown or so useful. Owing to the immense length of the tap root so

late in the season, I prefer top-dressing to lifting them, if I think the soil exhausted.

ST. BRIGID'S ANEMONES.—I believe THE GARDEN and Mr. Burbidge are to be thanked for the introduction of this strain to commerce. Probably there is no other Crown Anemone that can come near this in size, substance, and brilliancy. If the seed is started early in the season, it will bloom late in the autumn and winter; if put in about this time, brilliant blooms can be counted on nine or ten months hence. As recommended by Mr. Burbidge, the better plan is to sow where intended to bloom, the bed to be rich loam and cow manure if convenient. All the Anemones, but this especially, transplant as seedlings badly, and take a long time to recover transplanting.

BEDDING FUCHSIAS.—You do not find Fuchsias usually included among hardy perennials, but I am about remaking a bed of *F. corallina*—the true variety, now very rare—that has been planted out for the past seven years. Severe winters it has been killed to the surface of the soil, but has always vigorously commenced growth in the spring. It is worth some care and trouble, so I buried a good load of stable manure underneath the plants a foot or more. For about five months every year branches of bloom can be cut and with advantage to the plants, as it is a very robust grower; while the fine purple-crimson coral bells are of immense size. I know of no other hardy variety including *F. procumbens*, *F. gracilis*, or *F. longiflora*, and the large number of small flowered kinds indigenous to the south and west coast to compare with it.

HYBRID GLADIOLI.—I cannot conclude without saying a word about my favourite flower. Though my early planted hybrids of *gandavensis* are now spearing through the ground, I understand from Mr. Campbell, of Gourco, the champion Scotch grower, and Mr. Dickson, of Newtownards, that in their climate and localities excellent results are attained by planting any time this month. I can bear witness to the magnificent spikes I saw with the latter cultivator myself last October. Early or late, I am a firm believer in rich rotted manure buried underneath the corms, and a handful of clean sand under and over it.

Clonmel.

W. J. MURPHY.

What is *Narcissus major* proper?—Since my return from the *Narcissus* committee at South Kensington I have been thinking about asking this question. Can there be, by any possibility, an error in the identification as to what is "true major" among *Daffodils*? The way in which I wish to put the case is this: Supposing some collector, for the first time, was to exhibit at South Kensington the *Narcissus major* of commerce. The experts sitting in committee would soon form a poor opinion as to its merits, and would probably discard it as unworthy of name. Now, with regard to what we call *spurius*, it is from this type we are getting our finest forms. Can it be possible that we latter-day-nineteenth-century searchers after truth are mistaken as to what is mock or real among *Daffodils*? Can *spurius* be major of the old masters, to use a fine-art expression, and what we now recognise as major be the mock *Daffodil* mentioned in old botanical works? The whole affair looks so like error, that I am induced to invite controversy regarding it. I accept true *propinquus* as a fine *Daffodil*, said to be near major. Bulbs of it planted in July are in bloom now, major being long since out of bloom.—W. BAYLOR HARTLAND, Temple Hill, Cork.

SHORT NOTES.—FLOWER.

Iberis semperflorens fl. pl.—The *Gartenflora* last year figured and described this double form of *Iberis*, which originated in a small garden in Thuringia, and which has been distributed by M. J. C. Schmidt, of Erfurt. It seems to be a real gain, and will probably be valued when better known for pot culture. It is compact in habit and flowers abundantly. It will undoubtedly make a good rockwork plant.—BYFLEET.

THE FLORISTS' AURICULA.*

In the year 1570 many artisans, driven out from the Netherlands, settled in this country, and they brought their favourite flowers with them, including the best of their Auriculas. We begin business at the old shop, for Gerard, who published his "Herbal" in 1597, described and figured half-a-dozen varieties. On page 640 the contrast between the yellow and the purple Bear's-ears, although shown in drawings that are truly execrable, is full of instruction in respect of the question before us. The other figures are of little consequence, but the two that lead the way speak emphatically of the

DISTINCTION BETWEEN THE TRUE AURICULA AND THE ALPINE AURICULA.

In plain truth, they were as distinct then as they are now, and John Gerard's bad drawings hit the truth admirably. It is important also to note the remark of Johnson in his edition of Gerard, published 1633, to the effect that there are divers varieties, differing in the leaves, which are green or hoary, and in the flowers, which are white, yellow, red, and purple, the gardens of Mr. Tradescant and Mr. Tuggie being well furnished with such. These things prepare us for what the immortal John Parkinson has to say. In his "Theatre of Plants" (1640) he copies the bad figure from the Antwerp Dodona, and describes twenty-six kinds of Auriculas. "It is of the highest interest to note that amongst them occur a "stript purple," which he describes as singularly changeable; also a parti-coloured red and white "heard of, but not seen." The Collie, that he describes as "somewhat sad, but very lively," and the "Purplish Blew," appear both to have been of the class known to us as selfs, while "Heavens Blew," "Paler Blew," and "Bright Crimson," were of the class now known as alpine. Of yellows he says there were many, but so mixed "I can not express them." This is just what might be expected, and it may be fair to add that, as a matter of course, they were the least valued, because not far enough removed from the wild flower of the mountains, for the opinion appears to have prevailed that there was only one kind of wild Auricula. In the "Paradisus" there are twenty varieties described, a few of which are admirably figured. Of these nine had green leaves without meal, and the remainder were more or less mealy. The flowers are presented as varying in colour, and some have a centre of the kind we call "paste," while others are without it. The colours are just such as we find in border Auriculas of the present day, comprising shades of red, purple, violet, maroon, yellow, and white. We are certainly in the midst of Auriculas, not only of the mountain, but also of the garden. It appears that we have in the "Paradisus"—inexhaustible treasure as it is—the fountain of diversity as revealed to the penetrating eye of "Thine in what he may" the author of what he himself in his dedication designates "this speaking garden." This paper should be something like a catalogue of evidences, and I invite your attention to the description of the "great straw-coloured Beares-ear," at page 238 of the book last mentioned. "This hath almost as mealy leaves as the last, but nothing so large; the flowers are of a faire strawe colour, with a white circle at the bottom of them." These three last (that is the great yellow, the greater yellow, and great straw) "haue no shew or shadow of any other colour in any part of the edge, as some others that follow haue."

EDGED AURICULAS.

The "blush Beares-ear," the "haire coloured Beares-ear," and the "yellow variable Beares-ear" are described as edged flowers. For example, "the bluish has a ground colour of a dark or dunne-yellow, shadowed over a little with a shew of light purple, which, therefore, we call a bluish colour, the edges of the flower being tipped with a little deeper shew of that purple colour, the bottome of the flower abiding wholly yellow, without any circle, and is of very great beauty." The hair coloured is of a brownish yellow, edged with a shew or shadow of a light purple colour. The yellow variable is of a fair yellow, "dasht about the edges onely with purple, being more yellow in the

bottome of the flower then in any other part." I seem to hear our friends the florists say that these were flowers with shaded edges, of which we have many at the present day. Yes, the history of the flower is before us, and the "Paradisus" appears to provide us with the very first record of that kind of edging. Parkinson reserved a *bonne bouche* for a wu-d-up of his feast of Auriculas. It is the "variable green Beares-ear." This hath green leaves snipt about the edges; the flowers are yellowish green, having purple edges; these have no circles at all in them. This variable green with a purple edge might, for present purposes, be assigned the position of a pole star in the floral firmament; at all events, I, for one, feel attracted to it, and expect it to afford assistance in tracing out the order of the stars in the two constellations of Ursa major and Ursa minor that "in earth's firmament do shine;" for these stars seem to be now coming home to us. There is no special interest for the present occasion in the progress of the Auricula in what appears to have been its early conditions as regards range of colour and variation of leafage. It is only when it assumes what, for convenience sake, may be termed its exhibition character, that it becomes more than ordinarily attractive, not only for the delight of the eye, but as a subject for scientific study. Let us then consider the position of the edged flowers in the history. The one presented us by Parkinson is very different to the florists' Auricula of the present day; but it is probably a true Auricula, for the leaves "do turne and fold themselves a little backwards," the flowers are less expanded than some others, but, alas! they have no circles in them, and the variety is not figured. This, we will say, is the most remarkable of all cultivated flowers, a small wonder, but a true one; a great achievement of art or a most extravagant freak of Nature. When did the first properly-edged flowers appear? That question is now forced upon us, and is full of significance, even if judged by this first record of a green flower with a purple edge. A very trifling change would give us a purple flower with a green edge, and changes of that kind are common enough. Strange to say, edged flowers were not received with open arms by the faculty. They had to win their way slowly to the favour of the florists, and on the principle that the world knows not its greatest men, the gardening world in general was for a long time ignorant of this unique production—this most precious of all the jewels in the diadem of Queen Flora. The proof of this will furnish matter for a paragraph.

In Miller's "Dictionary," first published 1731, the edged flowers obtained no recognition, but Miller provided a good code of judging Auriculas, *minus*, of course, certain points that are of peculiar importance now. The fact proves that the flower had acquired extensive popularity, and inspired some kind of corporation that for present purposes may be designated the Auricula Fancy. Even in 1676, fifty years after Parkinson had so nearly witnessed the making of the florists' Auricula, John Rea, in his "Florilege," described striped flowers, and advised the selection of flowers "with white eyes that will not wash." The subject obtains scientific treatment in Hill's "British Herbal" (1756), and the author, John Hill, M.D., boldly declares that many of the so-called species of authors "are no other than varieties of this plant rising from culture." At page 98 he speaks of the yellow Auricula as standing alone, and apart from those that produce red and purple flowers. Of these last he says there are three species not directly related to the yellow Auricula, and these he describes as narrow-leaved, round-leaved, and long-leaved. To one of the descriptions he adds the remark that "there is no judging by what one sees in gardens, where the accidents occasioning varieties are endless; but in those collected wild there is no error." In Hill's "Eden," by the same John Hill, published 1757, Auriculas are fairly treated of, but edged flowers are not mentioned. Hanbury's "Body of Gardening," 1770, gives a hint in the way of our search in speaking of variegated Auriculas. It is a question of some importance whether the variegated flower of Hanbury was the striped flower of Parkinson, or a modification of that edged flower that had been noted as a curiosity a hundred and fifty years before. There is clear evidence in the "Florist" of 1849 that in the

year 1732 the edged flowers were not generally recognised; but in a code of rules for judging Auriculas "flakes" and "stripes" are mentioned as important adornments of the flowers that were in favour in 1732. Mr. Slater, in his "Amateur Florists' Guide," gives a list of proper edged flowers that were in cultivation in 1776, and in my paper, read here in 1882, I assumed—I still think properly—that some of these were in existence in 1750, or earlier. The varieties known as Pott's Eclipse, Rule Arbiter, and Hortaine were in cultivation in 1757. About 1785 the edged varieties were plentiful, and amongst them were Grimes's Privateer, Popplewell's Conqueror, Gorton's Champion, and Wrigley's Northern Hero, which are still in cultivation, not as archæological curiosities, but because they are good and have retained their initial vigour as cultivated plants for upwards of a hundred years.

In fixing a date for the earliest record of an undoubted edged flower, I am indebted for valuable aid to my friend Mr. Harrison Weir, who, in a communication to the *Gardeners' Chronicle* of May 6, 1882, refers to Sir Thomas Moore's "Flower Garden Displayed," published 1734. In this work many Auriculas are described, some of them introduced from Holland, and others raised in this country. It is important to note that the Dutch and the English varieties appear to differ as alpine and true Auriculas, both classes finding favour here, but the English raisers having an especial affection for Auriculas proper, as apart from the alpine section. Now, it is of the highest importance to observe that amongst many flowers of a class known as "Painted Ladies," because delicately improved, as the ladies of that day were, with a dusting of white powder, several are described as striped, and one as distinctly edged. The edged flower is called Honour and Glory; it is said to have "a good white eye and the flower striped with a dark reddish purple on a white ground, so as to leave the edge of the flower white." I repeat that this contribution to the history is important, because it not only places before us an undoubted edged flower, but it shows that the difference between stripes and edges was recognised. More than this, it shows that striped flowers were much valued, for one called the Royal Widow was sold for ten guineas, but the value of the edged flower is not suggested. It would be delightful could we find in the winning stands of the present season an example of the edged flower of 1734, which was very different to Parkinson's green with purple edge. As we cannot find the flower, we will look for Honour and Glory of a larger kind. Perhaps in the soundness of our work, and the sweetness of our tempers, and the earnestness of our hopes, we may be promoting a higher and wider appreciation of the Auricula, in which case honour and glory are secured, and we may safely proceed in the good old way, according to the sacred precept, "Whatsoever thy hand findeth to do, do it with all thy might." Let us now ask the question—

WHENCE CAME THE FLORISTS' AURICULA?

Charles Darwin, in "Forms of Flowers" (p. 43), derives it from *Primula pubescens*, which is represented as a hybrid between *P. Auricula* and *P. hirsuta*. Herbert, in "Horticultural Transactions" (vol. iv., p. 19), considers *P. Auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* to have been concerned in the parentage. Indeed, Mr. Herbert considered he had raised a powdered Auricula from *P. nivalis*, which may be regarded as a white-flowered variety of *villosa* of Jacquin. As he gives no description, it is impossible to say whether his plant would pass for an Auricula if brought up for judgment here today; but he was not the kind of man to make any glaring mistake, and his plant must have differed from *nivalis* to entitle it to such special mention. Mr. Herbert, at the same reference, suggested that *P. Auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* are but varieties of one and the same species. To the list may be added *hirsuta*, *pubescens*, *minima*, and *nivea*, for in truth we are now trading in names, and we shall have to be careful that we do not mistake shadows for substances. In his "Die Geschichte der Aurikel" Professor Kerner avows his belief that *Primula Auricula* is not subject to variations, and that it probably did not keep a place in gardens for any length of time beyond the middle of the seventeenth

* Read by Mr. Shirley Hibberd at the Primula Conference, April 21, 1886.

century. But then he obtains for the making of the garden flower the blood of *P. Auricula* and *P. hirsuta*, which he regards as the parents of *P. pubescens*; and from this last, a reputed hybrid, he derives both the edged and the alpine varieties. This proposal will not be accepted by many of the raisers of seedlings, whose experiences have rendered them familiar with the peculiarities of both classes. It affords but poor promise of an explanation of the persistency of the yellow colour and the farinose decoration of the show flowers. Nor does it satisfactorily explain the shaded margin and the persistently naked leaf of the alpine section. As regards the yellow of the show flower, it does not appear in its true proportions to the casual eye; but if you will carefully wash away the paste, you will find that it is laid upon a yellow ground. It seems to be the function of paste to play a game of deception. Kerner's views have been partially approved by Mr. J. G. Baker, of Kew; but he appears to lean to *Primula Balbisi* as a prominent progenitor, and he associates the edged flowers and the alpinas as at least not specifically distinct. The Rev. F. D. Horner, who combines experience as a raiser with knowledge of species and a fine faculty of observation, reckons *Primula farinosa*, *P. scotica*, *P. marginata*, *P. intermedia*, and *P. viscosa* as concerned in the parentage, and probably he would separate the edged flowers from the alpinas as of different origin. Finally, I propose to you that we may with advantage regard the edged or show *Auricula* and the alpine *Auricula* as, for present purposes, specifically distinct. The general agreement of the alpinas is with *P. comutata* and *P. pedemontana*, the last named being emphatically reflected in it. On the other hand, *P. ciliata* of Moretti may be associated with *P. Auricula* as concerned in the formation of the florists' flower. But, after all, this is like arguing in a circle. The two that I have selected as begetters of each group are specifically one or two at the discretion of the botanists, as they may take broad or narrow views. We are in the same plight as regards the *Primulas* as we were in regard to the *Daffodils* before the congress operated, when, as you will remember, a great reduction of the species was carried into effect. I will venture now to say that the employment of names in the expression of our ideas as to the origin of the *Auricula* must be subject to the possible reduction of names by the revising committee. I can find a dozen or more so-called species that are possible parents of the *Auricula*, but as I question their specific independence, I do not feel that making a catalogue is, in this case, the solution of a problem in biology. As for *Palinuri*, I cut short the connection by dismissing it as a possible progenitor of *Auriculas*.

DISTINGUISHING CHARACTERISTICS OF THE AURICULA.

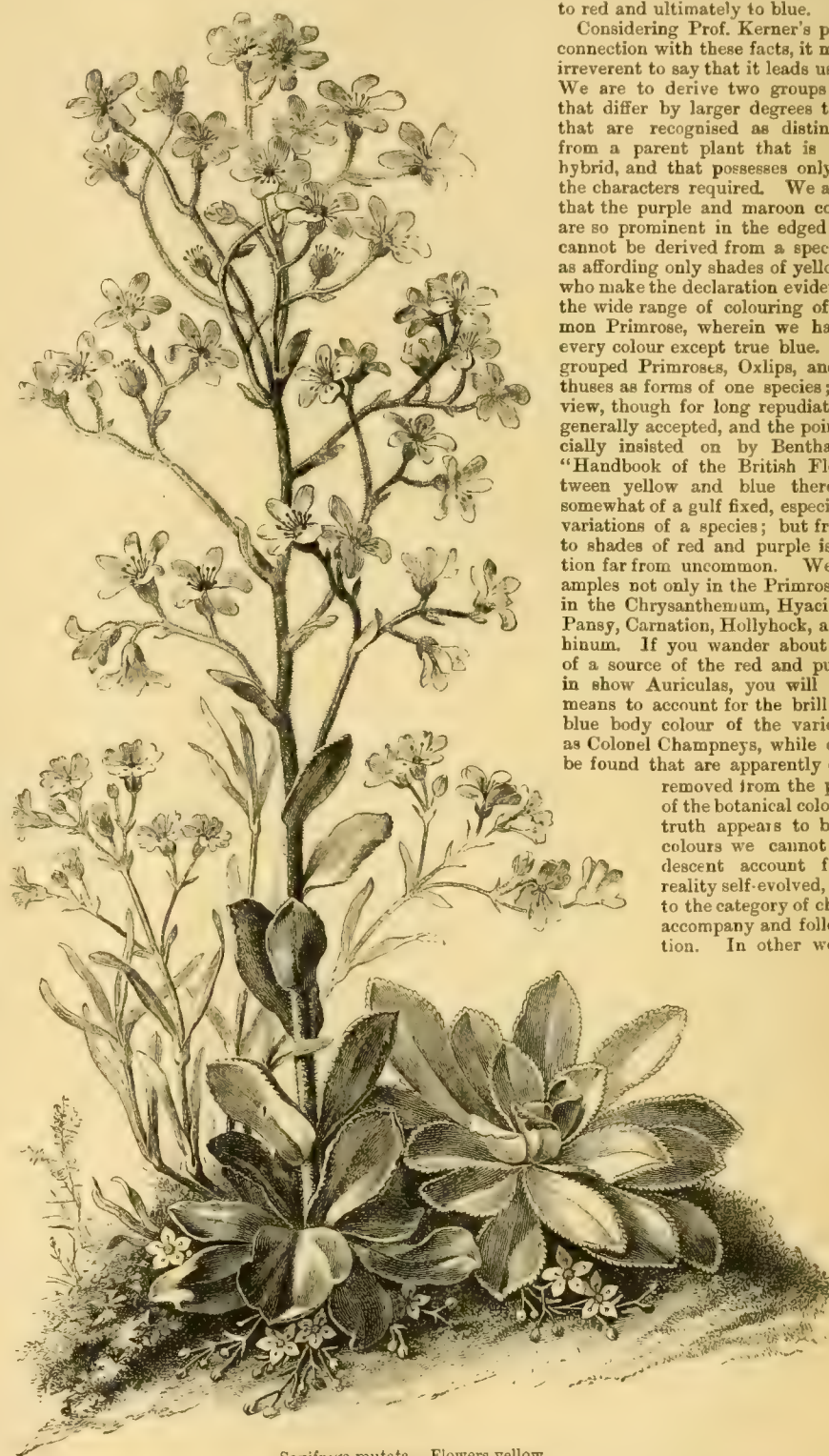
Let us now make a brief study of an *Auricula* with reference to the facts that are before us. In certain characters it is constant. The leaves are stout in texture, often leathery, sometimes slightly cartilaginous. The flowers are always in a many-flowered visible umbel, never, like those of the *Primrose*, appearing singly from a concealed umbel. The floral bracts are short, never like those of *P. calycina*, longer than the flower-stalks. The corolla is distinctly contracted below into a tube and expanded above into a salver; it is never contracted into a cup or goblet, as in *P. sikkimensis*. The dusting with protective meal is not a distinguishing feature; but its abundant appearance as a decorative character of the exhibition flower is strikingly characteristic, and though it may be said that by long-continued crossing and selecting its appearance there may be regarded as the work of the artist called Man; yet his work is limited, not only by the capabilities, but by the disposition of Nature. The powder belongs to the face of the flower, although its quantity and arrangement may be an exaggeration of Nature's intentions. The show of yellow in the colouring of the flower is a constant character. This is a colour wanting in many of the supposed parents. It should be borne in mind that the flowers of highest quality represent long-continued and severe selection; and therefore in an exhibition, or even in the general stock of the cultivator, we do not see the entire character and possibilities of the flower. The seed-bed offers the raiser many that he will simply destroy, because of

their nonconformity to rules, and amongst the condemned will be many of the so-called fancy flowers, that have no body colour, and approximate to the species. It should be remembered, too, that all the edged flowers have green edges; for although classed as green, grey, and white, it is only the relative

colour, which, from the florists' point of view, is one of its distinguishing beauties. It would be more reasonable, perhaps, to regard the green colour as a remainder of the original colour of the flower, for, according to the doctrine that has found general acceptance, the flower should be first green and then yellow, with the potentiality of changing to red and ultimately to blue.

Considering Prof. Kerner's proposal in connection with these facts, it may not be irreverent to say that it leads us nowhere. We are to derive two groups of plants that differ by larger degrees than many that are recognised as distinct species from a parent plant that is a reputed hybrid, and that possesses only a few of the characters required. We are assured that the purple and maroon colours that are so prominent in the edged *Auriculas* cannot be derived from a species known as affording only shades of yellow. Those who make the declaration evidently forget the wide range of colouring of the common *Primrose*, wherein we have almost every colour except true blue. Linnaeus grouped *Primroses*, *Oxlips*, and *Polyanthuses* as forms of one species; and that view, though for long repudiated, is now generally accepted, and the point is especially insisted on by Bentham in his "Handbook of the British Flora." Between yellow and blue there may be somewhat of a gulf fixed, especially in the variations of a species; but from yellow to shades of red and purple is a transition far from uncommon. We have examples not only in the *Primrose*, but also in the *Chrysanthemum*, *Hyacinth*, *Tulip*, *Pansy*, *Carnation*, *Hollyhock*, and *Antirrhinum*. If you wander about in search of a source of the red and purple tones in show *Auriculas*, you will never find means to account for the brilliant violet-blue body colour of the variety known as Colonel Champneys, while others may be found that are apparently equally far

removed from the possibilities of the botanical colourist. The truth appears to be that the colours we cannot by direct descent account for are in reality self-evolved, and belong to the category of changes that accompany and follow cultivation. In other words, these



Saxifraga mutata. Flowers yellow.

density of the meal that makes the difference. It has been boldly declared that this green colour is a monstrosity, indicative of a return of the flower to the status of a leaf, but we will defer the serious consideration of that proposal until we see the flower take the form of the leaf in addition to a touch of

colours, with other characters that might, with equal reason, perplex us, are, in a certain sense, laid on by the hand of the cultivator. It is the fear of the botanist, who cannot recognise any merit in his brother the florist, that prompts him to find in this or that flower that the hand of man has left untouched, the sources

of properties that the florist has developed by long continued cultivation in view of an ideal model, towards the realisation of which he is ever striving, but never attaining, though happy in the endeavour, and justly though quietly proud of what so far has been actually accomplished. To obtain the two great classes of Auriculas from *Primula pubescens* is a greater extravagance on the part of Professor Kerner than any florist has ventured on as yet; but the florists have discovered long since that seeds derived from show flowers do not produce alpine varieties; and, on the other hand, it is all in vain to hope for edged varieties from the seeds of the alpine section. The general acceptance by the botanists of the proposal of Professor Kerner shows how much they need in their researches the aid of men who have acquired experience in the raising of new varieties of garden flowers and in the management of garden plants generally.

Parkinson, 250 years ago, had a green flower with a purple edge. That must have been in existence long anterior to the writing of the "Paradiseus." It is not extravagant to entertain the supposition that it had been in existence hundreds or thousands of years before. In the same collection were striped flowers, and these appear to have increased until in the early part of the eighteenth century they abounded. Then, again, we hear of an edged flower called Honour and Glory in the year 1732, when Sir Thomas Moore described it. Since then edged flowers have increased in number, and now constitute a race that has all the useful characteristics of a species. The green has proceeded outwards to the margin and settled there; the stripes have moved in the same direction and formed a ring within the margin; and the farina has accumulated around the centre to form what is termed the paste; while a rich tone of yellow marks the centre, and gives accent to the green of the primal flower, the result being an arrangement of colours in four orderly masses, three of them in circles of definite geometrical proportions. The Carnation offers a nearly parallel example, for here we see the flakes of the flower moving outward to the edge to fashion the Picotee. It is like the action of centrifugal force, the colours appearing desirous of moving off into space. What is termed the thrum does not appear to demand special notice in connection with the origin of the flower, but I shall not seriously interrupt the study of the subject by remarking that Charles Darwin found the short-styled flowers the most productive of seed, and thus the taste of the florist in this respect is in strict accord with the frugal notions of Nature. The rich yellow of the thrum is another feature favourable to the flower, which is as hardy and vigorous as any of its kindred, although commonly represented by the traducers of the florists as a debilitated thing that requires a man and a boy to hold it up.

Auriculas naturally divide into two groups, the alpine leaning to *Primula villosa*, the Auriculas to *Primula Auricula*. There does not appear to be any necessity for the admixture of *Primulas* that has been hypothecated for the formation of these flowers. The facts of history suggest that in all their more distinctive forms these two sections represent only two species, and that each in its essential characters is self-contained and self-containing. We have no proof at any time of distinct hybridity, but it must be acknowledged as a fact favouring the view of a considerable range of parentage that the allied species breed freely together. The *Primulas* that most often come into contact with man are, like him, of a sportive nature. The laced *Polyanthus* might perplex us with its golden edge, and there are many edged Oxlips in the present exhibition, and some that display stripes and incipient edgings, and that are probably in a condition of change corresponding with the Auriculas of Gerard and Parkinson.

Daffodil Sir Watkin. We have seen this grand new Daffodil very frequently this year at shows, but it is a pleasure to have a large bunch of fresh flowers of it on our table. These came from Messrs. J. Dickson's Newton Nurseries, Chester, from whence all the bulbs in commerce have, we believe, been distributed. We can only repeat what we have often said, that it is one of the choicest among select sorts, and were we limited to a dozen Daffodils, this would certainly be one of them. The enormous flowers which Mr. Walker, of Whitton, showed of it on Tuesday were the finest examples yet produced.

A SYNOPSIS OF THE EUROPEAN SPECIES OF PRIMULA, WITH THEIR DISTRIBUTION.

By J. G. BAKER, Kew.

GROUP I.—PRIMULA STRA.—Young leaves revolute, never mealy beneath. Calyx strongly ribbed. Flowers yellow.

1. *P. vulgaris*, Huds. (Primrose).—Leaves narrowed gradually to the base. Umbel sessile; pedicels long. Calyx-teeth lanceolate. Corolla-limb large, pale yellow.—Distrib.: Throughout Europe, except the Mediterranean region.

2. *P. elatior*, Jacq. (true Oxlip).—Leaves narrowed gradually to the base. Peduncles produced; pedicels short. Calyx-teeth lanceolate. Corolla-limb large, pale yellow; throat not plicate.—Distrib.: Throughout Europe, except the Mediterranean regions. Differs from the hybrid Oxlip by its more villose calyx and paler corolla, not plicate at the throat.

3. *P. officinalis*, Scop. (Cowslip).—Leaves narrowed suddenly at the base to a winged petiole. Peduncles produced; pedicels short. Calyx-teeth deltoid. Corolla-limb smaller, deeper yellow; throat plicate.—Distrib.: Throughout Europe; rare and not typical in the Mediterranean region.

GROUP II.—ALEURITIA.—Leaves often mealy beneath, revolute when young. Calyx not ribbed. Flowers lilac.

4. *P. farinosa*, Linn.—Leaves small, crenulate, mealy below. Pedicels and calyx also mealy. Calyx-tube campanulate; teeth as long as tube. Corolla-tube short.—Distrib.: Northern and Central Europe, mountains of Spain.

5. *P. stricta*, Hornem.—Differs from *farinosa* by leaves not mealy beneath, pedicels and calyx not mealy, flowers fewer.—Distrib.: Mountains of Scandinavia and Northern Russia.

6. *P. sibirica*, Jacq. var. *finmarchica*, Jacq.—Leaves broader than in *farinosa*, entire, not mealy beneath. Pedicels longer. Calyx-tube oblong; teeth much shorter than the tube. Corolla-tube short. Flowers few.—Distrib.: Mountains of Scandinavia. The type known in Siberia only.

7. *P. frondosa*, Janka.—Leaves large, thin, not mealy beneath. Calyx-tube campanulate; teeth lanceolate-deltoid, as long as the tube. Corolla-tube short.—Distrib.: Mountains of Thrace. Very rare.

8. *P. longiflora*, All.—Leaf like that of *farinosa*, usually mealy beneath. Calyx longer, both tube and teeth. Corolla tube 1 inch or more long. Corolla limb half to three-quarters of an inch in diameter.—Distrib.: Mountains of Central Europe.

GROUP III.—AURICULASTRA.—Young leaves involute. Calyx short, both tube and teeth.

* *True Auriculastra*.—Leaves, calyx and pedicels not viscoso.

9. *P. Auricula*, Linn.—Leaves large, entire or minutely toothed. Leaves beneath, pedicels and calyx mealy. Bracts small. Flower pale yellow.—Distrib.: Mountains of Central Europe.

10. *P. Palinuri*, Petag.—Differs mainly from the large forms of *Auricula* by its constantly inciso-crenate leaves and larger foliaceous bracts. Flower pale yellow.—Distrib.: Promontory of Palinurus, Naples.

11. *P. marginata*, Curt.—Much dwarfer than *Auricula*, with strongly inciso-crenate leaves with a white mealy margin. Flowers fewer, lilac.—Distrib.: Alps of Dauphine and Piedmont.

12. *P. carnolica*, Jacq.—Leaves oblong, thin, entire, not at all mealy. Flowers lilac.—Distrib.: Alps of Austria and Lombardy.

** *Erythrodora*.—Leaves, pedicels and calyx viscoso.

13. *P. viscosa*, Vill.—Leaves obovate, strongly inciso-crenate. Pedicels twice as long as calyx. Calyx-teeth nearly as long as the tube. Flowers few or many, lilac.—Distrib.: Pyrenees and mountains of Central Europe. Many varieties (*villosa*, Wulf., *latifolia*, Lap., &c.).

14. *P. daonensis*, Leyb.—Differs from dwarf few-flowered forms of *viscosa* by its narrower leaves, shorter pedicels and much smaller calyx, with very small obtuse teeth.—Distrib.: Granitic Alps of Switzerland and Austria.

GROUP IV.—ARTHURITICA.—Young leaves involute; calyx long; tube cylindrical or infundibuliform. Flowers always lilac.

* Corolla lobes shallowly bifid.

15. *P. calycina*, Duby.—Leaves large, entire, acute, with a distinct white, mealy edge. Bracts large, linear. Calyx half an inch long; teeth lanceolate, as long as tube.—Distrib.: Alps of Lombardy.

16. *P. spectabilis*, Tratt.—Leaves large, entire, obtuse or subacute, with an indistinct pale edge. Bracts smaller than in the last. Calyx quarter to one-third of an inch long; teeth much shorter than the tube.—Distrib.: Alps of Central Europe; several varieties; was included by Linnaeus under *integrifolia*.

17. *P. integrifolia*, Linn. ex parte.—Dwarfer than *spectabilis*, with smaller leaves and only 1-3 flowers.—Distrib.: Pyrenees and mountains of Switzerland and Lombardy.

18. *P. Allioni*, Lois.—Dwarf, 1-2 flowered, with very short peduncle and pedicels. Leaves obovate, very obtuse, subentire, viscoso.—Distrib.: Alps of Piedmont, very rare; and a geographical variety (*P. tyrolensis*, Schott) in the Tyrol.

** Corolla-lobes deeply bifid.

19. *P. minima*, Linn.—Very dwarf; leaves small, obtuse, sharply toothed, not viscoso; flowers 1-2; peduncle and pedicels both very short.—Distrib.: Mountains of Switzerland, North Italy, Austria, and Turkey.

20. *P. glutinosa*, Wulf.—Leaves obtuse, denticulate, viscoso. Flowers many, in a dense umbel, with an elongated peduncle, and large oblong obtuse bracts; pedicels absent.—Distrib.: Mountains of the Engadine, Lombardy and Austria.

SAXIFRAGA MUTATA.

THIS is one of the few yellow-flowered species of Saxifrage, the prevailing colours in the genus being white and pink. It belongs to the Crustaceous group, all the species of which have thick-textured leaves with a cartilaginous margin, as is well shown in the illustration of the plant on the opposite page. *S. mutata* bears some resemblance to *S. lingulata*, but the leaves of the rosettes are broader, shorter, and not so pointed. The rosette of leaves is symmetrically formed, and from the centre the flower-spikes rise several inches in height, sometimes a foot or more; as shown in the engraving, it is densely covered with glandular hairs; the flowers are of a yellowish buff colour, sometimes brighter, and being numerous are very striking when all are expanded. Though a rather uncommon plant in gardens, and often not easy to obtain from nurseries, it is a very old plant to botanists, as Linnaeus himself gave it the name which it now bears. It is found on the Pyrenees, the Alps, and other mountains in Central Europe, and does not appear to be a rare plant. It is, however, not one of the easiest alpine plants to keep in good health in a garden. It may be grown well on a rockery with other Saxifrages of a similar nature, but a spot should always be chosen for it where it can have plenty of moisture during the season of active growth. It belongs to the same group of species as *longifolia*, *Cotyledon*, *Aizoon*, *lingulata*, *crustata*, and *cochlearis*, all of which bear white flowers, and are among the choicest of alpine plants. The other yellow or yellowish-flowered species in the group is the rare little *S. luteo-viridis*, and now there is a variety of *S. aretioides* called *primulina*, which may be added to the number of yellow Crustaceous Saxifrages.

Primroses from seed.—Everyone who grows these charming spring flowers should annually raise a few seedlings, for, in addition to the greater vigour which young plants exhibit at blooming time, there is the chance of something good turning up, as well as the guarantee that the stock of plants will be maintained at the desired standard. By marking the best plants, and saving seed only from them, one's strain of Primroses may in a short time become much improved. Improvement is also accelerated by removing degenerate varieties as soon as they show bloom. The finest flowers are undoubtedly produced by plants which bloom for the first time in their first flush of youthful vigour. Their charming attributes are intensified, but they only show how lavishly they can produce their pretty flowers in the second year of their life. After the second year they are more exposed to the perils which artificial conditions entail upon them, and are, in light soil especially, liable to die off wholesale. Unfortunately, one does not realise the losses till autumn, for it is the nature of the Primrose and *Polyanthus* to become in a measure defoliated in summer, and no doubt the comparative absence of foliage helps on the ruin; it is like a man standing in the hot sun without a head covering; the naked crowns are stricken by the sun, and are roasted and parched till they come to the consistency of a dry stick. Naturally, Primroses get friendly shade from a stronger vegetation. Now is the time to sow if good blooming plants are required for next spring, and if the advantage of warmth can be given, the seeds will germinate quicker and all the more surely. When the young plants are well up, get them out without delay into a cool frame, guarding against checks of all kinds. Prick them out when large enough to handle into pans or boxes, put them into a cool sheltered place, and as soon as the leaves begin to touch, plant them in their permanent quarters. Work the ground well before planting, forking in a good coat of soot, which this class of plant seems to like. Water as needed and they will make fine plants by the end of the autumn. I would, however, counsel all who can do so to sow the seed as

soon as ripe. There is no comparison between the germination of seed a year old and that which is sown within a month or so of gathering. The one comes up sparsely and tardily, some of it not at all; of the other, not a seed seems to miss. Plants sown at that time will bloom the first year not abundantly, but the flowers will be of excellent quality.—J. C. B.

Odontoglossum Alexandræ.—Messrs. Shuttleworth, Candler and Co. write: "The specimen of this Orchid sold at Protheroe and Morris's rooms on April 16 for 160 guineas (see page 366) originated from an importation made by us in 1885."

Orchid exhibition.—The Orchid exhibition at Mr. William Bull's establishment in the King's Road, Chelsea, which annually attracts so much attention and is so largely patronised, opens on Tuesday, May 4, and continues through the months of May, June, and July.

Orchids at Camden Wood, Chislehurst.—Mr. Vanner's choice collection of Orchids contains at the present time many rare and otherwise noteworthy kinds in flower. There is the finest plant of *Odontoglossum polyanthum* we ever saw, having a spike of nineteen flowers, each of a large size and of a soft lemon yellow blotched with coffee brown. Other out of the common *Odontoglossums* include *O. Wilckeanum*, a yellow hybrid in the way of the rare *pronopetalum* and *O. Edwardi*, while commoner kinds which enliven the house with bloom comprise such as *O. Rossi rubescens*, *O. citrosium* in various shades of colour, *O. Cervantesi*, with its varieties *roseum* and *decorum*. There are some interesting *Masdevallias* of the *Chimera* section, the most remarkable being *M. Roezli rubra*, a variety near *M. Winniana*, but of a deep port-wine colour. The true *M. Roezli* is represented by a plant having ten flowers as black as a nigger, and of a queer unflowerlike shape. Like miniature black bats are flowers of *M. Backhousiana*, and one plant bears eight of them. Other *Masdevallias* worth noting are *M. Armini*, a little gem; *M. Veitchi grandiflora*, appropriately named; while an Orchid grower cannot pass unnoticed a grand plant, such a rarity as *M. macrura*, carrying twenty-two leaves. The *Cattleya* house, now that its legitimate occupants are at the lowest ebb of their flowering season, is gay with such as *Oncidium sarcodes*, some of which have long spikes carrying from fifty to 100 flowers, *Coelogyne ocellata maxima*, *Epidendrum pseudo-Epidendrum*, and *Dendrobium densiflorum*. The *Cattleya Mendeli* plants are beginning to flower, and for some time *C. Lawrenciana* has formed one of the special attractions of the house. Among choice *Phalaenopsis* are *P. Sanderiana*, and the little known *P. Marie* is coming into flower. The best of the *Cypripediums* in bloom are *C. Sedeni candidulum* and *C. grande*, both at the top of the list of first-rate hybrids.

Hearting Borecole.—On our deep, cold, clayey subsoil hearting Kale is the hardest and most productive for winter and spring use. During this last winter, when almost every other vegetable has been destroyed, this Kale is left untouched, and is now in full vigour. As soon as the heads are cut the long stalks sprout from the bottom upwards, and in a few days form quite a bush of sprouts, which, when cooked, are all that could be desired. On deep cultivated ground, supplied liberally with manure, the growth is vigorous and quick, and gets well ripened by the autumn. For cottagers no vegetable could be more useful than this, and now is a good time for sowing it. By sowing in rows the plants make sturdy growth, and, by drawing out the largest as ground becomes vacant and cleared of early crops, they may be planted out in rows 18 inches apart up to the end of August.—JAMES SMITH, *Waterdale, St. Helens.*

Testimonial to Mr. William Holmes.—A committee has been formed for the purpose of raising a fund to present Mr. W. Holmes with a testimonial in recognition of the valuable services he has rendered to the National Chrysanthemum Society in his capacity of hon. secretary. The president of the society, Mr. E. Sanderson, of Willesden, is the chairman of the testimonial committee, and Mr. N. Davis, the Lilford Road Nurseries, Camberwell, is the hon. secretary. Already a substantial list of subscriptions is announced.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 26.

AGAIN the glow of yellow Daffodils predominated. They seemed to be more numerous than ever, and certainly finer, both in size and colour, than any hitherto shown this season. Besides the *Narcissi* there were, however, some admirable pot *Roses*, alpine and other hardy flowers, and a group of fine foliaged plants from one of the best market plant nurseries we have, added to which there were a good many new plants, the whole making up an interesting exhibition. A comparatively large number of certificates were awarded, there being no fewer than twenty.

BEAUMONTIA GRANDIFLORA.—The remarkable East Indian stove climber described in *THE GARDEN* the other day (p. 342). The cut flowers shown on this occasion were even more beautiful than those which Mr. Ruffett sent to us, their exteriors being quite white, not greenish brown, as in the younger flowers first sent from Panshanger. This grand old climber, so seldom seen in bloom, was the most noteworthy plant shown.

CYPRIPEDIUM HYEANUM.—This new Lady's Slipper was sent by M. Linden, of Ghent, and was said to be a hybrid between *C. Lawrencianum* and *C. insigne*, but the committee doubted the reputed parentage. To us it seemed to be merely a variety of *C. Lawrencianum* without a tinge of purplish colour in it. The foliage and flower, both in shape and size, exactly correspond with typical *C. Lawrencianum*, and not a trace of *C. insigne* can be detected. The dorsal sepal is white lined with pea-green, and the pouch is also light green. It is one of the most distinct Lady's Slippers which we have yet seen. Singularly enough, the same variety was shown by Mr. White, the only difference in the two specimens being that M. Linden's flowers were twice as large as those of Mr. White's.

ODONTOGLOSSUM LUTEO-PURPUREUM LEUCOGLOSSUM.—The finest variety that has yet been exhibited of luteo-purpureum. The flowers are above the usual size; the sepals and petals, instead of being narrow and starry, are broad and overlap, and the lip is not curled up, but broad and flat and beautifully fringed. The colour renders it most remarkable. The sepals are wholly of a deep chestnut-brown; the petals are of the same colour, blotched at the base with pale yellow, and the lip is pure white, with a deep blotch of colour in the middle. Exhibited by Messrs. Sander and Co., St. Albans.

ODONTOGLOSSUM CRISPUM APIATUM.—A new variety, having large and finely shaped flowers with broad, overlapping petals, and sepals heavily blotched in the centre with cinnamon-red. It is a relief to see a more rational way than hitherto adopted of naming these exceptional varieties of Orchids, as in this and the preceding instance. Such a name as *apiatum* is far more expressive and appropriate than the now common practice of giving plants complimentary names. The variety in question was shown by Mr. Ballantine, from Baron Schröder's collection at The Dell, Egham.

ONCIDIUM UNDULATUM.—A handsome species having large and curiously shaped flowers, produced on long, slender flower-spikes. The sepals are of an olive-green, the petals of the same colour and banded transversely with white. The plant shown by Major Lendy, of Sunbury, bore thirty flowers.

PTERIS CRETICA MAYI.—An elegant form of the well-known albo-lineata variety of *P. cretica*. Each frond is forked and crested much in the same way as the crested forms of *P. serrulata*. Mr. May, of Edmonton, showed several small plants of it admirably grown, and displaying well the graceful habit of the plant. It is sure to become popular, particularly as a market Fern.

HEMEROCALLIS KWANSO FOLII VARIEGATIS.—This handsome variegated Day Lily is now tolerably common in gardens, but it is not one of the most satisfactory plants to grow, as it is of doubtful hardiness. It, however, makes a fine pot plant for a greenhouse. The leaves are long and recurve gracefully. The variegation consists of longitudinal stripes

of creamy white and green. Exhibited by Mr. Ware, Hale Farm Nursery, Tottenham.

NARCISSI DUCHESS OF WESTMINSTER AND C. J. BACKHOUSE.—Both belong to the incomparabilis group. The first is a beautiful flower, large and finely shaped; the sepals are white, and the deep cup sulphur-yellow. The other has large flowers with yellow sepals and an orange-red edged cup.

ROSE GLOIRE LYONNAISE.—A new white Hybrid Perpetual, resembling a good deal a Tea-scented variety. The flowers are large and full, white, inclined to yellow, and very fragrant. The habit is excellent, and the fine specimen of it shown by Messrs. Paul, of Cheshunt, bore numerous blooms.

AMARYLLIS KING OF CRIMSONS, DUCHESS OF EDINBURGH, AND DUCHESS OF ALBANY.—The first is the most gloriously coloured sort yet raised, the colour being of the most vivid scarlet-crimson, intensified by the polished surface, which shines like satin. The flower is of medium size, of perfect shape, and without a pale centre. The two Duchesses are both beautiful; the first is large and fine in shape, colour red veined with crimson; the other has a smallish flower of perfect form, deep crimson-carmine banded with white.

NARCISSUS HENRY IRVING.—One of the long-cupped section, and apparently a form of the variety *spurius*, characterised by having large finely shaped blooms wholly bright yellow. In this variety, which appears to be identical with that certificated last year as *General Gordon*, the cup is wide and has a recurved rim, and the sepals are broad and of firm texture. Shown by Mr. Ware.

NARCISSUS NELSONI AURANTIUS.—A very handsome variety, with large flowers of exquisite shape. The sepals are white and the cylindrical cup is bright orange. From Mr. Ware.

PRIMROSE CRIMSON BEAUTY.—A Jack-in-the-green sort—that is, the calyx is so exaggerated, that it looks like a second green corolla. The colour is a deep crimson. A well-flowered plant of it shown by Mr. R. Dean, of Ealing, had a bright appearance.

FRITILLARIA LATIFOLIA, E. H. KRELAGE, CORNEILLE, SIEGE OF HAARLEM, AND VAN LERIUS.—All seedling varieties raised from the old-fashioned *F. latifolia*, from which they differ but slightly. All the flowers are of a dull vinous-purple, more or less chequered with a deeper or lighter hue. Shown by Messrs. Krelage, of Haarlem.

Among other exhibits placed before the committee the following were worthy of note: From the Duke of Marlborough's garden at Blenheim, Mr. Bethell showed a grand specimen of the handsome, but rare, *Epidendrum leucocilium*. The plant was over a yard through, and bore many flower-spikes; the flowers are large and have greenish sepals and petals, and a pure white lip of thick texture, and resembling the skate-fish in shape. Mr. Ballantine showed from Baron Schröder's garden flowers of the white *Dendrobium macrophyllum*, which is one of the loveliest Orchids in existence.

From M. Linden, of Ghent, came the new *Dendrobium stratiotes*, which is presumably a native of North Australia, or some of the islands in that region. It is different from others, but most resembles *D. taurinum*. It has bulbs like *bigibbum*, and the old bulbs bore the remains of several spikes. The flowers are large, and have long narrow twisted sepals of greenish white and white petals; the lip has a long pointed lobe with a white ground, pencilled with violet-purple. It is a most remarkable Orchid, but it was not shown in first-rate condition. M. Linden also sent a new *Cattleya* in the way of *C. speciosissima*, and named *C. Maloniana*. The colour is a deep lilac, the broad lip being veined with crimson. A new *Alcascia*, too, was shown from Ghent, but it was not very remarkable. A fine specimen of *Cattleya Lawrenciana* was shown by Mr. Cripps, of Tunbridge Wells; the plant bore five spikes, carrying altogether fourteen flowers of a very rich colour. Major Lendy, of Sunbury, showed a spike of the same *Cattleya* with six flowers, the largest number that has yet been exhibited on a spike, so that we may reasonably hope to see the full number, from twelve to twenty, in course of time. Major Lendy also showed a gigantic flower of *C. Mendeli*, which was remarkable for its fine colouring. From the same garden was shown a

fine specimen of the rare *Oncidium undulatum*, which bore no fewer than thirty flowers; these are large with olive-green sepals, the sepals being banded with white.

Messrs. Krelage, of Haarlem, showed some two dozen or more seedling varieties of *Fritillaria latifolia*, from which the committee selected four for certificates. They were all so much alike that it would be a hopeless task to attempt to describe even those named. Mr. Gilbert, of Bourne, Lincoln, sent flowers of the brilliant double *Anemone fulgens*, the sort having a row of broad green petals around the central tuft of small ones, all of the most vivid crimson. Mr. R. Dean showed a group of his new coloured Primroses and Polyanthes, from which we singled out the following as the most distinct, viz., President, rich purple; Emperor, maroon crimson; Snowdrift, pale straw colour; and White Queen, almost a pure white.

Messrs. Paul, of Cheshunt, were awarded a silver-gilt medal for a fine group of pot Roses, all admirably grown and flowered, and being intermixed with large plants of Solomon's Seal they had a charming effect. Messrs. Paul also showed a group of alpine and hardy flowers, among which the following select kinds, all worthy of any garden, were shown well: *Saxifraga aretioides* alba and primulina (a yellow variety), muscoides, and coriophylla, *Arnebia echioides*, *Gentiana verna* (a fine tuft, a mass of blue), *Ranunculus amplexicaulis*, *Adonis vernalis*, *Primula ciliata* purpurea, *Obristi*, *villosa nivalis*, and minima, *Phlox stellata*, *Cyclamen repandum*, *Saxifraga cordifolia* purpurea (fine plants of this grand variety), *Aubrietia deltoidea* grandiflora, *Tulipa Clusiana* (a charming bulb), *Narcissus Nelsoni* major, *Fritillaria Meleagris* alba, and *Doronicum Harpur Crewe*.

A silver-gilt medal was also taken by Messrs. Barr & Son for an extensive group of Daffodils, which included numberless sorts in every section, and on this occasion the poeticus group were in strong force, and these relieved the yellows charmingly. The sorts that struck us as being especially beautiful were Leedsi, Minnie Hume, M. de Graaf, Queen of the Netherlands, Duchess of Westminster, C. J. Backhouse, Flora Wilson, Beatrice (the purest white Leedsi yet raised), and Princess of Wales. Among the poeticus sorts none were so fine as grandiflorus, which is still an uncommon variety. Barri conspicuus is also among the indispensable varieties. The Daffodils were supplemented by a gathering of other hardy flowers, which added to the interest of the group.

Mr. Ware took a silver-gilt medal for a beautiful group of Daffodils, very tastefully and effectively arranged, and including a selection of the best sorts. To these were added a large and brilliant group of hardy flowers, comprising a host of good things, such as Primulas and Anemones, *P. aurea* in variety being the showiest; and among the Anemones none were so remarkable as Robinsoniana, of which there was the finest flowered panful ever seen, the delicate hue of the flowers being seen to perfection. Among the Daffodils those named Captain Nelson, John Nelson, Henry Irving, Madge Matthews, and Mary Anderson were particularly noteworthy.

Mr. Walker, of Whitton, was awarded a silver medal for a grand group of Narcissi, which were even beyond the average quality usually shown by this well-known grower. All the sorts were represented admirably, and some were marvellously fine. The big Sir Watkin was never shown in greater perfection before, the blooms being enormous—some over 4 inches across. This was an illustration as to the effect of high culture of a Daffodil. This collection was made up of the finest sorts, the pick of a complete collection. The sorts that struck us most were those named Michael Foster, Horsefield, Emperor, Shirley Hibberd, Autocrat, F. W. Burbidge, Leedsi, Acis, amabilis, Beatrice, and Dr. Gorman, the last in the way of Sir Watkin, but not so dark in colour.

A silver medal was taken also by Messrs. Collins and Gabriel for a great gathering of Narcissi, similar to those shown at every meeting since February last, and on this occasion it comprised wonderful examples of certain kinds, particularly of the poeticus group. Mr. G. Stevens, of Putney, showed from his nursery a large group of seedling Abutilons, which

made quite a display, though there was a good deal of sameness in the colours. There was a good yellow called Cloth of Gold and another called Golden Queen, while Brilliant, Vesuvius, and Prince Albert were among the richest in colour.

Messrs. Cutbush, of Highgate, took a silver medal for an attractive group of New Holland and fine-foliaged plants, which were out of the usual run of exhibits. There were many old favourites in the group, such as *Ericas*, *Hedercas*, *Tremandras*, *Eriostemous*, and most conspicuous was the Mexican Orange Flower, *Choisya ternata*, which should be in every greenhouse, as well as an elegant shrub named *Hypocalymna robustum*. There was also a new white variety of *Azalea mollis* called The Queen. Mr. H. B. May, of Edmonton, took a bronze medal for an uncommonly fine group of Ferns and other foliage plants grown in the style followed in market gardens. All the plants were small, but extremely well developed, particularly the fine-foliaged plants, such as *Crotons*. Among the Ferns that are grown by Mr. May for market are *Leucostegia immersa*, with young fronds of a bronzy hue, various *Lygodiums*, the climbing Ferns, *Nephrolepis Duffii*, *Pteris serrulata*, and variety *Adiantum cuneatum grandiceps*, *Pacotti* and *rubellum*, and *A. farleyense*. The last named is grown in exposure, not in shade, the result being that the fronds assume a beautiful ruddy tinge. Mr. Walker, of Thame, showed some half-a-dozen boxes of cut Roses, which were quite a treat. They chiefly consisted of *Maréchal Niel*, *Niphetos*, *Mad. Faleot*, and *Cheshunt Hybrid*. A bronze medal was deservedly awarded to Mr. Walker, whose exhibit was well worth a higher class of medal.

Fruit and vegetables.—There was little for the fruit committee to do, there being only an Apple from Mr. Crump, of Madresfield Court, and a dish of Radishes from Messrs. Carter, of High Holborn. The Apple, named Newland Sack, is evidently a good keeper, and the committee thought highly of it. The committee recommended the Radish to be tried at Chiswick. It is called Knickerbocker, and has a long red and rather large root.

Scientific committee.—*Orchid insects.*—Mr. McLachlan, referring to this subject, repeated his doubts as to whether *Isosoma* was really the gall-producer on the roots of *Cattleya*, as he had bred a *Cecidomyia* from the galls—a much more likely insect to have effected the mischief. Mr. O'Brien, on the contrary, had no doubt that the *Cecidomyia* was the cause of the mischief.

Rhododendron nireum.—Mr. Bateman exhibited a specimen of this species in flower from his garden at Worthing, where "this and other species appear to succeed perfectly in a north aspect and under cover of some 20 feet of nearly perpendicular rockwork, which affords effectual protection from sea breezes and the rays of the sun." The flowers were relatively small and of a dull lilac colour. The under surface of the leaves is covered with cream-coloured down.

Australian Acacias.—Mr. Bateman also sent for exhibition specimens of *Acacia verticillata* in bloom, and which had had no protection other than that afforded by a south wall. Flowers of *A. undulata* and *A. ligustrina* were also shown which had been grown without fire heat in a glazed porch.

Portuguese Narcissi.—Dr. Masters exhibited specimens and drawings of certain Portuguese Narcissi from Prof. Henriques and Mr. Tait, of Oporto. They comprised forms of *N. triandrus*, showing great variability in the relative lengths of the stamens and style, and of the form called *N. Henriquesi*, in which the perianth-tube was reduced to a minimum.

Auricula.—Dr. Masters showed for the Rev. F. D. Horner a flower of *Auricula* with a dark red ground and a green edge, a form mentioned in his paper read before the Primula conference. It was recognised as an entirely new departure, and likely to excite great attention among *Auricula* growers.

Tobacco culture.—Colonel Clarke sent a communication on the culture of tobacco in this country, in which he summarised the principal conclusions as follows: 1, cultivation on ridges; 2, removal of all laterals; 3, the earliest harvesting of the crop consistently with a proper ripening of the leaf; 4, the

absolutely dry state of the leaf before packing for fermentation. Dr. Masters alluded to the culture of the plant in Belgium and Northern France, and to the analyses published by Boussingault.

Marshall P. Wilder.—It was resolved, on the motion of Dr. Masters, that a letter of thanks be sent to this gentleman for his contribution to the library, and that the opportunity should be seized to congratulate the venerable president on the continuance of his useful labours in the promotion of all branches of cultural science.

Orchid nomenclature.—In consequence of a communication from the council it was resolved that a sub-committee be formed to co-operate "with the society's provincial show committee with a view to the holding of a conference on the nomenclature of Orchids during the show to be held at Liverpool." The following gentlemen were selected from the scientific committee for the above purpose: Sir J. D. Hooker, Messrs. Ridley, J. O'Brien, and A. H. Smee. It was suggested that Mr. Harry Veitch should be requested to form one of the committee.

NARCISSUS COMMITTEE.

THE last meeting of this committee for the season was held at South Kensington on Tuesday, the 27th, when arrangements were made for next year. In order to include the whole of the varieties, early as well as late, it was decided to have one meeting in March, two in April, and one in May, on the council days of the Royal Horticultural Society, with an extra day, if possible, between the 10th and the 15th of April, at a time when the largest number would probably be in flower. A report was received from the sub-committee appointed to inquire into the question of doubling to the effect that neither at Kew nor at Chiswick was any difference observed in the flowers of the bulbs planted last year for the purposes of observation. Different soils were used, some with manure, some without, but in each case all those which flowered had as yet retained their normal single form.

A sub-committee was appointed to draw up a systematic report of the work done at the meetings this year, which should include all the fresh information which had been obtained of the natural history, habitat, &c., of the various wild types, as well as a description of the new varieties for which names had been registered.

The following were the forms submitted for notice:—

1. Some varieties of *incomparabilis*, which were recognised under names already known.

2. White Ajax, from Messrs. Collins and Gabriel, which we believed to be *cernuus pulcher*, but it was very strongly the feeling of the committee that it was almost impossible to decide accurately on blooms only of these white forms of varying ages and grown under various conditions, and that wherever possible a decision should not be given until they had been grown and tested side by side with other forms at Chiswick, Dublin, or some other accessible public garden.

3. William Wilks, from Mr. Barr, a very bold and distinct variety of the Backhousei section, with somewhat rounded divisions of the perianth. It had been proposed at one time to call it Henry Collins, but this latter name was withdrawn in favour of the other, which was registered.

4. Some varieties from Mr. Moore, of Boston, which were deferred to another year to have an opportunity of seeing the foliage.

5. A form of double *Narcissus* paler than is usual in *Telamonius plenus*, and more like the double *Pseudo-narcissus*, from Messrs. Veitch, who stated that it had proved constant for three years.

6. A variety of *incomparabilis albus*, from Mr. Kendall, of Lulworth, described by him as apparently "a seedling of one of the bicolor varieties of *Pseudo-narcissus* accidentally fertilised by *N. poeticus angustifolius*." The crown resembled that of *C. J. Backhousei*; the perianth partook largely of the form of *poeticus ornatus*, though more yellow in colour and not of equal substance. It had been deferred from last year to see whether it would prove constant, and it was much admired this season. The name was registered as Lulworth.

7. Some varieties of *incomparabilis*, collected by Mr. Godolphin Osborne in the Pyrenees, and found growing with poeticus and muticus. They appeared to be similar to some sent last meeting, and a vote of thanks was offered unanimously for the wild forms of great interest which had been received from him this year.

8. "The first bloom of a seedling of *N. incomparabilis pallidus aurantiacus expansus* not artificially crossed. The cup of the parent becomes almost a trumpet in the child." From Mr. J. Allen. Deferred till another year, it being the experience of some of the members of the committee that the characters of seedlings flowering for the first time could not be reckoned upon to prove constant.

9. Empress, from Mr. Walker, in two instances having three blooms to the stem; and a very distinct and fine form of Ajax of a deep lemon colour, which the committee hoped to see again.

A flower of the rare double *Leucojum vernum* was received from Mr. Allen, who gave it as his experience of the plant that it was utterly worthless, being a shy bloomer and of a most disagreeable colour.

C. R. SCRASE-DICKINS, *Hon. Sec.*

NOTES OF THE WEEK

Double Anemones.—"St. Brigid" has sent us another gathering of her marvellously fine double Anemones from her garden on the Hill of Howth. All are gigantic blooms compared with what double Crown Anemones usually are; some, when fully expanded, measure quite 5 inches across. The brilliancy of the scarlets and crimsons is indescribable, and these colours are represented in almost every shade, and besides these there are purples, violets, and mauves. Mr. Murphy in another column justly praises "St. Brigid's" Anemones, but the pity is that few can grow them like her.

Primroses and Polyanthuses.—These in northern gardens are now in their height of perfection, and their culture is well understood in Scotch gardens if Mrs. Williams' garden at Kirkconnell, Newabbey, can be taken as an example. She sends a gathering of very beautiful varieties of Polyanthuses and Primroses, and among her seedlings of the former are some colours by no means common, and the style of growth is somewhat different from the ordinary run. She seems to have intercrossed the large-flowered Polyanthuses with the small Oxlip and Cowslip, infusing into them brilliant and rich colours. Mr. Hartland, of Cork, also sends some excellent coloured Cowslips and specimens of what he calls his Giant Oxlip, William of Orange. This sort has the peculiarity of fasciated stems, which produce enormous flower-heads. There are also flowers of a beautiful Hose-in-hose Polyanthus of a delicate sulphur-yellow. The powerful fragrance of Mr. Hartland's Cowslips and Oxlips is remarkable; in this respect they are superior to Polyanthuses.

Befaria glauca.—This is a beautiful greenhouse shrub which has been obtained from Bogota, and is now flowering in the temperate house at Kew. It is an erect, wiry-branched plant, 4 feet high, branches thickly clothed with oblong leathery leaves, dark shining green above, glaucous below. The flowers are produced in a large, dense, erect raceme on the ends of the stoutest branches, the Kew specimens having twenty-seven flowers in one raceme. In form the flowers resemble those of *Alstroemerias*; they have stalks 2 inches long, and are composed of seven petals, each 1 inch long by quarter of an inch in width, the whole flower being 2 inches across. In colour they are bright pink, and when all are open together they are very handsome. The genus *Befaria* (sometimes written *Bejaria*) is closely related to the *Ledums* and *Rhododendrons*. It is composed of about a dozen species, all natives of Central and South America, but always at very high altitudes, even on the borders of perpetual snow. Four species have been introduced into English gardens, all of them beautiful, but not one has remained with us long. It is thirty-seven years since *B. coarctata* was made known by Messrs. Lucombe, Pince & Co., and this was expected to prove hardy in England. After it came *B. æstivans*, in 1854, a very beautiful shrub, both in leaves and

flowers. In 1857, *B. Matthewsii*, a pale yellow-flowered shrub, was sent home by Mr. Wm. Lobb; and lastly, we have this fourth and equally beautiful kind now flowering at Kew. We ought to be able to keep and grow these plants well, seeing that they come from regions where our cool *Odontoglossums* and other Orchids abound. What the *Rhododendrons* are in the Sikkim Himalaya, the *Befarias* are in the Andes of Peru, &c., where they are said to be as attractive when in flower as the *Rhododendrons* are in India.

Bougainvillea spectabilis.—There is a beautiful specimen of this now flowering in the Water Lily house at Kew, which everyone interested in stove plants and not acquainted with this one ought to go and see. We may be wrong, but so far as we know this plant flowers only rarely in England, and we suspect those who profess to have it and flower it easily are confusing this species with *B. glabra*, which, of course, flowers as regularly and freely as a Hawthorn. "T. B." talks of *B. speciosa* as being quite distinct from *B. spectabilis*, but although he has no less an authority behind him than Dr. Lindley, he is wrong, for the plants in English gardens under these two names are identical. Nor is it correct to speak of one as having smooth leaves and the other hairy ones, for neither these nor even *B. glabra* have perfectly glabrous foliage. At Kew *B. speciosa* is quoted as a synonym for *B. spectabilis*. In 1861 Dr. Lindley described the latter as having a loose and sparse inflorescence, and the former compact heads of flowers on very hairy stalks; but these characters may be found on the same plant, and in the large series of dried specimens at Kew *B. spectabilis* is shown to vary considerably according to the conditions it grows under, and this may be proved on cultivated plants. The synonymy of *B. spectabilis* is as follows, viz.: *B. bracteata*, *B. peruviana*, *B. speciosa*, *B. brasiliensis*, *Tricycla spectabilis*, and *Josepha augusta*. With regard to what "T. B." says respecting what is required by *B. spectabilis* to make it flower freely, we cannot say much in favour of the cool-house treatment he advises, as we know of a plant which has been carefully managed in a warm greenhouse for many years, but which never flowers. No doubt anything in the shape of root-roasting would be fatal to this plant so far as flower production goes. What is wanted, however, is total dryness at the roots all winter, and liberal treatment as soon as the growing season comes. Of course, a position exposed to full sunshine all day is one of the first essentials, and next to this we should advise all the pruning to be done immediately after the flowers are over. Certainly, if *B. spectabilis* could be made to flower freely every year, it would be one of the very best stove shrubs ever introduced.

Beaumontia grandiflora.—Through the kindness of Mr. Ruffett, who has succeeded in flowering this magnificent climber in the gardens at Panshanger, I have seen some of the beautiful flowers mentioned in THE GARDEN last week, and the difference between these and those represented in the *Botanical Magazine* (t. 3213) is so striking as to deserve notice. In the latter the flowers are very short-stalked; the calyx lobes are smooth and tinged with red; the corolla is 3 inches long, inflated almost to the base, where it is suddenly narrowed, and the lobes are apparently less than an inch long. There are only two flowers on a raceme, and they are described as being cream coloured. The difference between these and the flowers from Panshanger is shown by the following description of some now before me. Flower-stalks 2 inches long; calyx lobes $1\frac{1}{2}$ inches long, green, the veins covered with brown, woolly hairs; length of corolla tube 5 inches, width at top 2 inches, narrowing gradually downwards, so that it is what we call trumpet-shaped. The corolla lobes are nearly 2 inches long, and the colour is a clear ivory white. There are six or more flowers in each axillary bunch, and they are developed on the ends of the stout young shoots, which are half an inch in diameter. There are several other species of *Beaumontia* in India, and it seems by no means improbable that the plant represented in the *Botanical Magazine* is that known as *B. Jerdonia*. At any rate, it is not nearly so large flowered nor so pure in colour as the plant at Panshanger. Mr. Ruffett's success in flowering a plant which has been grown at

Kew and in other gardens for many years without ever flowering is highly creditable, and it would be of special service if he would make known the course of treatment he has given his plant to bring about its flowering so freely. The branches of *B. grandiflora* grow to a great length, the highest trees being overtopped by it in India, where it is known as one of the most glorious climbers. The near resemblance of these flowers to those of *Datura suaveolens* may be mentioned as affording a good idea of their beauty.—W. W.

OBITUARY.

THE LATE MR. TURNBULL.

THE death of Mr. TURNBULL, at the Garden House, Bothwell Castle, on the 18th ult., has removed a well-known figure from the horticultural world of Scotland. Mr. Turnbull was born at Legerwood, Berwickshire, January 18, 1804, and served his apprenticeship at the Haining, near Selkirk. In 1821 he removed to the Duke of Buccleuch's gardens at Dalkeith, then under the management of Mr. McDonald. When Lord Archibald Douglas succeeded his father in the Douglas estates, he applied to Mr. McDonald for a gardener for Bothwell Castle, and he recommended Turnbull, who entered on his duties in 1828, and no man ever more faithfully discharged them than he did, gaining the high esteem and friendship of six successive employers, including the present Earl of Home. When Mr. Turnbull went to Bothwell Castle it was the leading garden in the west of Scotland; there were then few great gardens as we know them now. Bothwell Castle was, and is now more than ever, surrounded by mines and manufactures, and its proprietors in consequence did not add to the glass structures, as under other circumstances they would have done, the result being that in that respect it fell behind many gardens of the present day; but for a well managed kitchen garden, for its collection of hardy herbaceous plants, and for its Heaths, it had few equals. It is generally known that Mr. Turnbull raised more fine seedling Heaths than any man, and that of these plants he was a most successful cultivator. When Mr. Turnbull began his career at Bothwell Castle he first directed his attention to improving the herbaceous Calceolaria with eminent success. His Lord Douglas, a grand large purple flower now lost, has never had an equal of its colour. Mr. Turnbull was one of the first cultivators of Orchids, and though his facilities were small he grew some remarkable specimens, one of which is at this moment the finest probably in the country—I refer to his grand plant of the autumn-flowering *Cattleya labiata*, which for forty years has produced from eight to twelve spikes of bloom annually.

QUESTIONS.

5487.—**Meconopsis Wallichii.**—Can any reader of THE GARDEN give me any information as regards the cultivation of *Meconopsis Wallichii* from seed?—C. L. H.

5488.—**Sphagnum.**—Will some reader of THE GARDEN kindly tell me how to encourage *Sphagnum* to grow or live when placed round Orchids? With me it soon becomes a decaying mass.—C. W. C.

5489.—**Carpet bedding.**—Can any reader of THE GARDEN inform me where I shall be able to get a book on carpet and sub-tropical bedding, with designs and key to planting the beds with various colours, so that all may harmonise well together? also, what the price may be of such a book?—AMANTUENSIS.

LATE NOTES.

Seedling Pelargonium (*cf. A. Jones*).—We cannot give an opinion of the merits of your seedling from the bit sent. Send it to some specialist.

Names of plants.—Mrs. Phillips.—1, *Narcissus incomparabilis* var.; 2, too withered to name; 3, double common Daffodil; 4, double *N. nanus*; 5, double Jonquil (*N. Jonquilla*).—R. W.—*Dendrobium Pierardi*.—J. N. B.—*Dielytra spectabilis*.—S. Nesbit.—*Cydonia japonica*.—A. Wallace.—Small flower is identical with those recently shown at South Kensington as the typical *N. moschatum*, cut from collected bulbs. The large flower is too far gone to definitely name, but it looks quite like true *toruosum*.—W. F. Burn.—Spike too much withered to name correctly, but it seems to agree with *Dendrobium Farmeri aureum*.—W. R.—1, *N. Macleai*; 2, *N. bicolor*; 3, variety of *N. Leedsii*; 4, apparently *N. galanthiflorus*.—W. H. M. Next week.—E. B. D.—We cannot undertake to name *Roses*. They should be sent to some specialist.—G. C.—Cannot name the Violet.—E. M. G.—We think you must mean the Sweet Sultan (*Centaurea odorata*).

WOODS & FORESTS.

THE FUTURE OF THE SPRUCE.

Is this wood always to occupy the place it now appears to do? There seems to be no real reason why it should. There is plenty of information forthcoming that Spruce timber only fetches such and such a price, but nobody is ready to speak out and explain why its position in the market is so low. There would be an all-sufficient reason if it could be proved that more is grown than is required, but facts negative this. Where, then, can we look for the cause? It must be in some other direction than that of the consumption of timber of a similar nature. In general terms the opinion is become trite that Spruce grown here is inferior to what is sent in from abroad. The mere reiteration of this statement, however, does not give it weight. A much more satisfactory answer would be to cite cases where home-grown and imported Spruce have been used side by side. There must be evidence on hundreds, and perhaps thousands, of estates which would lead to a decision of the question on the merits. Notwithstanding the disparaging way in which the wood is so often spoken of, a tree which grows to such good dimensions, generally as straight as a mast, and sound and free of knots, must, in cases out of number, have been employed for all sorts of purposes, and under an infinity of conditions. Now, we mostly hear of Spruce as being good for temporary fencing rails and such exposed work out-of-doors. It will unquestionably answer such purposes, but can it be expected of a wood of its nature that its durability will amount to much? It is as a building wood that Spruce must stand or fall. Appearances may or may not be a test; so far as it goes, put our home-grown and foreign Spruce side by side. In doing this it is, of course, fair that the samples of sawn wood should be compared after, as nearly as may be, similar periods and conditions of exposure. Obviously it would be unfair to imported deals, which have been acted upon by the atmosphere and have had to bear the more or less damaging influence of transit, to compare them with home-grown Spruce scantlings which have only just left the saw. Take the wood from the different points of production, and institute the comparison after six or a twelvemonth's seasoning. As the result of such a probation will the home-grown wood come out second best? A conclusion as to this would be one point towards a settlement of the question as to wherein our wood is inferior. Among the conditions to be noted in arriving at a decision would be, first, its freedom from warping or twisting. This is an important consideration, but is a thing in which the home-grown product would be likely to be treated unfairly. As soon as cut it should be carefully and evenly stacked, for if wood is left to care for itself, the natural outcome is that it will compare unfavourably with what has been properly cared for. Another point would be to closely observe the tendency towards shakes or splitting. With regard to this, much would depend on the manner in which it is sawn. To lessen the liability a line should, if possible, pass directly through the centre of the tree. The question of knots would stand on rather a different footing. Their presence or absence would depend on the portion of the tree against which the comparison was to be made. Taken on the whole, I think, however, that it will be conceded that our English-grown Spruce is not more knotty than the corresponding foreign timber which reaches us as building wood.

As to the absolute length of time for which the respective woods will last when used for constructive purposes—and it must not be forgotten that the foreign wood is little used outdoors or

in the damp—experience alone can prove, and as it has been said there must be plenty of evidence now existing which would be of immense value if made known. The publication of accounts, in which the two woods had been used side by side, and the condition in which they appeared after the lapse of years, would forward us in our enquiry to the extent of half a century. In other words, instead of making selections from the two woods now, and having to wait for a series of years for events to develop, a tolerably satisfactory conclusion could be arrived at at once. This would not, of course, preclude the carrying out of experiments now. So far from it that we take it to be the duty of everyone who has Spruce to dispose of, which is merely fetching a nominal price, and who has to buy foreign Spruce building wood, to note on every hand how far the home-grown product can be substituted for what is more commonly used. Until some more potent facts have been adduced than have hitherto appeared, one must be excused for discrediting what is little more than an opinion, formed without one evidence, that British Spruce for many purposes is appreciably inferior to its foreign competitor.

It may be possible to go a step further than this, and ask if good home-grown Spruce—and where it is grown on the spot there is room to discard the bad—is not fit to be compared to what has got to bear the name of building red wood. Formerly, these woods were seldom brought in under what was termed batten sizes, such as $7 \times 2\frac{1}{2}$ and 7×3 ; now they come in as low as 4×2 , if not less. Such stuff as this is often veritable rubbish, yet merely because it is imported and bears the name of red wood it finds its way into buildings before the sound, but despised, British Spruce. If the statement is doubted we would commend any reader to visit the yards in the ports of importation and see for himself. Perhaps on an average two out of the four corners are not sawn square, and of the wood that there is not unfrequently about a third is sap. If any unprejudiced individual who is able to distinguish that one and one makes two can fail to give his verdict in favour of the home-grown product, the position of which we have been considering, his views must differ very widely from ours.

We do not pretend that Spruce is a panacea for every ill, or that it is capable of being used in every position, but we do urge that its qualities as a useful wood are not sufficiently recognised. The present state of affairs looks something as though it would be the right thing to produce British corn, but because vast quantities come in from abroad, this alone must be eaten, and what is grown at home go to feed swine. British corn before the inrush by the foreigner raised sturdy men and women, as has been often quoted, and so far never controverted. British timber before the present era was used to raise structures which will outlive many in course of construction to-day. Spruce as a material for the most lasting class of structures would naturally not be the right kind of wood, but there is a wide range between this and not using it at all. The main purpose of this paper is to raise the question of what its future may be, and to work this out there can scarcely be a better ground than to face the merits of the material which now occupies its place. It is not a thing which needs to be discussed in a corner, but which wants more light turned upon it than it now receives. Though naturally a believer in the worth of the home product, we do not approach the subject with prejudice, but merely throw down the gauntlet in the hope of getting the challenge accepted, and a proof

forthcoming of wherein it is that the British Spruce is so far behind its more favoured species. It is a well-worn saying that every tub must stand on its own bottom, and if it can be proved that home-grown Spruce is intrinsically of less value than what is brought into our ports, then it must accept the fate it deserves.

As yet the verdict has not authoritatively been given, and the possibilities as to the future of the Spruce are by no means inconceivable.

D. J. YEO.

PRICES AND CARRIAGE OF TIMBER.

WITH regard to this subject it must be remembered that the prices of timber in different parts of the country are subject to such fluctuation, that what may be current to-day may be the reverse in a week hence. This is more especially the case in a time like the present when trade is depressed, when the vendor has to push his way to secure a sale even at a low figure, and when timber can be bought at all prices from 2s. 6d. to 20s. per ton, according to kind and quality. As regards carriage, however, the case is less obscure, and although the cost may and does differ slightly in many parts of the country, yet, on the whole, one can give an approximate estimate of the expense incurred for the removal of the timber under ordinary circumstances.

It has been recently stated that the cost of carriage from some of the midland and inland districts of Ireland is as follows: Felling and preparing the wood, 1s.; carting to railway station, 4s. 6d.; and carriage by rail to shipping port, 5s. per ton; freight to Morecambe or Liverpool, 4s. per ton; in all 14s. 6d. I will now give an example of the cost of transport in the Lough Neagh district. Felling and cross-cutting, 1s. 6d.; carting from one to three miles to shipping port, 1s.; freight to Belfast, 4s. 6d.; freight from the latter place to Glasgow or Greenock, 4s. per ton; equal to 11s. Now it is clear if we add the price per ton to any of these sums, the result will give the price in full at the place of landing, and should such be of any use in the elucidation of "Yorkshireman's" inquiry, I shall be glad. In having timber removed by contract from such places the carters generally take half a load out to the hard road, and then return for the other half while the former is then placed on the top of the latter to finish their load. Of course in all cases where the roads are properly macadamised this half-load system is unnecessary, but such roads in woodlands are rather the exception, and not the rule.

"Yorkshireman" says, "It is news to me that timber carriers prefer light loads," but I think light loads here only refer to cases similar to what I have stated, and not to loads for the full journey upon hard roads. I am rather surprised at the high price which "Yorkshireman" pays for the carriage of his timber. He says, "the lowest price we have ever paid for carriage one mile was 2d. per foot." I think I would have no great difficulty in getting men to carry it on their backs for that price. If we allow a man to carry say $2\frac{1}{2}$ feet at each burden, and that he carried ten loads per day, which is not an extravagant estimate, he would thus traverse twenty miles of ground, and remove 25 feet of timber, which at 2d. per foot, equals 4s. 2d., not a bad day's wages in these dull times, even although he had to fell and prepare the timber for himself. "Yorkshireman" seems to have a good deal of timber to remove, and it occurs to me that a locomotive engine might be employed in his case with advantage if the roads are suitable for such a mode of transit.

The advantages of employing steam power in most branches of industry are so well recognised

that I shall not dwell upon it further than to say that an 8-horse power locomotive engine, with two wagons attached carrying 8 tons of timber, can traverse about thirty miles per day—that is to say, it can deliver 8 tons of timber at a distance of fifteen miles from the plantation and return the same day, and in some cases, where the roads are exceptionally good and level, it might even accomplish more. But a locomotive is so useful for a variety of purposes, that it is surprising that it is not employed to a larger extent; but perhaps this may be accounted for in a great measure by the amount of capital required at the commencement. A good 8-horse power locomotive will cost about £500, and a couple of wagons capable of carrying 8 tons of timber will cost something over £100; so that this large amount of capital at the outset may to a certain extent retard some parties from the employment of steam power. A portable steam-engine is not only capable of hauling the timber to the spot it is wanted, but may also be used for cutting up and converting it on the spot in the plantation, by which means a vast deal of trouble and expense is saved. When it is contemplated to fell any considerable quantity of timber that requires to be cut up into different sizes of scantlings, the road locomotive should be placed in, or as convenient to the plantation as circumstances will allow, care being taken to place it near a never-failing supply of water, as an engine of the former size will consume some 80 gallons or 90 gallons of water per hour.

J. B. WEBSTER.

PLANTING AS AN INVESTMENT.

I SUPPOSE the remarks of Mr. Yeo at p. 388 are a kind of reply to others that have appeared lately in your pages on the same subject, and I have been wondering what people who invest capital on common-sense principles think of them. Your correspondent takes as hopeless a view of the prospects of planting as anyone; nay, even worse than some, for he makes the general assertion that timber "does not pay as a crop;" whereas I only said it might not pay in future except where the conditions of transit were favourable. Nevertheless, Mr. Yeo ridicules the idea of planting being therefore abandoned whether there be a prospect of it paying or not. More amazing suggestions to much-handicapped landowners than he offers I never read. He seems to forget that the majority of landowners are not overburdened with cash, and being free to invest their money where they think fit and where there is some prospect of return within a reasonable time, they are likely to be influenced by considerations of economy and profit in regard to planting, as in anything else. "If the prospects of the timber planter are bad, who will dare to say that more timber should not be planted," writes Mr. Yeo, and it is a feeble way of putting the case. The answer is, "no one need say whether planters should or should not plant, but if a man has money that he desires to invest for the benefit of his son and heirs, and wishes to do the best he can for them, the prospect of future benefit to be derived from the venture will dictate what he should do and not haphazard suggestions." Mr. Yeo's advice, pure and simple, just amounts to this, "We do not know whether planting will pay you or not; it does not pay now, and there is little prospect of it paying in the future; but never mind; spend your money on planting and risk it." There will not be many who will follow such advice, and one wonders to find a practical woodman counselling anything of the kind. Many mistakes have been made in planting trees of the wrong kind and in the wrong places, and I know nothing in which gentlemen stand in more need of than advice on such topics whenever planting is regarded as an investment. There may perhaps be a few people who have an immediate interest in planting, but such people should not count in the matter. There is no parallel between corn

and timber crops, and far less between the iron and timber trades, because the iron is a natural product that was there before and that can lie in the ground without cost to anybody; whereas trees have to be bought and reared for the purpose. And what is more, the iron and coal trades both are abandoned when they do not pay or when there is no prospect of paying, and promptly too. I do not for a moment suggest that planting should be abandoned under ordinary favourable conditions, but I do say that intending planters have much need to be cautious both in regard to what they plant, where they plant, and to the prospects of remuneration. YORKSHIREMAN.

LAYING OUT WOODLAND RIDES.

THIS is a matter which in many places has been well done, in others imperfectly or scarcely at all. Where large areas are left in solid masses, the work of breaking them up is virtually that of the formation of woodland rides or drives. Large woods, when intersected by nothing more than a track, which is barely sufficient to allow of the removal of their products, cannot, in the sense in which we speak, be considered to be broken up at all. In saying this, the other extreme must not be assumed, viz., such excessive opening up as to give to the distant view the idea of detached plantations. If the simile can be pardoned of comparing anything so beautiful as trees to the buildings which go to make up the average city, it will be more easy to make clear the way in which the business of opening up should be set about. When a large town or city is approached from an eminence, no divisions are seen, and no distinctive features except such as here and there occur, owing to the presence of some object which towers above the general bulk of the buildings. So with woodlands. As they are approached, the whole of the area should be seen as one mass. Here, however, its solid character should end. Unbroken woodlands, to continue the simile, would be much like a city where the whole area was occupied by buildings—stately they may be, but so closely built together that it would tax a single individual to trace his way amongst them, to say nothing of any chance of appreciating his surroundings. In short, woodland areas, if their charms are to be enjoyed, should be no more or less than sylvan cities.

There are cases in very large woods or forests where a direct line can be made to continue for miles—where a perfectly straight ride or open avenue can be made with imposing effect. To do this well its width must be very ample, enough so to correspond with its length, and must be flanked by trees of towering dimensions. In the majority of instances perfectly straight lines such as these would not be the best mode of arrangement. The horror of any chessboard style of division must be carefully guarded against. Mathematical precision may be all very well in its way, and in certain cases be of service in the alignment of woodland lanes, and squares, and crescents, but a cut-and-dried system, rigidly adhered to, will never do.

Even if the laying out on such a pre-arranged plan was theoretically perfect, the conformation of the ground, the direction the practical necessities of the place would require the drives to take, the opening up of the best bits of woodland, and very often the introduction of some distant object through a vista of trees would all have to be considered. In speaking of this, a magnificent tract of woodland which we have had the opportunity of traversing occurs to us. So far as its area affects it, its dimensions are those of a city. In this noble forest—for forest it certainly is, and probably would be so denominated were it not for the way in which it is opened up by

greensward rides—the principal feature is an open avenue, some five or six miles in length, and in a direct line. Its proportions, however, are so grand that no feeling of monotony is for a moment conceived. Out of this, at intervals almost numberless, woodland squares and other open spaces unexpectedly develop themselves, and minor rides or drives diverge in all directions. It is true that the average woodland artist has very rarely such a field as this to work upon; but much may be done by a little careful thinking out. Unless a surpassingly grand effect can be obtained at once, the general aim should be rather a series of surprises than laying out with the object of including everything in a single view. It may be regarded as a little heretical, but we assert it, nevertheless, that in some Oak woods through which our business led us some little time since there were far more lovely scenes than are to be met with in the ordinary run of ornamental park lands. From the want of roads and open spaces, these treasures, though within a few minutes' walk of the principal approach to the ornamental grounds, were practically as much hidden as though they had been in the heart of some Indian jungle. To avoid the danger of too much cutting out, we repeat that it is easy for such an extreme to be gone to; but, on the other hand, there is no denying the fact that the vast bulk of our woodland beauties is still lying undiscovered, from the simple circumstance that roads only sufficient for the woodman have been formed.

WOODMAN.

THE BEST FIREWOOD.

IN reading an account of some camping-out experiences given in the *Field*, I was struck by the following passage: "It is wonderful what a difference the kind of wood you burn makes, and the novice who hastily collects a pile of Pine logs, *à la* Bret Harte's backwoodsman, will speedily find himself smoked out in a winter tent. Whitethorn is, of course, the best, as it burns very slowly, and almost without smoke. If you cannot get Thorn, Ash, Hazel, or Elm will all burn fairly well, but if you have any regard for your throat, eschew Oak, and above all Pine." This is experience which would probably never have been gained by the writer had he been content to remain under a roof, but what is true of firewood for a tent very fairly represents the case on the domestic hearth. Pine, or, in short, most of the common Conifers, makes very indifferent firewood, and as well as being disagreeable is dangerous, owing to its habit of crackling and throwing out embers. There is no question that the Whitethorn makes capital firewood, but it is seldom found in sizes large enough to form a lasting fire such as is ordinarily wanted in the house. For outdoor fires such as that contemplated by the writer referred to, there could be nothing better. Taken all in all, I am, however, inclined to class the Beech as being first in the list of our British firewoods. It is a hard, lasting wood in the fire, and, what is more, easily cleft. The same would pretty well apply to the Ash. Elm, perhaps, does not brighten up so rapidly, but is a wood which can be thoroughly depended on when once fairly ignited to keep alight until it is entirely consumed. Oak in many places is a very favourite firewood, naturally in the districts where it grows in abundance. When the draught is perfect and the smoke from the burning logs finds its proper exit, there is no difficulty, but when this is not so and a proportion of it is circulated round the room, it is open to all the objections pointed out by the writer quoted. To those who have never given thought to the subject it may seem that so long as a fire burns satisfactorily it does not matter of what wood it is composed, and that if smoke is dissipated through the room, it is simply smoke, and there it ends. In practice it is different. The least objectionable woods in this respect may be taken as Beech, Ash, and Elm.

WILTS.

No. 755. SATURDAY, May 8, 1886. Vol. XXIX.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

FIRST-CLASS CERTIFICATES.

THERE seems to be a general idea that some reform is wanted in the certificates of the Royal Horticultural Society. In THE GARDEN of April 3 my friend, Mr. Elwes, stated his objections to the present system, and proposed a scheme by which each exhibitor would be required to give full information about his exhibit. The objection to this would be that, from no fault of their own, some exhibitors would be unable to fill up the proposed schedules, and so would be prevented from exhibiting. In THE GARDEN (p. 392) the same subject is discussed, but more in the way of pointing out the faults in the present system than proposing a remedy. The *Gardeners' Chronicle* of last week made a similar complaint. I am not a member of the Royal Horticultural Society, and can only speak as one of the outside public, but speaking as such I may say that I have often thought that the certificates given are sometimes very misleading.

It is generally supposed that first-class certificates are given to plants of high merit and newly introduced. I have nothing to say on the subject of high merit, because opinions differ as to what constitutes high merit in a plant, but I frequently see notices of certificates given to plants which are certainly not new. It seems to me that if Mr. Elwes' plan cannot be carried out (and I doubt if it could) it should be the duty of the secretary or some other officer of the society to make himself thoroughly acquainted with the history of the plants exhibited before they are submitted to the council, just as the clerk or secretary of any public company or committee is expected to post himself up in any subject that has to be brought before his board or committee. I will give an instance of what I mean. A fortnight ago a certificate was given to *Dentaria polyphylla*. It is a very pretty hardy plant and well worth growing; but if the certificate means (as it is generally supposed to mean) that the plant is a new discovery, it is misleading. If it was the duty of the secretary to make himself acquainted with the plants exhibited, he could in a few minutes have found out all about this *Dentaria*. In the *Bot. Mag.*, No. 6796, he would have found it well figured, and would further have found that it was figured by Waldstein and Kitaibel eighty years ago, and by Reichenbach nearly fifty years ago; nor do I think it is new to English gardens. Don described it in his dictionary fifty years ago, without any note that it was unknown to him or rare; and though I cannot speak positively, I feel almost sure it was grown and sold by Wheeler, of Warminster, and it has been grown and flowered at Kew (as it has been here) for three years at least, if not more. Still, it may well deserve notice as a re-introduction to our gardens, and for this we have to thank M. Froebel, of Zurich, and on this matter of re-introduction of plants I should like to add a few words. There are, no doubt, many new plants to be yet introduced, but there are very many more which have been once grown in England and have been lost, and which are well worthy of being re-introduced; and re-introduction is a much easier process than the discovery of new plants, because the habitats of the plants are known and recorded.

I often wonder that so few of our intelligent nurserymen (and we have many such) take the trouble to consult the many good books on flowers which are available to them. A few hours spent with the *Botanical Magazine* or *Botanical Register*, or such books would not only be a pleasure to any man with a taste for flowers, but would astonish many who think they have a good knowledge of flowers by showing them an enormous number of good flowers which have been grown in England and are now not in cultivation, and I am sure that a judicious re-introduction of many would bring a more substantial profit than an occasional first-class certificate for a new plant. Or a study of the beautiful local floras that we have, such as the *Flora Germanica*, *Flora Peruviana*, *Flora Antarctica*, *Flora Boreali Americana*, &c., would have the same effect, and even our older botanical writers would show them many things to be desired. I will just mention one such hardy plant described by our old writers which would certainly be attractive. Gerard, Parkinson, and Clusius had a double *Anemone palmata*, but I have never heard of such a plant as grown now, yet it would surely be an attractive plant to the many growers of hardy plants. I could say more on this point, but my letter is already too long.—HENRY ELLA-COMBE, *Bitton Vicarage, Gloucestershire*.

—The council of the Royal Horticultural Society should, I think, seriously consider in what way its floral committee can be so remodelled or constituted that its awards shall be received with confidence. No doubt its members desire to do their duty fairly, but good intentions will not always, indeed seldom, make up for lack of fitting knowledge, or for what is quite as important—lack of moral courage to have an opinion and maintain it. Probably there is no work performed by the Royal Horticultural Society which excites so much interest or does so much to provoke professional curiosity as the work done by its fruit and floral committees; hence it is of the first importance that these bodies should comprise the very best men to be found. I do not join in the common complaint that there are too many of the trade on the committee. It is obvious that the trade members are by far the most experienced concerning plants and have the widest knowledge of them. Still, it is important that the private gardener and the amateur element should be well represented. Gardeners have a pretty general knowledge of most things, but amateurs often are only cultivators of one or two kinds of plants at the most, and hence it would seem as if they should only be invited to attend meetings when their special flowers were in season. Thus we might get the Orchid, Bulb and Primula men up in the spring, the Rose, Gladiolus, and Dahlia men in the summer, and the Chrysanthemum men in the autumn. By adopting this plan in connection with amateurs on the committee, that body would secure in season the help of those who have specially fitted themselves for their duties. But without waiting for such important changes something might at once be done in reference to certificates. No doubt the committee are very often puzzled what to do, because they have practically only one kind of award to make, as no one cares for a second-class certificate. To remedy this defect certificates should be solely given to new, eminently distinct and worthy plants. But to meet the difficulty incidental to the presentation of many new plants of moderate worth or older ones showing specially high class form, such as the *Beaumontia* did last week, the committee should have for bestowal a certificate of commendation, which, if smaller and rather more ornamental than is the old card of this kind, would be highly esteemed. Still, I would

not have that award lavishly distributed. Thus the one certificate would indicate special merit and newness, and the other general excellence.

There is one other point in relation to the constitution of the committees which I should like to see adopted. Many first-class horticulturists are practically excluded from membership or sitting at committee tables because they reside too far off to be able to give frequent attendance. This might be met if, when at South Kensington, either the chairman or Mr. Barron had authority to invite such visitors as might be thought desirable to join the committees. Certainly the number of honorary members thus admitted at any one meeting should be limited to, say, not more than three; but it is certain that all the requirements of the case, as well as of common courtesy, would thus be met, and the good feeling thus shown to non-permanent members of the committees would be productive of good results. The impression that these committees are close boroughs exists so largely in the provinces, that anything the council of the Royal Horticultural Society can do to remove that impression should be done in the broadest and most generous spirit. Unhappily, the criticisms of outsiders have in the past been contemptuously disregarded, probably because made from the outside; and yet these are the very criticisms to which the council should pay attention, because they represent the feelings, not of a restricted few, but of the many. There is not only great need for a broadening of the basis upon which the committees are formed, but some assurance should be given that, once appointed, a member becomes irremovable for a certain term of years, and thus he would be more independent and confident in the expression of his opinion than is now the case, when a timid man feels that, if too outspoken, he may be dismissed at the end of the year for his pains. Also, any capable member should be eligible for reappointment on a committee after a proper interval of retirement had elapsed.—A. D.

—We all know that pathetic little story concerning some gold medals distributed by a society as honours, which when tested were found to be—well, let us say, less valuable than they were supposed to be. Remembering this, we might ask if the first-class certificates of the Royal Horticultural Society are of any real value after all? The erratic manner in which these bits of pasteboard are awarded is so well known, that one need not afford examples, but let us at least try to get a certificate tangible in itself as an expression of the society's committees. The best way of getting this is, first, to have the best men only on the committees; and next, all those members who vote for the granting of a certificate should sign it if it be awarded. As it is, an award may mean anything or nothing; the whole question is this, who was at the granting of the award? I am sure Mr. Douglas would not sign his name on a certificate given to an *Auricula* or a *Gladiolus* unless it was of the finest quality, nor would Mr. Dominy sign an Orchid certificate except on the same grounds. Perhaps after all the most charitable way is to look upon the society as in the position of a pigeon with a broken wing. It has on one side the commissioners, on the other side the trade, and it seems quite unable to get clear of either. The commissioners do not want the society at all, and the traders only want it so far as it is of use to them. This is, of course, quite natural, but the question is this, how long will the council subject themselves to the one or the other?—F. W. B.

—In connection with the remarks on first class certificates in THE GARDEN (p. 392), will you allow me to say that the floral committee of

the Royal Horticultural Society have no responsibility as to any awards made at the Auricula show and Primula conference. I understand that the judges were selected by the secretary, after consultation with the president. I cannot accept the writer's argument that when a beautiful spring flower like *Anemone Robinsoniana* is not found in ninety-nine out of a hundred gardens, a certificate would be warranted by the society's rules. Alas! the same thing might be said of *Adonis vernalis*, *Phlox amœna*, *Sanguinaria canadensis*, and very many more beautiful plants which, though common to all hardy plant growers, are not to be found in ninety-nine out of a hundred gardens. I hope the result of the certificate to the Beaumontia will be that gardeners who are fortunate enough to possess it will learn from Mr. Ruffett the mode of making it flower.—GEORGE F. WILSON, Heatherbank, Weybridge Heath.

ORCHIDS.

THE BEST ANGULOAS.

THIS is not a large genus of Orchids, but most of the species produce curiously formed flowers, and when kept in robust condition have a noble appearance. As a rule they grow well in the coolest temperature usually given to Cattleyas. Indeed, the treatment under which they succeed is much the same as that given to such Cattleyas as *C. Mossii*, or *Lælia purpurata*; but in potting perhaps a little more Sphagnum is used in the turfy peat. We do not now see such handsome specimens of *Anguloa* exhibited as those which Mr. Wrigley used to show at Manchester of *A. Clowesi* and *A. uniflora*. On the first there used to be as many as fifty blossoms. *A. Clowesi* was figured in the *Botanical Register* in 1844, and in the *Botanical Magazine* (t. 4313) from a plant that flowered at Syon. The typical form of *A. Ruckeri*, another fine species, is figured in the *Botanical Register* for 1846 (t. 41). Its flowers have deep crimson spots on a yellow ground and a deep crimson lip. Lindley writing of this plant says: "This charming plant makes the third species now in our gardens of a genus, which in the spring of 1844 was a botanical puzzle." *A. Ruckeri* was the third species alluded to. Subsequently the handsome variety named *sanguinea* appeared amongst imported plants of *A. Ruckeri*. It differs from the type in having the inside of the sepals and petals of a deep rich blood colour instead of being yellow and spotted with crimson. Than the above it does not seem that there are any others distinct. There are varieties of all the three species but *A. uniflora*, or at least the variety of it named *superba* is very distinct and beautiful; we have had as many as seven flowers from one bulb of this variety. This and *A. Clowesi* are now showing flower, but not yet *A. Ruckeri*, which seems to flower later. As the young growths push from the base of the old bulbs, the flower-buds also push with them on each side. Previous to starting into growth they had been kept quite dry at the roots; but new roots are formed with the growths, and they require henceforth a regular supply of water, which must be kept up until the new growths are matured; water should then be gradually withheld, and the supply should cease altogether during winter. It has been stated that *Anguloas* succeed best in a cool house. I have tried them in one, but I prefer a shady part of the Cattleya house. I do not know under what conditions *A. Clowesi* has been found during recent years, but when first discovered it was found in low bottoms, in the midst of forests, in Venezuela, growing in the ground." It should, therefore, be grown in the shady side of the house, and not exposed to the direct rays of the sun. When in good health, *Anguloas* do not suffer much from insect pests; but red spider will sometimes attack the leaves, and greenfly will get on the flower-buds and ultimately inside the flowers, and sadly mar their beauty. Spider is easily removed by means of a sponge

and soft soapy water, and greenfly can be destroyed by means of a camel's-hair brush dipped in tobacco powder. Fumigation is the best way to get rid of aphides, but it does not suit all plants. I may state that *Anguloas* can be grown very well under Vines. They may be started along with them in January or February, watered freely, and sometimes syringed. Thus treated, they keep clear of insect pests. They may either be potted when in flower in summer, or before they begin to make roots early in the year—the latter best; and being free-rooting plants a good supply of potting material is necessary. Mix equal quantities of fibrous peat and Sphagnum together, and add to it a good sprinkling of broken pots and charcoal. *Anguloas* do not need so much drainage as some Orchids; the pots, indeed, ought not to be quite half full of it. J. DOUGLAS.

Oncidium Marshallianum.—Of this glorious Orchid a very fine spike nearly a yard in length and widely branched has been sent to us by Mr. Brooman-White's gardener (Mr. Kidd), from Arddarroch, Garellochhead. The whole spike has a fine effect, the flowers being numerous and each having a lip of the clearest chrome-yellow quite $1\frac{1}{2}$ inches wide. The outspread petals in combination with the lip suggest the form of some of the tropical butterflies, and the whole spike represents a swarm of them. This *Oncidium* is one of the choicest of Orchids, and now that it can be bought cheaply it should come into general cultivation. It grows best on a suspended block in an intermediate house. The spike sent to us, Mr. Kidd states, was cut from a plant imported only a year ago. He also sends three spikes of *Odontoglossum* cut from plants one year established. One of these is a grand form of *O. Alexandræ* of the finest type, with blooms quite 4 inches across and with broad, crisped edged petals. The two other spikes represent hybrids of *O. crispum*, one near *Andersonianum*, and both would compare favourably with the best hybrid forms which one sees in London collections.

Dendrobium Dalhousianum.—This magnificent Orchid has been abundantly represented in several collections we have recently visited, and particularly in the Orchid houses at Kew, where during the last four or six weeks it has been a great attraction. If this species has a fault it is that of soon fading, as it lasts only about four days as a rule. It may, however, be enjoyed for a fortnight if placed in a greenhouse temperature, i.e., the cool Orchid house, whilst in flower. This plan has been followed at Kew, and is worth noting; indeed all Orchids, except those that start growing before the flowers expand, will hold their flowers fresh about as long again in a low temperature as when kept in a growing temperature. *D. Dalhousianum* bears large, thick pseudo-bulbs 6 feet or 8 feet high, which when young are prettily banded with reddish brown. The flowers are produced on the ends of the ripened leafless growths, in racemes of from six to eight flowers, each of which is 4 inches across and well filled in all round. The sepals and petals are a pale yellow fawn with rose-tinted edges, whilst the lip is a broad, shell-like expanse of rich purple-crimson plush, being covered with short soft hairs. Some of the Kew plants have borne thirteen racemes of flowers all open together—a beautiful sight. Upon one plant several of the racemes were composed of flowers each with two full-sized labellums.—B.

Dendrobium Pierardi.—Is not this plant deserving of a greater share of attention from Orchid growers than it gets? If we had to select half-a-dozen Dendrobies for every garden we should certainly include this one, in spite of its being apparently despised. As a grower it equals *D. nobile*, which every beginner manages without difficulty; it thrives in a warm greenhouse almost as well as anywhere, and it never fails to flower, provided it has been allowed to rest in a dry greenhouse during the winter. Then its flowers, too—they are large, abundant on the pseudo-bulbs, and most delicately coloured. There are several forms in cultivation, the best perhaps being that known as *latifolium*, which has flowers with large, shell-shaped lips, quite as fine as in *D. primulinum*, its cousin, and coloured like *D. tortile*, also a near

relative. There are some baskets of this and of the smaller-flowered form now flowering in the Orchid house at Kew, and very beautiful indeed they are, infinitely more desirable than a large proportion of the newer kinds which cost guineas where *D. Pierardi* costs shillings. It is possible to get a dozen bulbs 2 feet or 3 feet long on a plant of this *Dendrobe*, grown in a 4-inch basket, and nothing can be more charming than such a plant when bearing at every node two or three blush-white and pale yellow flowers, which, moreover, last nearly a month before they fade.—W.

ROSE GARDEN.

ROSES WITH SCENTED LEAVES.

"T. W. G.'s" long critique on what I had to say on this subject does not require any lengthy remarks from me. I must plead to being an obdurate sinner against much that is accepted as canonical by those who can see nothing in a Rose if it does not possess the form that finds favour on the exhibition stage, and to which "T. W. G." is evidently a staunch adherent. No one disputes the right of a select few to set up a standard of their own in the matter of shape in Roses or other flowers, however arbitrary or opposed it may be to that which the generality of people accept as elegant and beautiful. But adherents to the standard in question are not content with upholding it; they also want to bind the rest of the gardening community to it. The signs of the times are, however, so far dead against the teaching of which "T. W. G." is the latest champion, that there is not much danger of the public who are fond of gardening returning to the conventional exhibition form, from which they are now breaking away in Roses, as in other flowers.

The lasting properties of such Roses as *Gloire de Dijon* and *Souvenir de la Malmaison* are too well known and generally appreciated to require anything further in support of what I have already said about them. How is it, asks "T. W. G.," that the two kinds named are not more generally met with in the market if the lasting character of their flowers is so much thought of? Instancing that he had only seen *Souvenir de la Malmaison* in one shop during the present spring. He says nothing about *Gloire de Dijon*, of which, taking into account the whole year, there is probably four times as many sold as of any other variety. Those acquainted with the London flower trade do not expect to meet with many flowers of *Souvenir de la Malmaison* until they come in out of doors; but I know some of the market growers who have acres of Roses confined to three or four varieties, the principal of which consist of *Gloire de Dijon* and *Souvenir de la Malmaison*. The strangest inconsistency in "T. W. G.'s" communication is that, after throwing half a column of cold water on the two varieties in question (which, by the way, I only named to show the form of flower that is the most enduring), he then admits that they "have great merits for which we may well be thankful," and goes on to say that we should endeavour to reproduce their good qualities in other varieties. Precisely so; this is exactly what I said—reproduce them in every desirable colour in which Roses are found.

In speaking of arranging Roses with their own leaves I said, "when these were fresh and green." The old Cabbage Rose does not flower in autumn, at which time its leaves are dull and frowsy, so that no one would think of using them with either Tea Roses or any others. What, then, is the use of introducing imaginary instances in the way in which "T. W. G." indulges in his concluding remarks, and which have nothing to support them? T. B.

Chrysanthemums at Easter.—By adopting a certain course of treatment I have succeeded in getting *La Neige* to flower at Easter. The plant, which is in a 4-inch pot, is only 12 inches high, and furnished with leaves down to the pot. I have had it in flower about a fortnight.—T. A. HILL, Round Hill, Newbury, Berkshire.

NOTES OF THE WEEK.

New Tulip.—A beautiful new Tulip has been sent to us by Messrs. Van Eeden, of Haarlem, who consider it very distinct from others. The flowers are pure white, except on the outside of the petals, which are washed with a slaty purple, very faint, but just sufficient to give the flowers a delicate tone of colour. It is one of the prettiest early border Tulips we have seen, and we think it worth a name. Being flushed with a dove tint, an appropriate name would perhaps be *The Dove*.

Primulas at Kew.—The large collection of Primulas sent from Kew to the recently-held Primula conference may now be seen in all their beauty in the Cape house, where they are arranged in a group by themselves, and are seen to even better advantage than when at South Kensington. We hear that the delight and astonishment of visitors to Kew on seeing the variety and beauty among the Primulas as represented by this group have been both great and general, far more so than amongst the visitors to the Kensington show, to most of whom these plants were more or less known. It is a great pleasure to horticulturists to see the Kew authorities taking matters of this kind in hand, and aiding such praiseworthy objects as everyone admits the Primula conference to have been.

Flowers from Aldborough.—I send you a few spring flowers from the cold, bleak east coast. First amongst them is a dwarf seedling of *Narcissus moschatus* of mine; this is the first flower, so one can hardly judge of its merits; two seedling *Polyanthuses* of a peculiar form, and also three seedling alpine Auriculas, viz., a dark plum sort, Maud Browne (this I sent you before some time since); light lilac Auricula Chatterbox; and the pale laced edged kind I have named Magpie. Although the two latter are not particularly beautiful, they add variety to our wealth of delightful spring flowers.—W. H. BROWNE, *The Laurels, Aldborough, Hull*.

* Dr. Browne sends with this a gathering of very fine Daffodils, including Sir Watkin, 4 inches across, and *moschatus*, a little gem, being quite white and not much more than an inch long.—ED.

Straw-coloured Auricula.—Mr. P. Barr has directed our attention to a beautiful variety of Auricula, with very pale straw-coloured flowers, which has for many years been offered for sale in Covent Garden Market by one grower who propagates it annually. The flowers are the size of a shilling and quite circular, but the delicate colour is the point which struck us. What the plant would be growing freely in a country border instead of on a market stand we can readily imagine.

The May flower (*Epigæa repens*).—This charming little evergreen trailing shrub, which unjustly bears the reputation of being so difficult to please when under cultivation, is now becoming better understood, and some can boast of having a dense carpet of it. Mr. G. F. Wilson, in his wood garden at Wisley, has quite mastered its fastidiousness, and has it growing vigorously, and just now covered with its sweet-scented pink flowers. He had some beautiful sprays of it at South Kensington last week, the best we have seen. We believe he grows it beneath the thin shade of Oaks, in the naturally decayed leaf mould of the wood. It is such a pretty shrub, that it is worth a deal of trouble in establishing it. Among other flowers which Mr. Wilson showed was *Menziesia empetrifolia*, brighter in colour and greener in leaf than usual, and *Rhododendron multiflorum*, a beautiful variety and a near neighbour of, if not identical with, *R. ciliatum*; the flowers, borne in crowded clusters, are delicate blush-pink in colour.

New park for Sheffield.—The corporation of Sheffield has just acquired the beautiful piece of woodland on the south side of the town, known as Endcliffe Wood. It is intended to lay this out for the use of the public, and as it is within a mile of the centre of the town and easily accessible, it will be a boon to the townsfolk, Sheffield not being too well-off in the matter of public parks and gardens. The Endcliffe Woods occupy the slope and valley near the Botanical Gardens, and are nearly a mile in extent. The slope is covered with large trees, chiefly Oaks,

and the river Porter runs along the valley, and in its course works three old water-wheels, one of which will be retained as a picturesque feature; in fact, it is intended to preserve the rusticity of the place as much as possible. Broad walks will traverse the wood and rustic bridges will span the stream at various points, while along the boundary will be a carriage-way 75 feet wide, planted on the margins with trees. The present dams which have worked the wheels will be converted into lakes for bathing, skating, water-fowl, &c., and the outfalls will be transformed into waterfalls, there being a difference in the level of some 80 feet or 90 feet between one end of the wood and the other. The natural beauty of the woodland is such, that when embellished a little, few towns will be able to boast of such delightful public grounds as Sheffield. The work of laying out the place has been entrusted to Mr. William Goldring, of London.

Apples from Australia.—I send you a few Apples which were grown by Mr. James Lang, Harcourt, near Castlemaine, Victoria, and sent by request of Mr. John Carson, of Melbourne (late president of the Victoria Horticultural Society), to the care of Mr. G. F. Wilson, to be exhibited by the Royal Horticultural Society. The Apples, which have reached us in fine condition, were each of them packed in soft paper with cotton wool round them, and a layer of cotton wool between each layer of Apples, and they had been kept at a temperature of 40° during the voyage. The soil in which Mr. Lang grew them was decomposed granite. The following are the names of the Apples, viz., Scarlet Nonpareil, Dumelow's Seedling, Stone's Pippin, Reinette du Canada, Gipsy Queen, Perfection (colonial and non-blighting), Worcester, Merritt's, and Blue Pearmain, Cleopatra, London, Sturmer, and Newtown Pippin, Rymer and Munro's Favourite (colonial).—EDMUND BAX, *Asst. Sec. Royal Horticultural Society, South Kensington*.

* With this note came specimens of Rymer and Sturmer Pippin, the last the finest Apple we have seen or tasted of the sort; the Rymer, too, were very handsome, but not so good in flavour as the Sturmer. They reminded us of highly-coloured Peasgood's Nonsuch, being yellowish and streaked with crimson. With such very fine Apples as these from Australia before our own are really past we shall soon be able to have Apples for dessert all the year round.—ED.

Lilium odorum.—We figured a Lily recently under the name of *Lilium japonicum*. This name, we learn from Mr. Baker, is incorrectly applied to the plant which our plate represented, and which should have been named *L. odorum*. As the writer of the article accompanying the plate explained, there has been, and still is, some confusion with regard to the names of this and two other Japanese Lilies. There are two species very much alike. These are *L. Browni* and *L. odorum*, but those who have an intimate acquaintance with them can readily point out differences in them, which are not slight. In foliage they differ materially. *L. Browni* has long, narrow, and pointed leaves of a shining deep green. In *L. odorum* they are much broader and shorter than those of *Browni*, and of a dull, unpolished green. Their flower differences are not so easily described, but the two Lilies differ in stature, in bulb, and in the period of vegetating. They are, in short, two distinct Lilies, and their correct names, as they now stand, are *Browni* for the narrow-leaved kind, and *odorum* for the other—not *japonicum*, by which name it is commonly known. The true *L. japonicum* is what is generally known as *L. Krameri*, the beautiful pink-flowered Lily which so many fail to grow well. This nomenclature is according to Mr. Baker's latest views, who, it will be remembered, adhered to the *Botanical Magazine* name of *L. Krameri* in his "Monograph of the Liliaceæ," in which also he placed *Browni*, a form only of what he then called *japonicum*, but which is now *L. odorum*.

A wonderful Streptocarpus.—One of the most extraordinary plants of recent introduction is a new species of *Streptocarpus* now flowering in the succulent house at Kew. It is planted all along one side of the central bed, occupied by Aloes, &c., and forms a broad band of large leaves, which may be said to sprawl upon the ground. There is but one leaf to each plant (this character belongs to several

well-known species of *Streptocarpus*), and there is no distinct stem other than what is formed by the leaf-stalk, which is only 1 inch long, and has a thick tuft of soft fibrous roots growing from its base. The leaf-blade is 2 feet long, 16 inches broad, ovate in outline, waved or undulated, the margins coarsely toothed, the base contracted so as to form a deep channel and the apex curling downwards. The upper surface is silky to the touch, glaucous green in colour, with a frost-like sheen. The under side is as coarsely veined as a Rhubarb leaf, the midrib being as thick as a man's little finger and covered with soft woolly hairs of a brick-red colour. A plant with a solitary leaf of these dimensions would be a marvel without flowers, but in this *Streptocarpus* there are flowers as remarkable in character as the leaf is. At the base of the blade and springing partly from the stalk are five or more flower-scapes arranged in a row, their bases pressing closely together and slightly flattened. The largest or first developed scape is nearest the stalk, the next one being shorter, and so on to the last one, which is only just formed. These scapes are erect, 5 inches long when the flowers open, and half an inch thick. The flowers are arranged in a scorpioid cyme, as in a Borage flower-head, and there are about sixty flowers and buds on each scape; each flower is 1½ inches long, tubular in shape, the top of the tube or mouth measuring three-quarters of an inch across, and divided into five rounded spreading segments. In colour it is pale red, or, to be accurate, what is known as terra-cotta, and there is a blotch of pale yellow on the underside. The stigma is half an inch longer than the corolla, and there are two thick green stamens. Hitherto no *Streptocarpus* has been known with flowers of any colour other than some shade of blue or white. This plant has been introduced by means of seeds sent from the Transvaal in 1884, where the plant is said to be plentiful at elevations of from 3500 feet to 6000 feet. At present the plants at Kew are only opening their first flowers; what they will be when in full bloom cannot yet be guessed, but certainly we have in this *Streptocarpus* another of those vegetable wonders which South Africa seems exceptionally rich in, and which may be placed in the same category as the *Welwitschia*, *Narras*, *Testudinaria*, *Hoodia*, and similar African plant monsters.—W. W.

Cooperia pedunculata.—This plant is so much like the white Zephyr flower (*Zephyranthes candida*), that it might easily be mistaken for it unless closely examined. Botanically, the two genera are separated only by their anthers, and there is also slight differences in the leaf characters. There are only two species of *Cooperia*, both of which are in cultivation, though perhaps rare. They are natives of Mexico and Texas, probably the mountainous regions, but they are not hardy with us. Grown in a cool frame or greenhouse, however, they are easily kept in health, and when properly ripened will not fail to develop their pure white flowers. It is a mistake to suppose these plants require resting in summer; they start to grow early in spring, pushing up their narrow, strap-shaped leaves and erect scapes bearing a flower each, and they grow all summer if allowed to do so. In September they should be gradually ripened, and during winter they must be kept quite dry. *C. pedunculata* is now flowering at Kew, after having been treated as here recommended. It has glaucous green leaves, half an inch wide and 8 inches long, and the flowers are nearly 2 inches across, of good substance, and pure white; they emit a delicate fragrance.

Bomareas.—We lately published an account of the best plants of this genus along with a plate of *B. oculata*, and we now direct attention to the several handsome kinds which may be seen in flower in the succulent house at Kew. Grown in a greenhouse temperature, their roots revelling in a bed of good peat, loam, and manure, and liberally supplied with water always, these plants at Kew have invariably flowered well and in quick succession. Their shoots are trained along wire near the glass, and as soon as they show signs of flowers the upper yard or so of the shoots is loosened from the wire, and a small stone is tied to them to weigh them down. The advantage of this plan is seen in the beautiful effect which the flowers have hanging gracefully from the roof as compared with the loss of effect when the branches

are half hidden by the foliage, or are allowed to grow up towards the glass. Anyone might grow *B. conferta* if he had a greenhouse, and no one could fail to be charmed with its large graceful clusters of salmon-red tubular flowers. The same may be said of *B. Caldasiana*, which is a very free flowering, quick growing climber; in fact, every one of the *Bomarea*s deserve to be placed among the very best of greenhouse climbers.

Two good *Vaccinium*s for the greenhouse are *V. rugosum* and *V. serpens*, both of which are now flowering at Kew. To be strictly botanical, we should call these *Pentapterygium*s, but the better known name will serve our purpose here. *V. serpens* is grown in a basket suspended from the roof of the Cape house. It has a thick, woody root-stock, and long, arching wand-like branches with pale green crowded Box-like leaves, and rows of pendent urn-shaped flowers, 2 inches long and bright red in colour. It flowers annually at Kew, and is a distinct and beautiful shrub for pot or basket culture. *V. rugosum* has dark green, lance-shaped, rugged leaves, on stoutish stems, and the flowers are produced on the ripened wood. They also are urn-shaped and pendent, like beautiful ear-drops, whilst in colour they are tawny yellow with zig-zag transverse lines of deep brown, colours and markings both quaint and attractive. We have called this a greenhouse kind, but after watching a plant at Kew which has been out of doors since last spring, and left unprotected during the whole of the past severe winter, we may safely conclude that *V. rugosum* is quite hardy in this country. We never learn the capabilities of a plant in respect to hardiness until we run the risk of losing it by trying it outside. The late Mr. Joad acted on this principle, and although it proved expensive, it nevertheless taught valuable lessons.

Rhododendron Aucklandi and R. Nuttalli.—These two species stand head-and-shoulders above all the magnificent *Rhododendrons* of Sikkim-Himalaya, of which we have so many now in cultivation, and fresh additions are continually being made, at once proving how varied and abundant the genus is in Northern India. It is only in large conservatories that these two grand shrubs can be properly grown, as they rarely flower until they attain a large size. At Kew, in the temperate house, these, as well as hosts of other handsome sorts, are perfectly at home, and are represented by gigantic specimens in most cases. Planted out in peat borders, and kept well watered at all times, these plants grow very rapidly, whilst, to induce them to flower, plenty of fresh air in autumn and exposure to full sunlight are all that is necessary. To our taste, *R. Aucklandi* is the handsomer of the two, its very large saucer-shaped snow-white flowers, 6 inches or 8 inches across, and borne in bunches of from four to six on the ends of the shoots, being preferable to the greenish white of *R. Nuttalli*, the flowers of which are bell-shaped and borne in massive and compact clusters. The beauty of the bright red bracts which accompany the young leaves of *R. Aucklandi* is an additional charm in this kind, and helps to intensify the richness of the flowers.

Wood-boring insects (*Mrs. Kelly*).—The insect you sent is a specimen of the common death-watch (*Nestobium tessellatum*), a beetle which is frequently found in woodwork in houses. The beetles lay their eggs in the holes which they bore, and the grubs hatched from them will form tunnels in the woodwork, feeding on it as they proceed. To get rid of this insect, inject into its hole a solution of one ounce of corrosive sublimate dissolved in one pint of methylated spirit of wine. The glass tubes sold for filling stylograph pens, which have a very fine nozzle and an india-rubber bulb at the other end, make very good syringes for this purpose. Have a small piece of putty ready made into a little roll just large enough to go into the hole; as soon as the liquid is injected thrust the putty into the hole and close it. If the hole is not tolerably straight, fill the syringe with the solution, put the nozzle into the hole as far as it will go, and put some putty all round the hole to prevent the liquid coming out, and squeeze the india-rubber bulb firmly, but slowly.—G. S. S.

FLOWER GARDEN.

WHAT IS NARCISSUS MAJOR?

MR. HARTLAND, of Cork, on page 406 of THE GARDEN, asks the very pertinent question, What is the standard of *Narcissus major*? The only answer which can be given is, that in the case of a variable flower like the Daffodil, whatever a leading botanist at a particular time figures in a standard work as a particular flower, that figure must be accepted as the standard of that flower until it is superseded by some superior authority. It is quite true that bulbs now sold by dealers as *N. major* produce few flowers, and those generally deformed with ugly gaps in the corona and with unhealthy foliage. Botanically, *i.e.*, according to the classification of Linnæus, all the large-flowered forms of the Trumpet Daffodil which are not *N. bicolor* are *N. major*, but horticulturally *N. major* is (*Botanical Magazine*, tab. 51), and the nearer that figure, drawn in 1793, can be matched, the more typical and correct the flower. The standard of these Daffodils, however, was made for the most part in the dark ages of Daffodil knowledge, and in these more enlightened times we know that *N. pseudo-Narcissus*, the Trumpet Daffodil, is to be found as a wild plant in endless variety of forms and sizes. Formerly the few varieties in cultivation in gardens were selected as types, and named and increased and supplied to the bulb market from one stock, and so kept constant; but directly we collect wild bulbs from the French Pyrenees, or from the north of Spain, or of Portugal or of Italy—not to mention the orchards and meadows of England, Wales, and Ireland, where they have become naturalised and have increased from seed—and compare these forms, we find that assumed standards for names are merely arbitrary points in an endless series, and have no fixed status in Nature any more than fancy breeds of sheep or pigs or cattle have in their respective natural species, though the Daffodil varies itself nearly as much in Nature as in cultivation. Mr. Hartland speaks also of *N. propinquus*. This name is generally referred to *Botanical Magazine*, tab. 1301—a figure which may perhaps be matched in some nurseries, though one well-known Dutch firm sent me *major*, *propinquus*, and *lobularis* all precisely identical. If this were always done, few of the recipients could complain that they did not get what they paid for. But in spite of all this, any attempt to change Daffodil names only makes the confusion greater, and until a complete revolution in names can be effected by general consent, our object should be to increase the number of Daffodil names by as few additions as possible.

Edge Hall, Malpas.

C. WOLLEY DOD.

Narcissus Henry Irving.—In your description (p. 410) of this variety, which was granted a first-class certificate at South Kensington on the 26th, there is a slight mistake which might lead to some confusion if allowed to pass uncorrected. You say, "it appears to be identical with that certificated last year as General Gordon." Blooms were submitted to the floral committee last year under this name, but were recognised as *spurius coronatus*, and identified as such by the *Narcissus* Committee to whom they were referred, and under the name *spurius coronatus* was the certificate granted, so that in fact we have no variety at present called General Gordon. The peculiarity of Henry Irving is the bold way in which the perianth stands out from the flower, after the manner of *obvallaris*, and, as Mr. Barr describes it, "you might cut the trumpet clean out with a sword without injuring the rest of the flower." The divisions of the perianth are well imbricated, of good substance, and of deeper colour than in *spurius coronatus*.—C. R. SCRASE-DICKINS, *Hon. Sec. Narcissus Committee*.

BELVOIR AT EASTERTIDE.

LADY JOHN MANNERS has kindly sent us for publication in THE GARDEN the following interesting account of the spring gardens at Belvoir: "We wandered down the rocky steps and stood near the foot of a broad expanse of sloping verdure, broken into many little lawns by Evergreens. The trees that embosom these lawns were still leafless, except the Horse Chestnuts, whose delicate green leaves seemed just to have unfolded themselves, and tall, graceful Birches were assuming that peculiar lovely hue which they wear in spring, but the Thorn bushes were already in full leaf. Five tall dark Cypresses formed a contrast to these trees. Looking up some little distance to the higher part of the rather steep bank, we saw, near the rocky summit, a bed of brilliant flowers, in the form of a Maltese cross, the centre of which was deep purple Heather, bordered by thousands of beautiful golden Oxlips. They are finer in appearance than their cousins the Cowslips, but they do not possess the subtle, reviving fragrance of that delicious flower. The Oxlips are bordered by brilliant alpine Forget-me-nots, and beyond them are hundreds of pink Daisies.

"Close to the Maltese cross we saw a crescent-shaped bed filled with a broad-leaved pink Saxifrage. Nearer the wood we had glimpses of the white *Arabis* gleaming through the trees, and thousands of Daffodils and Primroses growing among the trailing Periwinkle. A little farther down the bank the path is skirted by long, narrow terrace gardens; one extends for about 50 yards, and there are others of various lengths. There we saw tier above tier of flowers; one of white *Arabis*, sprinkled with scarlet and yellow Tulips; a second of golden Oxlips, ovals of dark Heather and many-hued Hyacinths; while in the third tier the alpine Forget-me-not and the purple *Aubrietia* seemed to run riot, the latter forming little cascades over the edge of the terraces. A little lower still a large Himalayan *Rhododendron* was a perfect blaze of scarlet blossoms. After looking for a while at this bright picture, we followed a winding path through Evergreens and shrubs, and came upon a surprise garden—crescent-shaped beds, full of red and yellow Tulips, blue and pink Hyacinths, and Polyanthuses. A little further on we came to more rocky steps, and over these a cataract of spring flowers seemed to be precipitating itself; there are several flowerfalls, half hidden by the shrubs.

"The shrubs ought to be in flower, but I am told everything is six weeks later than usual. However, as we wandered from one sheltered nook to another, and across many little lawns, we found flowers in profusion, and many *Rhododendrons* just bursting into bloom. Bees were busy, and their humming brought pleasant hopes of summer. In rocky corners of this wild garden may be found rose coloured Primroses from Cashmere, Anemones from Asia Minor, and many little alpine plants; but alas! my love of flowers is deeper than my knowledge of them, and I am only too pleased when I find a sweet Cowslip. As we returned home from this pleasure, we paused to see what progress the garden near the castle had made. The beds of this garden, which is more of a *parterre* than that on the sloping lawn, reminded me of those pieces of rococo jewellery, in which emeralds, rubies, sapphires, and turquoises are sunk into a setting a little way from each other. Pink Saxifrage, Daffodils, little double white Anemones, purple *Aubrietia*, blue Scilla, and scarlet Anemones from the Apennines spring up year after year in one large bed. In several quaint devised beds are white, pink, blue, and red Hyacinths; one consists of dark Heather and yellow Tulips, and another of Oxlips with scarlet flowers. A Ribes close by is covered with hanging pink blossoms; the intense green of the steep bank is due to there having hitherto been more April tears than smiles.

"From this garden we looked down on the tall forest trees, and they were still wintry, but the bursts of song told of spring. On Easter Eve we heard the note of the cuckoo echoing through the distant woodlands. We saw the first swallows on Easter Sunday skimming round and round the high tower. On Easter Monday there was a very cold wind, but a clear sky and a hot sun. Many hundreds of people came from the great towns in the distance and from the villages to enjoy the spring sunshine."

PRIMROSE AND POLYANTHUS SEEDS.

THE hot dry weather during May and June last year nearly dried up many seeds, and therefore complaints are being made that they have not germinated so well as usual. A close examination of seeds saved by myself last year shows that they are smaller in size and less plump than they should be, and this doubtless accounts in some measure for diminished vitality. In the case of Primrose and Polyanthus seeds, I find that in proportion as quality is reached the seeds are fewer and germination not so general. What, then, can the raiser of seedlings do to secure as large a number of plants as possible from seeds? I may state that for the last two years I have adopted the following practice with remarkable success. I take 5-inch pots and put into them one-thirdful of crocks; over these I place a layer of Cocoa-nut fibre; then I use a compost made up of finely sifted loam, leaf-soil and sand, placing some of the roughest at the bottom and filling up with the finest. The surface is levelled down, and the seeds scattered as thinly as possible over it, and then a covering of sand, very thinly laid on the surface, is added. The pots are then stood in pans $1\frac{1}{2}$ inches to 2 inches deep, the pans filled with water, and a piece of glass placed over each pot. The pans are placed on the warmest shelf in the greenhouse fully exposed to the sun; the seeds soon germinate, and come up thickly and regularly, and as soon as the second seed leaves appear the glass is removed. By means of capillary attraction the surface soil is kept moist, and no surface-watering is necessary. Those who raise plants from fine seeds sown on the surface know the dangers attendant upon watering upon the surface, and the best plan was to dip the pots in a pail of water up to the top of the rim, and allow the moisture to rise upwards until the surface was moistened. But this danger occasionally attends this process, namely, that the surface soil being loose and light, it was carried upward by the rising volume of water. All this labour and risk are avoided by the process I adopt; the former is confined mainly to keeping the pans filled with water, and they should not on any account be allowed to become dry.

I find that I succeed best with a compost without anything in the way of manure—only loam, leaf-mould, and sand—until the plants approach size enough to enable me to prick them off into store pots. I find also that they are greatly helped, after becoming established, by giving them a very slight top-dressing of very fine leaf soil and sand.

HOW AND WHEN TO SOW.—I sometimes sow in July and August and in February; but then there is not so much gained as might be supposed. If the seeds are plump and good, sow as soon as ripe. What the raiser should aim at is not only an early germination, but also to encourage the plants to get into size as early as possible, so as to winter in safety. They do not grow much after the early part of October, and it sometimes happens they are not large enough to prick off the same autumn, unless a little gentle heat is available to give them a start, so that they may root into the soil before winter comes on. As I do all my raising in a cold house I do not attempt to prick off before the spring; but during the winter I keep the surface as clean and sweet as possible, adding an occasional dusting of finely-powdered charcoal. As a matter of course directly frost sets in, the pots are taken out of the pans of water and newspapers laid over them until it again becomes mild. When the plants are pricked off, I use 4-inch pots, one-thirdful of drainage as before, and the same compost is employed. I put six or eight plants in a pot, according to their size, and press the soil pretty firmly around them. They are then placed in the pans of water, and the plants speedily begin to grow. I never have sufficient pans to take all the pots, so I place the remainder in a cold frame on a bed of damp Cocoa fibre, shading from the sun, keeping rather close for two or three days, and then giving air, but retaining the shading as necessary. At the end of the summer the plants are put out in the open ground.

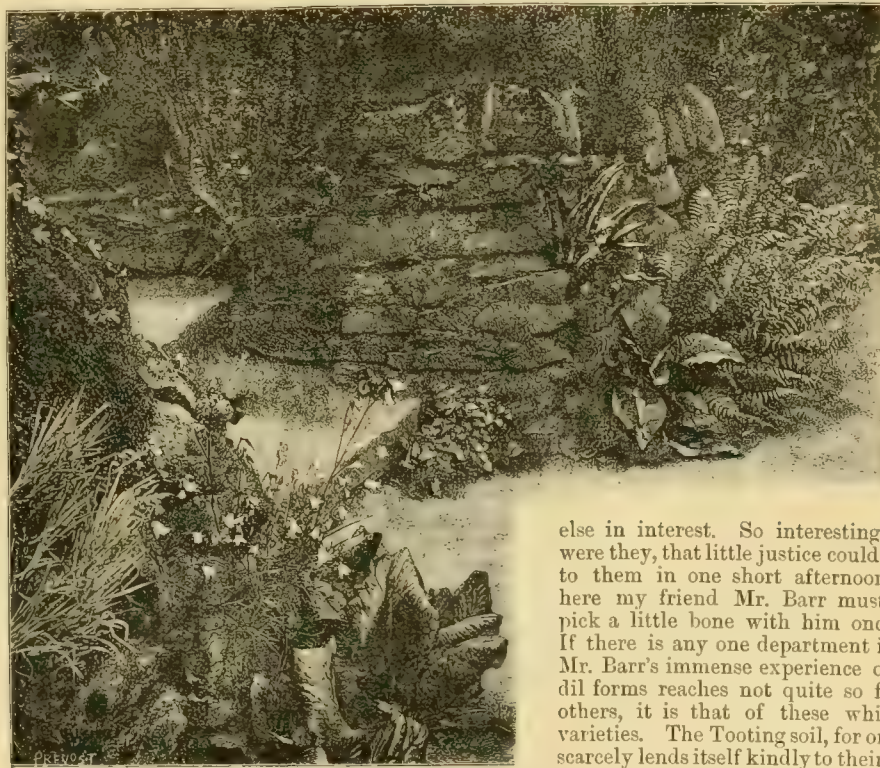
I adopt the same method with seeds of Auriculas, but prefer to sow these in early spring instead of in August, having no heat during winter. This is an advantage to seedling Auriculas, as it enables the raiser to keep them comfortable during the winter.

But in pricking off into store pots I place four or six only in a pot, according to their size; and they flower in these, anything promising being remarked, and anything inferior placed out in the open border. Let me add, that the lighter and freer the soil used for seed raising, the less danger there is of growth on the surface of the green conservæ, which are sometimes so troublesome. A little sand and fine charcoal placed on the surface after the plants are through the soil and large enough not to be buried is a preventive against this green growth.

R. D.

SEATS AND STEPS IN ROCK GARDENS.

MUCH care and taste is needed in building rustic steps and seats in rock gardens. The mason's art should be concealed, and the work made to look as if it grew out of the ground. Any necessary cement joints should be kept out of sight, and the stones laid in natural-looking courses much as they occur in the quarry. A visit to any local quarry would be the best possible lesson. In the cases shown in the annexed en-



Rough stone steps in rock garden.

gravings the material is the local sandstone used in the naturally shaped pieces. The seat is notched into a bank of turf and Heath, and has a springy cushion of Thyme growing over the back, at once restful and sweet to smell. The tiny rock plants take very kindly to such rough stonework. In building, a chink is left here and there for some tiny plant the better to connect the steps or seat with the masses of plants and more detached stones of the rock garden.

Blue Primroses.—"A. D." (p. 406) need not fear weakness of constitution and want of power to resist frost in Scott Wilson Primrose and its descendants. What has rather puzzled me is its remarkable winter blooming property. All through the late severe winter it was only in the sharpest frosts that I could not find flowers for my button-hole, while in the very numerous other coloured Primroses, flowers were much rarer. Not being a

florist, though in a late article (p. 304) I was made to appear as "an eminent one," and having much other experimental garden work to do, I have not made the most of the remarkable new break of colour in Scott Wilson. I, therefore, was glad to hear that my friend Herr Max Leichtlin had succeeded with it. I think, with his experience and skill as a hybridiser, we may expect some fine colours. GEORGE F. WILSON, *Heathbank, Weybridge Heath.*

WHITE TRUMPET DAFFODILS.

It is with these as with all Daffodils: our knowledge—or, I should rather say, the raw material out of which we have yet to spin our knowledge—increases fast. Every season is bringing to light white Daffodils previously unknown or known only locally. This was well seen at South Kensington on April 13, when the white varieties brought before the Narcissus committee by Mr. Hartland, Mr. Wolley Dod, Miss White, Captain Nelson, and others quite surpassed everything

else in interest. So interesting, indeed, were they, that little justice could be done to them in one short afternoon. And here my friend Mr. Barr must let me pick a little bone with him once again. If there is any one department in which Mr. Barr's immense experience of Daffodil forms reaches not quite so far as in others, it is that of these white Ajax varieties. The Tooting soil, for one thing, scarcely lends itself kindly to their cultivation, and they can only be judged of satisfactorily when grown strongly and in breadths under the eye of an expert.

Now, the collections brought to Kensington by Mr. Hartland and Miss White alone certainly contained six or seven varieties unknown to Mr. Barr's lists, yet he strove, and I understand is still striving, to tie them all down to the three ancient and musty labels of *cernuus*, *albicans*, and *tortuosus*. It is wearisome to again dwell upon the inadequacy of this obsolete nomenclature, but it seems necessary to remind some of our friends that it is impossible that Parkinson and Haworth were acquainted with half the Daffodils which modern rummaging has discovered. And to call their names obsolete is no more slighting to their excellent work than it would be derogatory to Tubal Cain's science to say he was personally unacquainted with the big organ in the Crystal Palace. To Haworth, before the days of railways and the penny post, the headquarters of white Daffodils in the more secluded corners of Ireland were about as little known as New Guinea. Mr. Barr, we all know,

used to think that every created or potential Daffodil was to be found fully described somewhere in Haworth if we only thumbed him long enough, and that to doubt this was an infringement of his patent, if not high treason. But in 1886 it is tolerably apparent that the volume is not big enough, even though, like the American story-book, it were printed on india-rubber, so that it could be stretched.

Possibly I am on my own ground in more senses than one in wanting to "have it out" about these white Daffodils. For some years I have been making a small collection of this section here, for my soil suits them wonderfully well, and kind friends in Ireland and elsewhere have helped me with flowers and bulbs; and, having the usual number of eyes, I cannot help observing that varieties which Mr. Barr would jam into one and the same of Haworth's moulds are absolutely distinct plants here, whatever they may be elsewhere. Thus both Miss White and I brought to Kensington a large kind with noticeably long trumpet and high shoulders, which received the name Leda. Mr. Barr now asserts the identity of this with his typical *tortuosus*, chiefly because they both have the same queer smell. He has never seen the two plants growing side by side. If next April he will kindly come here and look at them—they are out of flower now—he will never afterwards confuse them. Again, last year Miss White sent me from her garden near Roscrea a box of white Daffodils to take to Kensington. Among them were fine fresh flowers of a kind which Mr. Brockbank had previously obtained from Ireland and distributed, but which had never received a name. At my suggestion it was named Colleen Bawn by the committee. The same autumn Mr. Barr's list contained a Colleen Bawn, but when out of curiosity I applied for a sample I was told it could not be supplied. A few days ago I sent him specimen flowers from my garden, cut from bulbs given me by Miss White—the very same from which I had the variety named last year—but Mr. Barr replied that my flower is not the true Colleen Bawn. All this makes me feel mentally just a little "mixed," and afraid lest some day I should be driven to form myself into my own permanent *Narcissus* committee. Probably Mr. Hartland has already made himself into another, just as the exigencies of a skirmish obliged the Yankee soldier to form himself into a hollow square on his own account. He probably sees a thousand living plants of some white varieties of which Mr. Barr has seen only a couple of cut flowers, and therefore he is scarcely to be blamed for holding to his own judgment about their character. This brings me to the consideration that unless a cut flower is strikingly distinct, it is waste of time for an individual or a committee to pretend to form a good decision from it. They must either visit the grower's garden or get a good drawing of the entire plant; if they can do neither of these things, they must be content with the grower's opinion as to its character. Here is an illustration of my meaning. Some years ago I obtained from an old Wiltshire garden plants of a *cernuus* Daffodil. The flowers when cut are practically typical, but a largish patch of the plant grown for several seasons side by side with typical *cernuus* is obviously distinct from it, being only two-thirds of its height, much more robust and floriferous, and holding its flowers at a different angle with the stem. A member of the *Narcissus* committee who visited my garden lately saw all these differences at a glance, but of what use would it have been to take cut flowers to Kensington!

A four-fold division may be made of the white Ajax Daffodils.

1. Wild *moschatus*, taking the term *moschatus* to include all forms usually classed under *albicans*, *cernuus*, and *tortuosus*. The only kind as yet authenticated as truly wild is the little flower discovered in the Gavarnie district of the High Pyrenees. I have this now in flower in my garden both from bulbs imported last summer and, by Mr. Wolley Dod's kindness, from others two or more years in cultivation. The latter produce flowers twice the size of the former, but of the same shape. This wild *moschatus* merits the name *tortuosus* far better than any other I have seen, for the mature flower has every division quite twisted. It is remarkable for the exquisitely crystalline texture of its trumpet, which under strong light will be seen to sparkle as if dusted with crushed glass. In cultivation it comes very near to the Irish form *Leda*, noticed above, and it is reasonable to expect the discovery of wild forms which may show us the origin of the other garden varieties of *moschatus*. At present collected bulbs received from a different source, and supposed to contain more than one type, are all showing flowers practically the same as the Gavarnie kind.

2. Pure garden forms of *moschatus*, *i.e.*, such as may, in a sufficiently Darwinian length of time, have been derived by simple seminal variation and enlargement under cultivation from a wild plant such as that just mentioned. But the occurrence in old Irish gardens of very small as well as of large white trumpets renders it at least likely that their original parentage may some day be traced to a series of wild forms differing greatly in size. These pure garden forms include all hitherto classed as *albicans*, *cernuus*, and *tortuosus*, together with the more recently observed Irish varieties.

3. Impure or hybrid garden forms, *i.e.*, such as show an infusion of the less white blood of pseudo-*Narcissus*, *bicolor*, &c. To this section belong such flowers as *cernuus pulcher*, F. W. Burbidge, and others raised by Messrs. Leeds and Backhouse. Captain Nelson lately exhibited some extraordinarily fine seedlings of this description. In this direction we may perhaps attain some day to a pure white Ajax as big and strong as *Empress*. The raiser of such a flower ought certainly to make his fortune.

4. *Albinos*. Very beautiful white pseudo-*Narcissus* from Oxfordshire and elsewhere have been shown by Mr. Wolley Dod. Some of these are, I think, truly the typical wild Lent Lily "gone" white without any crossing with *moschatus*. Mr. Hartland possesses a lovely white minor, and his Minnie Warren has somewhat the appearance of a white form of the flower commonly called *nanus*.

Since writing the above I have received from Mr. Wolley Dod a remarkable series of wild white forms—pure *moschatus*—collected for him in a district of the Pyrenees. They differ so greatly in shape, that amongst them representatives may be found of all the types known as *albicans*, *cernuus* and *tortuosus*. G. H. ENGLEHEART.

Appleshaw, Andover.

SHORT NOTES.—FLOWER.

Chionodoxa Lucilæ.—"Glory of the Snow" is too long an English name for this pretty flower. I would, therefore, substitute for it "Snow Gem," which is not so very far from the meaning of the generic name. As the plant is evidently going to be one of the most popular of spring flowers, I think there is real need for a compact name for it easily spoken, spelt or remembered, as most of the popular names of plants are.—T. J. W.
* * * Would not "Snow Star" be better? But perhaps our readers can suggest a better name still for this *Chionodoxa*.—Ed.

The Hyacinths and Tulips in Hyde Park have been unusually fine this year. True, we have seen individual spikes larger, but the season being late, the different sorts have all flowered at one time, the result being an effective display.

NEW AURICULAS.

The report (p. 383) of the Auricula show lately held at South Kensington does not contain any detailed account of the new varieties exhibited. Unfortunately, the Rev. F. D. Horner, owing to a severe domestic calamity, had been unable to give his flowers their usual attention, and therefore his best seedlings were not in bloom. There were no green-edged flowers superior to Monarch (Horner) and the Rev. F. D. Horner (Simonite). Green Finch (Horner) is a pretty variety, but of these three Monarch is, I fancy, the best; it formed a prominent figure in Mr. Horner's collection last year, and also gained the first prize in the green-edged class for a single plant. The old green-edged favourite, Colonel Taylor, must now fall into the background. I have plenty of healthy plants of it, but a dozen must be grown before one can be found fit for exhibition.

In the grey-edged class, the champion variety, Greyhound, was not matched by anything this year, although the plant of George Lightbody which won the blue ribbon of the exhibition this year was thought to be as fine as it had ever been seen previously. Mabel (Douglas) was in very fine condition, and is a distinct and handsome variety. A grey-edged variety, Ajax (Horner), not much known as yet, was exhibited in good condition; it may be best described as an improved Ringleader. The good old varieties, George Lightbody and Lancashire Hero, are still by far the best of this class to be obtained in the trade. The white-edged class was represented by Snowdon's Knight (Douglas), which gained the first prize. The white in this is very pure, and the black ground colour decided and good, except that the old flowers become uneven in character. Reliance (Mellor) was exhibited; it forms a dwarf-habited plant, with good trusses of large-sized, white-edged flowers, but, as shown this year, they were rather coarse. Mr. W. Bolton, of Warrington, exhibited two very fine new selfs. Mrs. W. H. Bolton is a well-formed variety, the flowers of which make a good truss, borne well above the foliage; it is a very dark maroon. Mrs. Wilson is one of the best of the violet-coloured selfs. Mr. Bolton also exhibited Black Bess, raised, I believe, by the late Mr. Woodhead, of Halifax. It gets a high character in the north, but, as exhibited, was inferior to Mrs. W. H. Bolton. Amongst alpinines the variety named Charles Turner is one of the best. It has the most beautifully shaded edge of any alpine. Several varieties exhibited were self-edged, a type of flower which ought to be discouraged. The only new laced Polyanthus shown was Henry the First (Sanderson), a dark ground flower with a vigorous constitution, but it does not seem to have the perfect marking of Cheshire Favourite, which holds the same premier position amongst Polyanthus as George Lightbody seems to hold amongst Auriculas.

The remarks just made clearly show that if we have not advanced so far this year as we did last, still we have done more than merely "marked the time." If the new varieties exhibited were not able to beat George Lightbody for the premier position, they had still sufficient merit to be classed with the best varieties in their respective classes, and are quite distinct. Only those who have taken up the practical details of cross-breeding Auriculas know the difficulty that exists as to obtaining really good varieties. Some of my best crosses, or at least what were supposed to be the best, such as crossing Prince of Greens with Beeston's Apollo or John Simonite with Frank (Simonite), have turned out to be worthless, fit only for the rubbish heap. I raised nearly a thousand plants, and flowered most of them in one year, and out of that number Silvia and another variety which I have been nursing for nearly ten years alone remain. I believe I have a few promising selfs from Eliza and a seedling variety named Sir W. Hewitt. The greatest difficulty seems to be to obtain a good green edge. I have been trying to get this for nearly ten years, and have not yet obtained it. Some good varieties of other shades, however, always appear amongst

the seedlings. There is, I feel sure, a much wider field for the hybridist amongst alpine Primulas than amongst Auriculas. I have done a little in this direction during the last ten years, and have obtained some rather remarkable results; for instance, a plant of a distinct yellow Primula was named by Mr. Churchill Yellow Pubescens; it was a seedling obtained by crossing P. Nelsoni with P. villosa; both were pale purple, but the yellow variety was the result, and also one with creamy white flowers, not unlike P. nivalis (of gardens), but P. villosa nivea, of the *Botanical Magazine* (tab. 1161). The Primula conference would fail in part if it did not give a considerable stimulus to this branch of horticulture. Some of the hybrid Primulas exhibited by Mr. Lindsay from Edinburgh were, though small in size, of exquisite beauty, and may be the progenitors of many useful garden kinds. J. DOUGLAS.

SPRING FLOWERS.

"LET no flower of spring pass by you," said a philosopher of antiquity; and "every grape in the vintage of life should be carefully gathered," wrote a well-known German author of our own day. Those whose lives are passed amid the tranquil enjoyments of the country may well be supposed not likely to lose any of Nature's gifts for lack of observation. Milton declares: "In this vernal season of the year, when the air is calm and pleasant, it were an injury and sullenness against Nature not to go out and see her riches and partake in rejoicing."

Our gardens are now full of the fairest flowers, long waited for, and perhaps, therefore, more highly prized. I read with pleasure in *THE GARDEN* of April 21 (p. 365) an interesting article on "Hardy Primroses." Though flowering far later than usual, they have never been more plentiful than they are this spring. The woods and copses are starred with these lovely blossoms; they flower profusely on railway banks and in shady lanes—wherever the soil is at all suitable. People who are so happy as to possess a wild garden should plant them in abundance—in shrubberies, and waste places, and on grassy slopes. The wild Primrose always reminds me of a rustic beauty, so lovely as not to seem out of place in the throng of fashionable people, but whose charms are, after all, seen most to advantage in her village home. Here we have many varieties of spring flowers, some of them perhaps not so generally cultivated as they deserve to be. The common Primrose, in great patches, fills up every available space, but not to the exclusion of other things. We have many different sorts—a double white, which flowers very well and lasts a long time; a double lilac or mauve; a single white; two shades of single mauve; two or three varieties of crimson down to a soft pink. The mauve Primrose flowers as freely as the common yellow one, but the reds do not seem to be quite so hardy.

Our American Cowslips have done well; they are of many tints, from a deep rich red, through different shades of golden brown to orange and pale yellow. They all have the true Cowslip scent. A bowl of these charming flowers fills a room with delicate perfume. If allowed to remain too long without being transplanted, they prove their identity with their English kindred by reverting to the original stock.

We sow them every year. Oxlips and Polyanthes are very fine. This season some of the laced ones are particularly good.

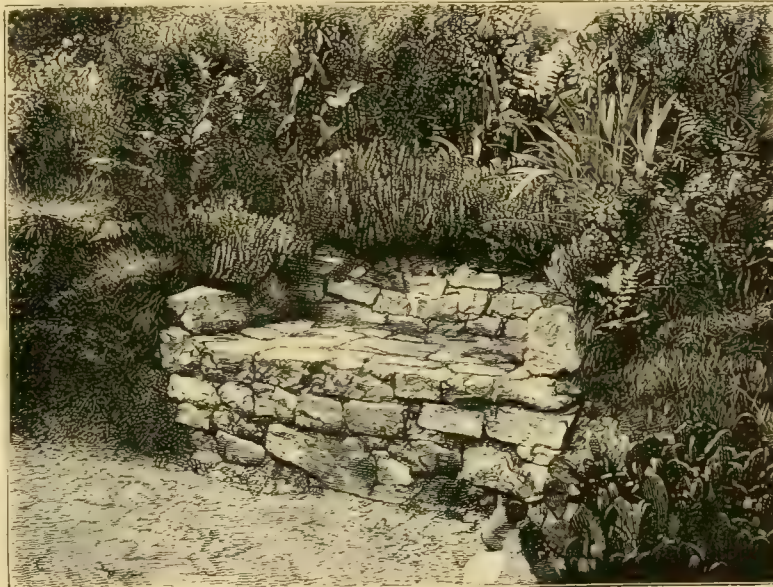
Writing of Primroses reminds me of the fine sorts I noticed in an excursion in Normandy last year. We visited the ruined abbey of Jumièges, a few

miles from Rouen. It is a noted spot, being associated with the early history of France. The twin towers still remain, a sort of landmark, but the rest of the monastery is entirely in ruins. The great space it once occupied is strewn with broken capitals and carved stones, decayed and Moss-grown, but the ground is carpeted with all sorts of wild flowers. In the first week of April Primroses of many different shades almost hid the Grass. It was a blaze of yellow, purple, and crimson. We noticed the same fine colours in the Primroses of the lanes and fields. Of Violets, white and blue, there was abundance; the air was filled with their scent. Our Daffodils and Narcissi are very good. We have been disappointed in Sir Watkin, about which we had heard much; it has not yet flowered, but the pseudo-Narcissus scoticus, N. incomparabilis sulphureus, Empress, and Burbidgei grandiflorus have been lovely.

As a sign of the lateness of the season, the purple Crocus is still in bloom, and Snowdrops have not been over more than three or four weeks.

Violets have been most plentiful and fragrant. Large patches of white and blue are still in full flower and as sweet as ever. *Myosotis dissitiflora* is just beginning to flower. In a few days, if the sun is out, the gardens will be nearly covered with patches of sky blue and pale pink.

While these are delighting our eyes, other beautiful



Rough stone seat in rock garden.

things are coming forward. The fair season of flowering shrubs is approaching.

The lovely Forsythia covers part of the south front of the house with its masses of golden bells; and the Lilacs and Laburnums will soon be out. Anemones have not done very well here lately, as they cannot stand a prolonged winter, but a few good ones are in flower, and bright masses of the blue apennina contrast well with our Primroses.

I am particularly looking forward to a bed of Lilies of the Valley on which we have bestowed much time and some pains. For a long time we despaired of growing them out of doors, but two years ago we planted a number of clumps in rich soil. Last year we had a few flowers, but they were not very satisfactory. When the winter came we covered the bed with short litter, which has only lately been removed. Now good solid crowns have made their appearance with abundance of buds. They seem to announce a floral victory. M. N.

Anemone Robinsoniana.—Anyone giving up the culture of this plant, owing to the floral committee not having given it a certificate, would greatly oblige an admirer of it by sending a few roots to this office, addressed "Anemone," care of the editor.

THE DAFFODIL.*

I HAVE been asked to open a discussion on the Daffodil. I therefore confine myself to the Daffodil proper. The subject of these notes is the Trumpet or Ajax Daffodil (*Narcissus pseudo-Narcissus*) and its varieties. First, as to the name Daffodil. In old English, say Parkinson's time, nearly 300 years ago, the word Daffodil was used as an equivalent of the Latin and Greek flower named *Narcissus*. The *N. poeticus*, the *N. Tazetta*, the *Jonquil*, the *N. triandrus*, and the rest of that class were all called Daffodils, whilst the Trumpet Daffodils the name pseudo-Narcissus or False Daffodil was given. Usage, however, has transposed these names. We now call the Trumpet flowers Daffodils, and most of the other kinds *Narcissus*, and it is not desirable to interfere with usage in these matters, or to try to force changes of popular names. By the name Daffodil, therefore, we mean the Trumpet Daffodil, excepting, however, the Hoop-petticoats, which, though anciently called pseudo-Narcissus by Clusius and others, are quite distinct in kind. Of these Trumpet Daffodils, Linnæus, who wrote in the middle of last century, made five species;

and Haworth, who wrote half a century ago, and whose nomenclature has been in a great measure adopted both by English and by foreign botanists, made twenty-nine species. Mr. Baker, however, in a review of the genus *Narcissus*, written seventeen years ago, includes all the Trumpet Daffodils in one species called *N. pseudo-Narcissus*, retaining, however, the five Linnean species of it as sub-species or sections, under which he classes, with Haworth's names, the principal known wild varieties. I shall follow this arrangement, giving reasons, however, for one or two exceptions. I shall use the name pseudo-Narcissus in three ways, distinguishing as follows:—

1. *Pseudo-Narcissus* the species, including all the Trumpet Daffodils.
2. *Pseudo-Narcissus* the sub-species or section, as admitted by Mr. Baker;
- and 3. *pseudo-Narcissus* the type, the average form of the English wild Daffodil or Lent

Lily—the Garland of old writers. Most of you are well acquainted with the technical terms for the different parts of the Daffodil, but as there may be a few here who are not, I will spend two or three minutes in defining them, that what I say afterwards may be more clearly understood. I need not define the bulb. The flower-stalk as high as the first joint is called the scape. The scape in the species *pseudo-Narcissus* is usually one-flowered, but in a variety, or sub-species, called muticus it is sometimes two-flowered. In most varieties two-flowered scapes are rare. The normal or regular scape is straight and upright, but in the form minor, being slender, apt to bend downwards. The scape in *pseudo-Narcissus* is more or less compressed or ancipitous, and more or less hollow.

THE LEAF varies in breadth from a quarter of an inch in the form called minimus to an inch in some varieties of the section bicolor. It also varies much in thickness. The breadth is not

* A paper by the Rev. C. Wolley Dod, read at a recent meeting of the Horticultural Club.

always in proportion to the thickness or length of the leaf, or to the height or size of the flower. The leaves of some varieties are much twisted. In some they are far more conspicuously covered with glaucous bloom than in others. Some taper acutely at the ends, some are very bluntly rounded off, some decumbent, some upright. I cannot find any variety of form in leaf cross sections. As for the number of leaves to each flowering scape, I find that about 70 per cent. have three; the remaining thirty are nearly equally divided between two, four, and five leaves. In the section bicolor, however, the larger number of flower-scapes have four leaves belonging to them, and some as many as seven. In estimating this number care must be taken not to confuse the leaves belonging to different centres of growth in the same bulb. A bulb may produce only one flower-scape and twenty or more leaves, but then there are three or four centres, each of which will develop a new bulb as the growth matures. At the top of the scape there is a sort of joint or valve, where begins a membrane called the spathe, which entirely envelops the flower whilst in bud. It sometimes fits tight and close, sometimes is very loose, either at the base or at the point, or both, as if far too large for the bud it encloses. Beginning also at the valve of the spathe is a distinct stalk, more slender than the scape, called the pedicel. Two-flowered scapes have two pedicels, but only one spathe. The pedicel connects the scape with the seed-pod or fruit. It is mostly in this pedicel that the bending or deflexion takes place upon which depends the angle of the flower to the scape. The pedicel may be quite straight or turned at right angles to the scape at the spathe valve, or bent into a complete semicircle, or any intermediate form. The commonest form is that of a quadrant, or fourth part of the circumference of a circle. The seed-pod, which we will call the fruit, is round or elliptical—i.e., oval, furrowed, or smooth, and should be studied when swelled to its full size. Immediately above the fruit is that part of the flower in which the base of the style and the filaments are fixed, and which in pseudo-Narcissus is like a funnel or an inverted cone. This is called the tube. It is important to remember this name, because we often find the word tube wrongly applied to the part I shall next describe—viz., the trumpet, called by some botanists the trunk, but which I shall speak of as the corona or crown. This begins where the tube ends, and from the line of juncture of the tube with the corona there grow out six flower-leaves, sometimes called limbs or segments, but which I shall call divisions of the perianth. They correspond to petals and sepals alternately; the three which represent sepals generally overlap at their edges and base the three inner, which represent petals. When this is so the divisions of the perianth are said to be imbricated (which properly means arranged like the tiles on the roof); but if the divisions when closed so as to touch the corona do not overlap, especially near the base, they are said to be not imbricated or free. I ask you to attend especially to the above important character.

Next we find that the divisions are sometimes shorter than, generally just the same length as, often a little longer than the corona. The perianth divisions are often twisted, or in some forms doubled back along the central line, and curved like a horn towards the end of the corona. The shape of the corona is rather cylindrical, the sides when looked at in profile being parallel, or it approaches a funnel in shape, the boundary lines diverging from the base to the mouth, or (rarely) it is larger at the middle than at either end; its shape is then called ventricose. The mouth of the corona varies more than any other part of the flower in the forms of pseudo-Narcissus. In

some forms we find at the mouth hardly any enlargement in the diameter of the straight corona; more commonly the corona bulges out near the mouth, but without turning back, whilst in many varieties the mouth spreads and is recurved like the mouth of a trumpet. Recurved is a better word to express this form than reflexed, which implies an angular and less gradual turn. The petals of a Cyclamen are reflexed, those of a Martagon recurved. With rare and abnormal exceptions the mouth of the corona is divided by incisions—more or less deep according to the variety—into six equal lobes corresponding to the six divisions of the perianth. When the flower becomes double these divisions or incisions are continued to the base of the corona, so as to split it up into six parts. The lobes are often cut up at the edges by irregular notches, generally wedge-shaped, and varying in depth, into smaller divisions of uncertain size and number. This is called crenation, and the lobes are then called crenate—that is, notched. When the parts between these notches are doubled up together like a piece of crimped paper, or a nearly closed fan, the edge of the corona is called plicate (or folded), and when these folds are pushed together so as to displace one another into a sort of flounced or puckered outline, it is called crispate (fringed or fimbriated); the edge then resembles a leaf of garden Parsley or Curled Kale. It is a rare form.

WHAT ARE THESE CHARACTERS WORTH in estimating varietal differences? Not much taken singly, but several together, if found to be constant, are worth a good deal. Some who have studied Daffodils have thought the mouth of the corona so important a character as to supersede all others in deciding varieties. Next to this in importance comes, I think, the arrangement of the perianth divisions, the question whether they are imbricated or free. The length of the pedicel is moderately constant, according to the variety. The relative length of the style and the filaments often differs in the same variety, but Herbert, a careful botanist who studied Daffodils about the same time as Haworth, thought that he had observed that in some varieties of pseudo-Narcissus the six filaments are attached to the base of the tube in two different rows. This arrangement of the filaments in a double series is an obvious character in many species of Narcissus; but after examining a large number of pseudo-Narcissus I have not been able to discover that any difference of length of the six filaments exists in any variety. This should be observed. The same botanist, Herbert, attached importance to the wrinkling or furrowing often observable in the fruit and to its shape; neither is very constant, but both are worth notice. The comparative length of the perianth divisions and the corona often varies in the same variety, as anyone who will spend a little time amongst a bed of English wild typical pseudo-Narcissus may satisfy himself. The form of the spathe before opening is also to be noticed. Some varieties may be recognised by this alone.

ANOTHER DISTINCTION, though by no means constant, is the curvature of the pedicel. When the flower is fully expanded, the corona becoming either cernuous—that is, looking downwards, or horizontal, or even perpendicular, the pedicel remaining straight; though this form is generally abnormal; the angle which the perianth divisions, when open, make with the corona is also a character. I find neither the section of the scape nor of the leaf a trustworthy varietal character in pseudo-Narcissus. In pseudo-Narcissus as a species colour is an important point. The varieties are either concolorous or bicolorous—i.e., either self-coloured, the corona, however, being always a little deeper than the perianth,

or distinctly two-coloured. The English wild type is never, as far as I know, concolorous, and varies in colour within narrow limits; apparent exceptions to this rule which sometimes occur I believe to be due to cross-breeding. I shall speak of them presently. Daffodils of the same variety rarely vary much in colour. A form of *N. minor* found near Grasse, in the Maritime Alps, is an important and interesting exception to this rule. It remains to speak of size and time of flowering. To judge of the former, Daffodils must be grown together for a year or two under the same conditions; and as for time of flowering, I find that the time when different individuals of the typical form open their flowers extends over a month, and though the same bulbs are early or late every year alike, one cannot attach importance to the difference.

NEXT COME THE CHARACTERS AND GEOGRAPHICAL DISTRIBUTION of several of the wild forms, and I may first remark that our knowledge of wild forms of pseudo-Narcissus is increasing rapidly, and that every year new varieties are being added to our list, or the true home of some old garden variety is being discovered. *N. pseudo-Narcissus*, as a species, is confined to Europe, and extends from the Atlantic on the west, and the latitude possibly of Edinburgh northwards, to about the longitude of Berlin eastwards. It has been reported as native in Hungary and other parts of the Austrian empire as far east as Transylvania, but Herr Willkomm, professor of botany in the University of Prague, has told me that he does not believe it to be indigenous in those parts. It is unknown in Turkey or Greece. Its headquarters may be considered to be the region of the Pyrenees, and it is most abundant in Southern France, Northern Spain and Portugal, and Northern Italy. Whether it extends quite to the south of these latter countries is uncertain. It is convenient to adopt, as Mr. Baker has done, the five species of Linnaeus as sub-species or sections under which to classify the known wild varieties. These sections are—1, pseudo-Narcissus; 2, major; 3, minor; 4, bicolor; 5, moschatus. I say I adopt these divisions of names for convenience, but I cannot say that they are satisfactory, though I have no better to offer. As the number of wild varieties found grows upon us, we find it more and more difficult to adjust them according to these sub-species. All arbitrary definitions break down. Whether we take colour, or size, or structure, we find from end to end, from the most concolorous to the most bicolorous, from the smallest to the largest, an unbroken series of links, and if we try to make a set of characters to fit particular names, they utterly fail when applied in practice. The minors, the majors, the pseudo-Narcissus, the bicolors of Portugal, of the Pyrenees, of the Maritime Alps, all differ, and have some characters of one name, and some of another, and I therefore adopt these names, with this proviso, and as having, not only no real limitation as sub-species, but no consistent characters reaching beyond the individual variety we may accept as their type. As for the first, the Daffodil found wild in England has generally been adopted as the type of the species and of this section. In Devonshire, where it is most abundant, it varies most in size, in substance of flower, in deepness of colour of the corona, and in width and recurving of its mouth. The corona, however, is seldom much recurved in English varieties. A form now known as scoticus is found in Ayrshire, taller and stouter, and with larger flowers than the type, and earlier in flower, and in its recurved corona presenting a beautiful example of crenation. It is improbable that it is indigenous to Scotland. I must next mention that I know three places in England, one being in Oxfordshire and two in Dorsetshire, where typical

pseudo-Narcissus grow mixed up with concolorous forms, both white and yellow, presenting similar characters to the type. With them grow others resembling the bicolor section. After cultivating these forms and examining them, I believe that they are due to different varieties of foreign origin, planted together by design or accident, the offspring of which are hybrid. The largest development of the section pseudo-Narcissus is found in Italy, where varieties called *Telamonius* and *princeps* are found in the valleys and lower slopes of the Apennines, the former having the most twisted leaf of any Daffodil I know, and the latter the longest corona, sometimes exceeding 2 inches in length, or more than two and a half times the length of the tube. From the Pyrenees themselves, amongst thousands of Daffodils, I have never received any of exactly the English type, though it may exist there, but the prevailing pseudo-Narcissus of the lower slopes of the Pyrenees, extending west almost to the sea level near Biarritz, is an elegant very pale early Daffodil, which we have imported under two names, *pallidus præcox* and *variiformis*, the latter name very suitable, as it is a very variable Daffodil both in shades of colour, form of corona, and relative proportions of the parts of the flower. It carries its flowers at nearly every angle of the horizon, and the leaves are distinct in appearance, being hardly at all glaucous. It seems to have been unknown to Haworth, who, in his twenty-nine species of Trumpet or Ajax Daffodil, does not even enumerate any into which it could possibly be made to fit. This Daffodil has scarcely any character which is not inconstant and variable.

THE FORMS INCLUDED UNDER THE SECOND SECTION, MAJOR, are mostly concolorous and of rich yellow. They have often been distinguished as Spanish, but one, the *spurius* of modern gardens, is probably native in Italy, and not yet known to be wild in Spain. The Tenby Daffodil, quite naturalised in South Wales, but of which the true habitat is unknown, belongs to this section. So does that very fine Daffodil, the *maximus* of gardens, which will probably be found native somewhere either in North Italy or Spain when the countries have been more closely searched in early spring. The nearest wild approach to this form I have yet seen was exhibited by Mr. Ware last year to the Daffodil Committee. He had received it as collected wild near Saragossa, after which town it has been named. Two or three forms belonging, I believe, to this section were sent to me last summer by Mr. Alfred Tait, who collected them wild near Oporto. They are tall elegant flowers, with slender and much-twisted perianth divisions, not imbricated, and I think are new to cultivation. They may develop more when I have grown them longer. These double readily when planted in Mr. Tait's garden, and the double form is an ugly monster. Major is rather ill defined as a section.

OF THE THIRD SECTION, MINOR, the assumed type, as recognised, I believe, by the Narcissus Committee, has only just now been identified in its wild state; but its exact counterpart in all characters except size, *N. minimus*, is abundant on mountains in the north of Spain. The variety most common in gardens, now called *nanus*, though I shall presently give reasons for thinking that the name is wrong, abounds near Bayonne, where the French botanists call it *minor*; but the recognised *minor*, with large lobes, and generally with free divisions of perianth, was found in the Maritime Alps recently by Mr. Scrase-Dickins near Grasse. Concolorous and bicolorous forms of it grow there not in separate clumps, but mixed up together in the same clumps, and I have had this season two or three boxes of flowers of it sent to study.

OF THE BICOLOR SECTION the characters are—The leaves thick in substance, very broad and large, not acute or tapering, but rounded off suddenly at the ends; it is late-flowering; the corona is cylindrical or ventricose, slightly lobed, and the perianth divisions often large and loose. Two distinct wild forms are well known—1, *lorifolius*, which is found in the Pyrenees in North Portugal, and probably in the Apennines; and 2, *N. muticus* of the French botanist Gay, a very distinct Daffodil, covering hundreds of acres on the French side of the Pyrenees near Gavarnie and in other parts. It is so distinct in its character, that Haworth, though he had never seen living plants, assigned to it a separate genus called *Pileus*, and divided it into five species. This is the bicolor of some French local botanists, and we do not know yet any wild form which comes nearer the bicolor of gardens, though we may expect to find some. As regards *muticus*, which is sometimes called *abscissus* in English catalogues, the large broad leaves with rounded ends, the straight cylindrical corona, its late flowering, and other characters claim for it a place in this section. It seems strange that so distinct a Daffodil has never been figured in any English work.

THE LAST SECTION, MOSCHATUS, or the white Daffodil, is very interesting. The only form of it we yet know for certain in its own home was rediscovered about six years ago by Mr. E. N. Buxton on the Spanish slope of the Pyrenees whilst chamois hunting, 6000 feet above the sea level, near Mount Perdu. It was in May, and at that elevation the flowers were just out. Mr. Buxton at once laid down his rifle, and supplied himself with roots of this new prize, which were the first wild ones brought to England in recent times. Since then this habitat has become known to French collectors, and many thousands of bulbs have been imported thence to England. It has always been supposed that other and larger forms of this section are to be found wild in Spain, but we do not know for certain that any have yet been found, and we want trustworthy information on this point. A character of this section is that the separation of the perianth divisions is marked by a conspicuous line continued nearly to the bottom of the tube. This completes my short notice of the principal known wild forms, but the list of known wild forms will constantly increase, and is growing from year to year. A very distinct variety was sent to me by Mr. Alfred Tait from Portugal early in last month, but not in sufficiently good condition to describe its character. Another remarkable form of Daffodil was sent by the same gentleman with perianth divisions reflexed so as to meet in a point, and with no tube. It is thought to be identical with the *N. cyclamineus* adopted by Haworth from old authors who figured it. If not a hybrid, it seems to demand a species to itself, for it can hardly find a place amongst *N. pseudo-Narcissus*. I have followed Mr. Baker in adopting Haworth's names, though I feel all the while that several of them are misapplied. It seems inconsistent to adopt an author's names when the characters given by that author to the plants he describes under those names are manifestly at variance with the characters of the plants to which we apply them. For instance, Haworth's *N. minor* was a flower with imbricated perianth divisions, whilst we now apply it to a flower of which a distinctive mark is its free perianth divisions, and the same inconsistency applies to *N. minimus*. Again, the *N. nanus* of Haworth was a pale sulphur-coloured Daffodil with leaves half an inch wide. Our *N. nanus* is a full yellow, with leaves narrower than those of *minor*. I am at a loss to know what variety Haworth intended by the name *rugilobus*,

which he classes under the section pseudo-Narcissus; but it is now transferred to one belonging evidently to the bicolor section, and identical, so far as I can judge, with *lorifolius*. The same uncertainty attends several others of the names of Haworth in their recent application.

CULTIVATED DAFFODILS.—We now pass on to speak of *N. pseudo-Narcissus* as a cultivated plant, and of the changes and improvements which have taken place or may be expected to take place in its development under cultivation. Some of the finest forms, as Emperor, Empress, Horsefield, are believed to be varieties of cultivation, because they are not known to have been found wild, and the names of the growers are known; but whether they were produced by artificial crossing or by careful selection of seed from the finest flowers, and from seedlings raised under the most favourable conditions, we have not certain information, though the latter supposition is more probable. In a species in which so many and distinct natural varieties exist it seems not unreasonable to expect that there would be a strong natural tendency in the seed to produce varieties, but there is not sufficient evidence to support this belief. On the other hand, the more we become acquainted with large beds of wild Daffodils growing away from the influence of other varieties, the more we are led to the conclusion that like produces like in Daffodils, as in other plants. We find, for instance, that the Daffodils of the north of Portugal form a set of varieties distinct from those of the Pyrenees, whilst the Maritime Alps and North Italy have special forms which retain their distinct characters. We must not dogmatise on these matters, but let us consider the case of the Tenby Daffodil, which ripens seed and grows from it more freely than any variety I know. It covers several acres in South Wales, where it has grown for many generations; yet it continues remarkably constant to form, and varieties are hardly ever observed. Many similar instances might be mentioned. In gardens, on the other hand, where many varieties are in flower together, when we consider the readiness with which some distinct species of Narcissus produce hybrids, we may infer that pseudo-Narcissus will readily cross with varieties of the same species, and we reasonably expect spontaneous varieties from seed. Few of us have patience to raise successive generations of Daffodil from seed, keeping them carefully labelled for all the years—probably six at least—until they flower. So the history of new varieties raised in gardens is seldom known. It is more easy, however, to notice and record changes where no raising from seed takes place, changes which are produced by continued cultivation under favourable conditions of soil and climate. These conditions seem particularly favourable in many parts of Ireland, and I will give examples in illustration. I am indebted to Mr. Barr for calling my attention to the remarkable development in size and vigour which takes place in the Botanic Gardens at Dublin in the case of the variety of Daffodil called *maximus*. The size of this variety in those gardens is such that Mr. Barr for long believed it to be a distinct and gigantic and early-flowering variety. When, however, it is planted in England side by side with *maximus* from Holland, and under the same conditions, the contrast the first year is very conspicuous. After a few years the two gradually assimilate themselves, until no difference can be seen. Another variety common in Irish gardens, and to some extent naturalised in Ireland, is named *princeps*. As grown in Ireland this is perhaps the largest of all Daffodils. It comes to us from there in several sizes, as *princeps maximus*, *princeps minor*, and so on. I can hardly say whether

these differences are maintained in any gardens in England, but I can assert that after two or three years all the varieties of princeps become so degenerate in Cheshire as to produce flowers hardly larger than those of the wild type of pseudo-Narcissus. I may mention, too, the fine Daffodil called *spurius*, which has, I believe, recently been found wild by Mr. Engleheart in Italy. *Spurius* is a very old variety in the Dutch bulb farms, and comes thence to England bearing flowers of one size. It is now known that this variety is common in Ireland both as a naturalised and as a garden plant, and in more than one size, some resembling the Dutch plant in every particular except size, but being much larger. This may be due to the favourable conditions in Ireland for its growth. I have cultivated the large form for six years, and it still maintains its majority; but whether it will in time reduce its dimensions to the Dutch size time will show. I will further add that it is useless to compare the merits of or to attempt to identify Daffodils until they have been grown together under the same conditions for a year or two. When this has been done we want continuous observations and careful notes of them through a series of years to see what changes soil and climate make in the same variety, in colour, size, habit, and form, especially noting the recurving of the corona to see whether this character is quite constant or due to climate or soil in any degree. Again, we cannot be sure until we have tried them for at least two years what varieties are best suited to the special conditions of our own gardens. Daffodils, according to their varieties, have their likes and dislikes. Most of them prefer rich rather sandy loam, retentive, but well drained, and on the cold stiff subsoil of my garden in Cheshire nearly all do better on raised beds. The *moschatus* section alone seem to like lighter soil of a peaty character. *N. minor* and *N. minimus* seem rather delicate and dislike wet; their flowers, which are dangerously near the ground, are much relished by slugs, and require, where such vermin abound, to be protected by perforated zinc collars or by a dressing of powdered tobacco—a valuable preventive. Several Daffodils are, comparatively speaking, failures in my garden. I have already mentioned princeps. The major of trade produces few flowers and the foliage looks unhealthy. *Maximus* increases slowly, and is liable to be attacked by an obscure disease, which rots the base of the ball and prevents the formation of fresh roots. The Italian *Telamonius* looks healthy, but does not flower freely. The most floriferous of the larger kinds in my garden is *spurius*, whilst pseudo-Narcissus, the type, said to degenerate and die out in some gardens, flowers and flourishes extremely well. So do *Horsefieldi* and *Emperor*. I have mentioned these instances to show that Daffodils require to be proved in each garden and selected accordingly.

AT WHAT DEPTH OUGHT DAFFODILS TO BE PLANTED?—The answer depends partly on the variety to be planted, partly on the character of the soil and the subsoil; but let everyone who can make patient experiments and carefully record his observations on this point. My own experience is generally in favour of deep planting, especially in raised beds where the drainage is good. Such Daffodils as those called *minor* and *nanus* should, of course, not be planted more than half as deep as *Horsefieldi* and *Emperor*. In deep well-drained soils I plant from 4 inches to 6 inches deep in the case of the smallest kinds to a foot in the largest. When Daffodils that have been dug up wild are sent to us in leaf it is easy to see at what depth they have grown; and not only have I taken notice of this, but have inquired of those who have dug up Daffodils much abroad in their native homes. These

accounts agree in telling of huge Daffodils with flowers as large as *Emperor*, which, after long and laborious digging, the finder was obliged to relinquish because they grew so deep. Some very fine Daffodils just received from Italy, where they grow wild, reported to resemble *maximus* in appearance, have grown at a depth varying from 12 inches to 18 inches; and my friend Mr. Engleheart mentioned others still larger, none of which he succeeded in digging up. Mr. Tait sent me the leaf and flower of a *lorifolius* found near Oporto, being as large as those of *Emperor*, the bulb of which was deep beyond his reach. On the other hand, a number of *minor* sent last week from the south of France had grown at an average depth of 3 inches. The soil was rocky, and a large proportion of Oak-leaf mould was mixed with it on the surface. We must not, therefore, try to make our rules for depth too absolute. I need not point out that deep planting enables the gardener to cultivate other plants over them in summer, which may be done without any damage to the bulb, provided that the growth of the leaves is not interfered with and the soil sufficiently enriched by a top-dressing in autumn. Daffodils do far better facing a south than a north aspect.

THE DOUBLING OF DAFFODILS is a subject to which I have long paid special attention, though on several points connected with it my mind is by no means made up. It is certain that *N. pseudo-Narcissus* doubles into a variety of forms, two of which may be particularly noticed. (1) The form in which the corona remains entire, and the doubling is confined to the inside of it; this we call the semi-double form. (2) The form in which the corona is split into six segments and spread open; this we call for distinction *Rose-double*. I have quite satisfied myself, by long observation, that these forms are not constant, but are often interchanged from year to year, depending upon conditions of soil and cultivation. About this time last year nearly 100 double typical pseudo-Narcissus were sent to me which were dug up wild when in flower. All of these were semi-double; but this year nearly all which have flowered at all have become *Rose-double*. In the southern counties of England and Wales the type pseudo-Narcissus is often found double, growing mixed up with single forms. It is hardly ever the *Rose-double*, but when transferred to gardens the *Rose-double* is the commoner form for it to assume. In spite of their taking that form, their tendency in my garden is to become constantly less double, until the divided corona closes together again, and the flower becomes entirely single and perfect in all its organs. These same bulbs, if sent to their native soil, produce double flowers again in a year. On the other hand, I have never, by any soil or cultivation, succeeded in persuading any single Daffodil to double in my garden. As regards the frequent assertions made that in some gardens the typical single wild pseudo-Narcissus will change in a few years into the large double Daffodil called *Telamonius*, these assertions are too consistent, and made, I am certain, in too good faith to be at once rejected; but they require very careful investigation, which I have long been making, and still continuing to make. Botanists assure me that no metamorphosis of any part or organ is necessary to effect this change. That single Daffodils in some soils and under some conditions will produce double flowers is nearly certain. Mr. Tait, of Oporto, sent me last summer a bag of double-flowered Daffodils, which he assured me were dug up in the neighbourhood single, and when planted in his garden became double. There is no mistake about identity of variety in these; the single kind is unlike anything I have ever before seen in cultivation in

England, and the double flower, although a hideous monstrosity, evidently belongs to the same variety; but, as I said before, assertions of this kind require careful sifting.

TO CONCLUDE, lovers of the Daffodil may be congratulated on having a favourite which is easy of cultivation, presents endless variety, and gives less cause for anxiety through accidents than most flowers. Few destroyers, whether mice, or birds, or wireworms, attack the bulbs of Daffodils. The *Narcissus fly* is a pest of a warmer climate than ours. Dwarf forms like *N. minor* and *N. minimus*, as I said before, invite slugs, which, however, attack the flowers only. High winds, too, are serious enemies to Daffodil flowers. A westerly gale on March 31 snapped off at the ground-line some of my best opening flowers; so that Daffodils should either be planted in a sheltered place, or, if in windy quarters, be tied up; but upon the whole there is no class of flowers which give a more satisfactory result with a less amount of labour than *N. pseudo-Narcissus*.

KITCHEN GARDEN.

RUNNER BEANS.

THESE form a very important crop from mid-summer until cut off late in autumn. Personally, I like dwarf French Beans better than the produce of tall ones; but cooks are hardly ever of this opinion, and I have been told both by greengrocers and market growers that other kinds of *Kidney Bean* are unsaleable after the *Runners* come in. To have them crisp and tender good culture must be resorted to. Little is to be gained by sowing the seed early in the open ground. *Runner Beans* are the most tender of all vegetables; they will not withstand the slightest frost. In the warmer parts of the country the seed may be sown about the middle of April, but north and in cold localities the 1st of May is quite soon enough to do this. I have known large quantities of seed to perish in spring immediately after sowing, and it is an advantage to treat it with more care than the majority of seeds. The following mode of culture answers admirably: Dig a trench about 1 foot deep and the same in width. Place a layer of manure along the bottom to the depth of 4 inches or 5 inches; fork this over, and above it place a thin layer of sand and leaf soil. Sow on the top of this and sprinkle a little more of the sand mixture over the seeds, finishing off by covering up to the depth of 2 inches with soil thrown out on the sides. This should be broken very fine with the spade before putting it over the seed. The sandy soil used next the seed will prevent it from decaying, i.e., if the soil is heavy, or if much rain should come, and although strong plants could never be produced in such light material, the roots will soon find their way down to the manure in the bottom. Being in a shallow trench, the young plants will be sheltered at first, and when hot, dry weather sets in it is easy to level the soil in the trench or fill it up to the level with manure, which will prevent the roots from being injured by drought. This is an important point in *Runner Bean* culture, and it is well to give it attention before sowing. To sow in shallow, poor soil is useless; the trench system meets every want.

THE OBJECTION which some raise to growing *Runner Beans* is that they cannot get stakes for them; but although training them up tall stakes is the best way of growing them, it is not the only way; good crops may be secured from plants which have their tops cut off and which are restricted to a height of 2½ feet or 3 feet. It is this system which should be practised by all who cannot conveniently secure stakes, but the root treatment should not be altered. In some cases only one or two rows of *Runners* are sown in the forepart of the season; these may bear well from July until September, but when it happens to be a good autumn, and the weather such as would suit the production of *Beans*, there are none to produce; the first sown

plants have become too old, and the supply is curtailed before it has any right to be so, simply because a late row or two was not sown. To accomplish this, a sowing should be made between the middle and the end of June, and these will produce fresh young pods in October and November if the weather should remain favourable until then. All who have grown Runner Beans know how liable the young pods are to fall off prematurely when they begin to form at first. I have seen a great deal of early blossom fall without forming a pod, but rich soil and plenty of moisture at the root will reduce this evil to a very great extent; whenever they are observed to be dropping their pods, they should receive a heavy drenching with liquid manure.

Sometimes Runner Beans are sown in pots in March or April, and planted out when upwards of 1 foot in height in May; but although this often gives a supply of pods a week or two in advance of those sown in the open they frequently receive a check on being planted out, and as dwarf Beans are better adapted for coming in early than runners we do not advise the under-glass system of growing the latter to be practised unless for some special purpose. CAMBRIAN.

Seed Potatoes.—It is matter for surprise to find Potato merchants offering seed of really good kinds of Potatoes at the nominal charge of 2s. 6d. per bushel, especially when it is certain that from the first each bushel must have cost at least double that sum. Certainly the purchaser gains, but it is poor work after all when in such a way one person thrives upon another's losses. It is not easy to show why seed Potatoes are thus so very cheap, but it is certain that the supply at present exceeds the demand, and, further, there can be little doubt that the heavy clean crops lifted during the past two or three years have promoted this superabundance of Potato seed. Last year, specially whilst we had fairly good crops, we also had rather an undue proportion of medium sized tubers, because the long drought checked swelling. Now we may expect to find, because stocks are so cheap, that large breadths are again planted, and should the disease hold off, as it has done of late, then another heavy crop of tubers will once more follow. If the sample is a good one, less will be saved for seed and more will be sold for eating. In any case there seems to be no prospect that Potatoes will be otherwise than very cheap for some time. Even should disease again prevail, it is hardly probable that the devastation wrought in the crop in some previous years will be repeated. We have so far more reliable and more robust kinds to grow than we had ten years ago, and thus it seems as if in producing these robust free-cropping kinds the raiser had killed the goose which laid the golden eggs. However, this result is a good one for the public if a bad one for raisers. Of course, we cannot hope to compete with the foreigner in the production of first early Potatoes, but it is certain that their produce is of little moment. Once our own Potatoes come into the market, and as long as we continue to produce such bulk of main crop kinds, there is little chance that outsiders will beat us.—A. D.

Brussels Sprouts.—Mr. Coleman has indirectly credited me with an article upon Brussels Sprouts, by mistaking the initials at the bottom of it. However, I am willing to have a word to say on the matter, because I hold that of all the Brassica family we have no member of more importance to the gardener during the winter than the Brussels Sprout. No vegetables during that season are more generally esteemed, and few are better yielding and yet more enduring. Brussels Sprouts also are very hardy, their stems rarely suffering except when severely denuded of leaves and sprouts. As long as a sprout is left on a stem, just so long is there always something to fall back upon as occasion demands. Now very much is written occasionally about diverse strains of these Sprouts, but I am inclined to think there are but two really distinct forms that can be classed. The well-known old

imported Brussels Sprout, the Sprout of our gardens for generations, is now represented also by the slim-stemmed and generally neatly studded Sprouts of Northaw Prize, Scrymgeour's, Aigburth, and others of like character. These all vary more or less according to the amount of care bestowed in the selection of the seed, and any one specially good stem if saved and carefully seeded will in a few years give of this breed the finest selection to be found, name or no name. Northaw Prize so far has shown itself to be a handsome even strain or selection, but much also depends upon soil and cultivation. Bad cultivation may deteriorate the best of strains, but good samples rarely come in spite of it. On the other hand, the large form known as Reading (Veitch's and many other exhibition Sprouts) is, if rather paler-hued as a rule, yet altogether finer, and even on poor ground and with indifferent cultivation the Sprouts are much finer than are those of the best plants of the old form. I am not here arguing in favour of large Sprouts over smaller ones. That is a matter of taste and of profit, but market growers are taking to the large-sprouted form readily because the Sprouts the more readily fill the bushels. Certainly, under the form of cultivation bestowed on this strain in some gardens the plants and Sprouts seem abnormally big, but in the open fields they seem all that can be desired. I believe that any extensive trial of Brussels Sprouts would result in determining all under name to belong to either one or other of the two forms just mentioned.—BEDFONT.

KITCHEN GARDEN NOTES.

MUSHROOMS FROM COW MANURE.—A neighbour who possesses a noted herd of Hereford cattle pays a good deal of attention to Mushroom growing, and, being fond of experimenting, has formed beds here and there in sheds that have been very productive. One bed, made up some time ago with cow manure, is now bearing an abundant crop; in fact, to judge from what is seen on the surface, one would be led to think that the bed had been made up of the best horse droppings. Many, I know, are debarred from growing Mushrooms because they cannot procure horse droppings; but if cow manure will do as well, as it certainly has done in this instance, they need not be long without Mushrooms.

DWARF FRENCH BEANS.—If some of the earliest of these were sown on the same day as Runner Beans, they would be ready for gathering some weeks before the Runners, and all who desire to have early Kidney Beans should grow some of the dwarf varieties as a first crop. They will not succeed if sown early when the soil is cold and wet, but a sowing may now be made with every chance of success. This is one of the crops which ought always to be put in one of the best parts of the garden, as good soil and a sunny position are advantages which it enjoys. Ne Plus Ultra is the earliest of all dwarf Beans. Its pods are not so long by some inches as those of Canadian Wonder, but it is at least a fortnight earlier—an important point. In sowing, the drills should be about 18 inches or 20 inches apart and not more than 2 inches in depth. If sown deeper than this the coldness of the soil may check germination; when shallow the sun's power brings the plants up rapidly, and then adding more soil to the roots is an easy matter. Although I have said Canadian Wonder is later than Ne Plus Ultra and some others, it should be sown on the same day; then it forms a useful and acceptable succession to them. The earliest Kidney Beans which I ever gathered out of doors were grown on ridges between Celery trenches.

EARTHING UP POTATOES.—This is one of the most important operations connected with Potato culture. When the sets are planted from 3 inches to 6 inches deep, or, indeed, at any ordinary depth, young tubers form so plentifully near the surface, that if not earthed up they would soon be exposed to the light, and thereby get deteriorated. Earthing up also helps greatly to steady the stems and prevents them from being blown about—an in-

jurious occurrence. When to earth up is not a difficult question to answer; it may be begun and ended when the shoots are 6 inches and 8 inches high. Friable soil may be drawn up to the stems with the draw hoe, but where the soil is very stiff a four or five-pronged fork may be used to do such work. There is no better time for applying artificial manure to Potatoes than when they are being earthed up. In applying it it should be sprinkled round each plant, or along the side of the row before the soil is drawn up. I am more in favour of manuring now than at planting time. Where frost is liable to occur when the young growths are coming through the soil, earthing up should not be delayed until the stems shall have reached any given height, but should be done at once to shelter the young growths from frost and wind-waving. We have saved many of our Potatoes in this way.

BEETROOT.—This is by no means a fancy vegetable; indeed, more or less of it should be grown in every garden. It will not bear early sowing. From the middle of April to the middle of May is the proper time to put it in. Dell's Crimson is a valuable sort, and the Turnip-rooted variety is exceedingly useful, especially in shallow soil. The former is of medium size and excellent in quality; the latter grows to about the size of an ordinary Turnip and comes to maturity much quicker than long sorts do. Anyone wanting new Beet very early should sow some of it. Any light, moderately rich soil will grow Beet well. It should be sown in rows from 1 foot to 15 inches apart, and the seed should not be buried more than 2 inches below the surface.

MUSTARD AND CRESS.—Those who have glass houses and other protectors may grow Mustard and Cress all the year round, but others whose garden operations are confined to the open air could not do this. There will be a long blank in their supply from the time when autumn sowings are finished until spring ones are in; all may, however, grow them now freely by sowing the seed in a warm spot in the open. A little patch of each will be enough to sow at once, and such sowings should be made every ten days. Before sowing beat the soil level with the back of a spade, sprinkle the seed on the surface, beat it down again; shade from sunshine with some old paper until the seed has germinated, and abundance of tops for cutting will soon be produced.

RIDGE CUCUMBERS.—The Stockwood Ridge is a good variety, being hardy and prolific. Few ridge Cucumbers are grown by those who have a house or frame in which to grow some of the Telegraph type, but all who have no glass could easily have abundance of Cucumbers from June until autumn by resorting to the ridge system of culture. If plants could be bought about the beginning of June, no trouble need be taken to rear them from seed, although the latter is not a difficult matter. During May, especially about the latter part of it, the seed will germinate if sown in good soil in a warm spot in the open, and in this way plants may be raised on the place where they are to grow; but if a mound or ridge of any kind of fermenting material, such as Grass cuttings, manure from a stable or cowhouse or pigstye, can be made up so as to ferment a little, all the better. On this place a quantity of good soil, and then sow the seed, when young plants will soon appear, and be much earlier than any sown in the ordinary ground. The mound so formed is an advantage to them, as when the shoots begin to run they creep down the sides, and soon begin to bear fruit. In watering such subjects, some use cold water unthinkingly, but when a little warm it is very much better, and when the wind is blowing hard something or other should be used to protect them until they have acquired some size.

FAILURES.—The spring has been against many kinds of seed germinating, and young plants have not grown at all freely; therefore, there may be blanks in seed rows and beds which want filling up. Some may think that the plants will come up when the weather improves, but if the seed has been long in the ground valuable time

should not now be lost in waiting for it to germinate; sowing over again should therefore have attention as soon as possible. Where the soil has been much beaten down by rain since the previous sowing, the surface should be broken up with a fork before sowing again. Onion seed, although under ground for a long time, has sprouted very well, and so has Carrots; but that of Cauliflower, Lettuce, and some other seeds have not done so well, and we are depending more on the second sowing than the first. J. MUIR.

Margam, South Wales.

SALAD MESSES.

I WISH "S. D." would write upon something other than salads. Anyone who knows what salad is will never put young Onions in it, and who eats Mustard and Cress in a good salad? The best true delicate salad is composed of Lettuce, Cos or Cabbage, and when Lettuces are properly grown they want no rivals—they need only good oil, and, above all, good vinegar, which people who care about oil do not always get. Little bits of Chervil and Tarragon chopped up are pleasant green flavourings, and there may be some little variety added in this direction. After Lettuce, a salad of a totally different kind is that formed of the Tomato, which is quite distinct and excellent.

"S. D." says herbs for flavouring salad are not so much in request as they were. They are not by those who know little about salad making, but anyone who uses spices instead of herbsspoils a salad. There should always be Chervil and Tarragon in the garden for salad; they are easily obtained, too, in the market, and used by those who know what good salad is. Surely, nobody not in quest of a stomachache would eat Radishes. One morning, in Gulliford's shop in Covent Garden, a man came in with two large bunches of thoroughly well-grown, full-blown British Radishes under his arm. I happened to say to Mr. Gulliford that I could not face Radishes of such noble diameter. He said he never tried them, and the man who carried the bunches said he liked them, but they gave him the heart-burn! If Radishes are eaten, they should be very young indeed and very delicate. Some kinds of Endive that are often spoken of as salad are really more fit for boiling; they make excellent vegetables, and are so used abroad; so is the Batavian Endive an excellent vegetable. In Moore's and Masters' book on gardening it is stated that Turnip-rooted Celery is used as salad abroad. This is quite a mistake; people abroad do not make a catalogue of their saladings. It is used as a most excellent vegetable, and is commonly grown around the larger cities of the Continent. J. H. H.

Influence of light on the germination of Peas.—Early in the year some samples of dwarf two-year-old Pea seeds were sent me for trial as to their germinating powers. One hundred seeds of each were sown in a cool house, and so long was the interval before any plants appeared, that I considered them a failure. However, eventually about 50 per cent. grew. Six weeks later I sowed a quantity of the same samples in the open ground, and, curiously enough, the germination of these has been just as good and as rapid as that of last year's seed, a result I could not have anticipated, having regard to the unpromising nature of the trial under glass. Now, it is obvious that whilst there could have been little difference in the temperature of a cool house early in March and that of the open ground (cold clay soil, too) in the middle of April, the chief exciting cause of the more rapid vegetation must have been the increased light, for it is evident that light has much to do with germination. The obvious moral is that when very early sowings of seed take place, they should be much thicker than when the sowings are later in the year. It is equally obvious that in the open ground at least very little is to be gained by such very early sowings, as plants checked in their growth by cold are invariably stunted and lack that robustness which characterises other plants, which have made from the first rapid growth and have received no check.

Near here is a large breadth of Peas, I think Prizetaker, sown in November. For the larger part of the winter these looked very promising, but the late winter weather used the plants so roughly, that they are not only seriously thinned, but are behind March sowings of Sangster's No. 1 and Harrison's Glory. Even these later sowings have come away slowly, and there is at present the prospect of seeing all early sowings of Peas podding together. It will be in the remembrance of readers of THE GARDEN that some seven or eight years ago a very sharp frost so late as May 28 quite destroyed the bloom on the early Peas, and that crop was ruined. That is one of the dangers which surround Pea culture on a large scale and render very early sowings anything but desirable. Sometimes a fugitive pleasure may be snapped in the shape of an early gathering and enhanced price, but the pleasure lasts but a few days.—A. D.

IN THE SALON, PARIS.

AMONG the five thousand pictures hung in the Paris Salon this season there is a good proportion devoted to flowers and fruit. If we may judge of the popularity of flowers by the number of times they have been selected for portraiture in this exhibition, then the Chrysanthemum is the flower most in favour, but there are also, of course, many groups devoted to the Rose. Peonies are also beautifully painted, and there is a great heap of Dahlias in a brown hamper, with a green enamelled jar beside them, by Madame Cornelius (586), in which the stiff lumpiness of the flower is to a great extent obviated by good arrangement. M. T. Chaverot-Bastade has a good group of Peonies (508), among which is a single white variety—Water Lily-like, with a tuft of golden stamens in the centre of the flower. This single white Peony seems a rarity in most gardens. Can anyone tell us what it is? M. Bourgogne's "Roses of Spring" are also well painted, showing the profusion with which some old varieties grow and bloom in France when established near cool wells or in moist, stony places. With this heap of Roses are grouped a few flowers of the lovely Iris pallida dalmatica, a fact just worth noting here since it is one of the fairest of all garden flowers of its race. Even our old friend the scarlet zonal Pelargonium may be tolerable in a picture, but it takes the skill of M. Lacroix to make it so. His picture (1416) is a piece of consummate grouping—a great armful of Roses arranged in a common brown hamper, then a green bowl of water and a few Roses beside it; behind is a pot containing a healthy blooming plant of the old crimson Clove, and between it and the basket of Roses is an old green enamelled watering-pot, while overhead there is a suggestion of a bunch of Maize cobs. The whole is placed on a rude stone bench near a window. Apart from technique, a gardener can quite enjoy these flowers. Another good picture is "Roses and Fruits," by P. S. Kreyder (1298), containing a mass of freshly-blown Roses. There is also a basket of Plums, a leaf of Raspberries, and some Red Currants in front faithfully shown. By the same painter is a decorative panel of Apple blossom broadly treated, but most enjoyable. M. Lemaire (1451) has a large canvas, "Roses and Peonies," which is wonderfully treated. A large stone garden vase on a pedestal is filled with double and semi-double herbaceous Peonies of all shades from white to deep rose, while some climbing Roses drape the pedestal below. Pictures containing Chrysanthemums are even more numerous than last year, when they were also plentiful. In a picture by Mr. C. A. Thomas there is a large vase of Chrysanthemums brilliantly painted as the light streams through them from a window behind. All the varieties are perfectly recognisable, and the general effect is most pleasing. Everywhere groups of these flowers, or pictures in which they form a part, meet the eye; but, after all, one need not wonder that some of the best French flower painters should have been taken with the beauty of our autumn queen. That there is not a single incurved flower represented, however, is a significant fact worth

the attention of some of our florists who cultivate these only!

Seeing the great esteem in which all really beautiful blossoms are held by cultivated people in France, one need not wonder that some of the best French artists paint them so well. Some of M. Fantin-Latour's studies of flowers are perfect little gems in their way, and amongst the painters of the Flemish school we have evidence that both Paul Potter and Peter Paul Rubens made very perfect studies of garden flowers. Only yesterday in the Louvre I found a design by Rubens, the figures of which were surrounded by an intricate wreath of Tulips, Roses, Narcissi, and other blossoms quite lace-like in delicacy and easily recognisable, although somewhat smaller than Nature. After seeing French gardens, the flower markets of Paris, and now these large pictures of flowers alone as admitted to the Salon, one must perceive that these people get a little more out of their flowers than we have hitherto done. A few flowers—a Rose, a Marguerite, a spray of Lilac, or a Palm in a vase—form a really tangible portion, and sometimes not the least enjoyable portion, of a French dinner. The French people eat their flowers just as the Eastern people are said to "eat the air"—that is to say, they enjoy them in their homes. In England we grow the most lovely of flowers, and admire them in the garden, but here they grow them for use—the poor grow to sell; the well-to-do buy to make their homes more enjoyable. Flowers are more plentiful and cheaper here than in London, and no one who has not seen it would believe the difference in quantity and the better quality of the hardy flowers as exposed here in the streets for sale. For less than a penny (ten centimes) you can buy a big bunch of Lilac, a dozen or more flowers of Narcissus poeticus, with other green leaves, a bunch of fresh crimson Wallflower, as much as you would like to carry, or a tiny cluster of five or six Rose buds from Nice or from Cannes. The flowers are bunched tastefully, with a few leaves, and care is taken to keep them fresh; indeed, the heaps of tossed and dusty wilted flowers one sees sold cheaply in Covent Garden would be perfectly unsaleable here at any price. F. W. B.

GARDEN FLORA.

PLATE 543.

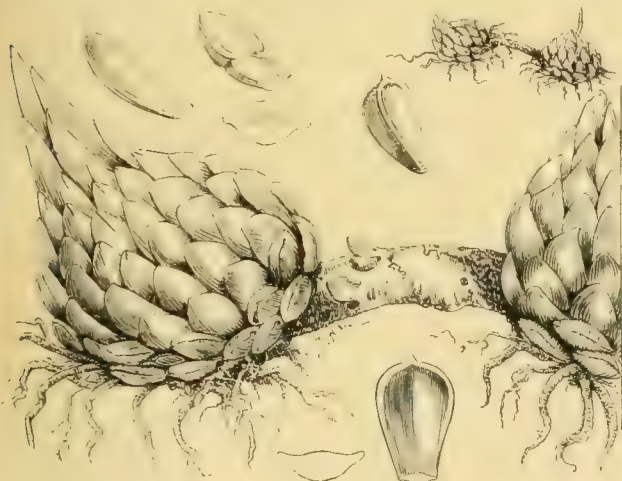
LILIUM CANADENSE.*

THIS Lily is placed by Mr. Baker in the Martagon group, and has for its immediate allies two other North American species, viz., *L. pardalinum* and *L. superbum*. The bulbs of these three differ widely, as regards habit of growth, from those of other Lilies, especially *L. canadense*. They are borne on long underground rhizomes, and spread rapidly in the following manner. From the flowering bulb a stout rhizome is pushed out, which extends sometimes 6 inches in length without any signs of scales. On the point of this the new bulb is formed, and in the following season after flowering another advance is made in the same way. The bulbs properly so called vary somewhat in certain particulars, but they usually consist of short, brittle scales, the middle ones being elongated, so that the centre is often considerably above the rest of the bulb. This mode of progression which is common to these Lilies causes them to form a tangled mass when undisturbed for any length of time, that is, provided other conditions are favourable. *L. canadense* is a slender-habited Lily, and has leaves arranged in regular whorls around the stem. The general appearance of its blossoms and the great variation that exists in those of the different forms of it are well exemplified on the accompanying plate, whereon are depicted the varieties called *flavum* and *rubrum*, the most common form being in

* Drawn from a plant in Mr. G. F. Wilson's garden, Oakwood, Weybridge, by Mrs. Duffield in August.



colour about midway between the two. *L. canadense* is most effective when planted in a bold mass or clump, as then the gracefully poised blossoms are seen to far greater advantage than when dotted about here and there singly. It is a native of North-eastern America, but from the western side of North America comes a group the members of which are by most authorities classed as varieties of *canadense*. They consist of *parvum*, which differs from the common form in the bulb being more like that of the Panther Lily (*L. pardalinum*) and the flowers being borne in greater numbers than in the type. A small-growing form is named *parviflorum*, and others also regarded as varieties are *Iartwegi*, *occidentale*, *Walkeri*, and *superbum*. The last, which must not be confounded with the Swamp Lily (*L. superbum*), is described by Mr. Elwes as being more robust, more free flowering, and finer than the typical *canadense*; it bears from three to eight flowers, which are intermediate between those of *L. canadense* and *superbum*. *L. canadense* has been in cultivation in British gardens since 1629, at which date it was figured in Parkinson's "Paradisus," but it is still imported from America in considerable quantities. It is by no means difficult to cultivate, the principal thing being to plant it in a peaty compost



Full sized bulb and detached scales of *Lilium canadense*.

so situated that it is always fairly moist without being waterlogged, and on no account should the roots when once planted be disturbed. If left alone they will gain vigour every year. A soil composed largely of peat is, generally speaking, the best for this Lily, but no hard-and-fast rule as regards this can be laid down. I have seen it do well in an open loam. A position slightly shaded seems to suit this Lily best, but at the same time it must have sufficient light to keep it healthy and in a thriving, vigorous condition. T.

IMPROVED CULTIVATED PLANTS.

THE advance made in this respect during the last thirty or forty years has been very remarkable. Not only have fruits and vegetables been improved, but also ornamental plants. Prior to the period just mentioned cultivators would appear to have been content with plants as they found them. As regards the plants of the farm, the advance is less conspicuous than among those of the garden. But even farm produce has undergone very considerable improvement, especially that of the cereals; while among root crops improvement has been developed to a still greater extent, and perhaps in nothing so much as in hardy fruits. The introduction to this country of the various kinds of Flemish and other Continental Pears may have acted as a stimulus in this direction. To Grape

Vines have also been added many new and improved varieties which have had their origin in this country.

The Rose, the Dahlia, and the Hollyhock, all originally single, have during the period named undergone similar transformations; while most cultivators of decorative plants are aware of the improvement which has been effected in Cyclamens, Calceolarias, Cinerarias, and Chinese Primroses; even among Orchids and Palms valuable hybrids have originated. Pelargoniums were introduced to this country from the Cape of Good Hope at various dates, and have all been greatly improved and diversified. The species known as *P. zonale* and *inquinans* were introduced about the year 1710, and from these have come the zonals. The flowers of the two species just adverted to were scarlet and of no merit; the foliage of *P. zonale* was marked by a dark zone, and hence its specific name; while that of *P. inquinans* was plain green. The zonals, as is well known, produce flowers of greatly increased size, perfect in form and double as well as single, and of all shades of colour from pure white to the darkest crimson and the most intense scarlet, while approximation has even been made towards shades of yellow and violet; one section possessing coloured leaves of a very ornamental character is known as the Gold and Silver Tricolors. Pelargonium lateripes, or the Ivy-leaved Pelargonium, has also been induced to produce greatly improved flowers of various shades, and double as well as single. The earliest of the Fuchsias was introduced from South America about the year 1788, and others followed, but the finest now in cultivation had their origin in this country.

The *Chrysanthemum indicum* was first introduced about 1835, the Japanese varieties sent by Mr. Fortune being much later, but previous to Fortune's introductions many beautiful and improved varieties had been originated in this country. The various varieties of the *Petunia* are descended chiefly from *nyc-taginiflora*, a kind introduced from South America about the year 1823, but coarse in habit and with flowers of a dingy white. The varieties which we now cultivate, I need not say, are of better habit, and the flowers are of various colours, striped, and double as well as single.

Begonia tuberosa, introduced as early as 1810 from the West Indies, appears to have for some time obtained but little notice. Of late years, however, it has attracted great attention, and its varieties are now almost beyond enumeration, while its merits as a highly ornamental flowering plant are unquestionable.

Enquiry may possibly be made as to how such results have been secured; they have been obtained in this way: Among plants of all kinds there occasionally occur what are called sports, and these may, and indeed have not infrequently been taken advantage of for the purpose of securing new and desirable forms, while much has been done by careful selection of the finest plants from which to secure seed, repeating this process from year to year until the race or strain becomes permanently improved. The practice, however, most likely to secure speedy and desired results is to judiciously select two plants as parents, and fertilise the stigmas of one with pollen taken from the blooms of the other, when the probability is that the progeny will, in a more or less degree, inherit the peculiarities of both. Supposing, for example, that a variety produces blooms of faultless form or colour, but deficient in size, by using the pollen of a larger flowered variety upon the stigma of the former, and making the same the seed-bearing parent, some of the plants produced by this seed will be likely to retain the desired colour or form of the plant which furnished the

seed, and also have in some degree inherited the increased size of the pollen-bearing parent. In attempting to cross such plants as the *Begonia*, where the stamens and pistils are borne on separate flowers, in order as far as possible to prevent self-fertilisation taking place, the male blooms should be removed before they have expanded; in the case of hermaphrodite flowers, the anthers should be cut off before the pollen is ripe, and the selected foreign pollen should be carefully applied to the stigmas as soon as they are in proper condition to receive it by means of a small brush or a camel's-hair pencil. Seedling plants obtained between distinct genera or species are regarded as true hybrids, and are difficult to secure, while plants bred between distinct varieties of the same species are obtained with greater facility, and are regarded merely as cross-breeds. But even among the seedlings of such plants, singular reversions and unlooked-for results frequently present themselves, which tend nevertheless to increase one's interest in the pursuit. An instance of this I can well recollect. A white-flowered zonal Pelargonium was allowed to ripen seed; no other Pelargonium of any kind was in the structure containing this plant, nor any Pelargonium in bloom in the neighbourhood. The seedlings resembled the parent in foliage, with one exception, and in this case the leaves presented no indication of a zone. In due time all the plants flowered, and in all cases the flowers were white. Some, however, differed slightly from those of the parent; but in the case of the zoneless plant the blooms were bright scarlet, and the plant, in habit, foliage, and flower, appeared to be identical with the variety known as 'Tom Thumb.' P. G.

NOTES.

IN NORMANDY.—The country between Dieppe and Paris is now very beautiful, the soil being well cultivated, and especially is it richly stocked with orchard trees. The older timber houses, quaint as they are, are giving place to neat brick or stone dwellings, and the old patches of decrepit fruit trees are also giving place to strong young plantations. In some places whole fields have been planted with Apples at 30 feet apart, and these border the railway for miles. There seems a partiality for planting on the Grass, but these thrifty people evidently find a good market for their fruit and intend to meet the demand. The whole country is well wooded, Poplars of different kinds predominating, and some are covered with enormous masses of Mistletoe, which have a curious bird's-nest-like effect in the distance. Lilac bushes are in bloom everywhere, but flowers do not seem so abundant near the cottages here as at home. The soil is in many places thin, lying on chalk, in others on gravel, so that one finds the Cherry trees as luxuriant here as in Kent, although the climate is perhaps slightly warmer. Rich lush meadows lie beside the streams, and in these the King Cups (*Caltha*) shine like burnished gold. Here and there the Apple and the Cherry trees are in full bloom, rosy or white, but the mass of the fruit trees is not as yet in flower. The passion for fruit trees is evidently increasing, and every bit of wall space on the country houses is given up to Pears and Plums or Apricots. Everywhere are signs of industry expended on a fertile soil, and although there may be many drawbacks here, as elsewhere, I should say Normandy is an excellent example of what a peasant proprietary can do for a country.

SHRUBS AND TREES IN FLOWER.—*Cydonia japonica*, both red and white, *Kerria*, the old Chinese *Akebia quinata*, *Spiræas* of sorts, none finer than *S. grandiflora*, now a mass of wreath-like branches set with pearly buds. I saw a Judas tree yesterday in the quadrangle of the Louvre so full of flower, that it looked in the

distance like a soft pink mist rising up among the rich greenery of the Chestnut trees, and the young leafage of the Acacias (Robinias), shimmering in the bright sunshine, was as fresh and as delicate as Maiden-hair Fern in a glasshouse garden. The Chestnuts in the Champs Elysée are at their best, not quite fully in bloom, but nearly so, and their main charm seems to me the infinite variety among them—just as much as is to be seen among the Hawthorns in the Phoenix Park, Dublin, a little later in the year—that is to say, scarcely any two trees are alike. Some have short thick-set spikes, others long lax ones; some are white, others spotted, flushed, or tinted, while in habit of growth and in leafage this self-same variety is also to be seen. We see the same thing in Apples and Pears, which are quite as well worth planting for their beauty when in flower as are any purely ornamental trees known to me.

IN A GARDEN COUNTRY.—From Middlesex to Surrey is a transition as startling and almost as rapid as a transformation scene, only that it is of course infinitely more fresh and lovely. Apple blossom everywhere; here the pink petals fully blown, there only the glint of garnet-like buds among hoary leaflets. I know a bit of painted Apple blossom that haunts me like a beautiful dream. It is by Fantin—a gnarled old spur of an Apple tree, only a few square inches in size, but it has all the subtle force of a Velasquez or of a Rembrandt. Larger and more pretentious pictures look poor and thin beside it, and somehow the study of this little picture taught me to see the loveliness of “common things” better than I could do before, and more especially did it convince me of Apple-blossom beauty which is infinite in its variations. What a ride that is through the Apple orchards of Middlesex until you reach Surrey with its warm gravel, its golden Gorse or Furze, and its dark groves of fragrant Pines! This is a garden country, in which many exotics are quite at home. Beside the little cottages the golden yellow and rich crimson-brown Wallflowers have a luxuriant vigour and richness of fragrance one can scarcely find elsewhere. It is also the home of many shrubs. The common Mahonia (how fine and uncommon is its beautiful leafage!), mixed with Furze, is here and there a picture amongst the dead brown Fern from which the young “croziers” now appear. Berberis Darwinii grows so well in Surrey, that it rivals Australian Acacias in colour and grace of habit. Even the native flowers—Primroses, Stitchwort, Bluebells, and Wood Violets—are most happy and luxuriant in this land of gardens.

FLOWERS IN PARIS.—The flower markets of Paris are the best I know anywhere, and the gay city has flowers of the finest in abundance, but then I have never seen Rome, or Florence, or Cannes, nor have I been to New York where I am told the rich citizens almost smother their guests with flowers. Near Notre Dame is a little village of booths devoted to the sale of plants and flowers. It is a clean open space, and the carriages come and go quite laden with Roses or Callas, Pansies, Marguerites, or with Ficus or Palms. Here you may see many delightful little wicker-work baskets filled with Pansies in full flower, and so planted that if the basket be dipped in water now and then the whole arrangement keeps fresh and beautiful, and the Pansies go on producing their rich velvety flowers for weeks after they are purchased and taken home. There are great loads of crimson Wallflower, Guelder Roses, armfuls of Lilac of various colours, and well-grown Marguerites, large bushes in small pots, by the hundred. The air is redolent with fragrance from the Roses and

Narcissus flowers which are stacked up in bundles in the shade and sprinkled with water to prevent their fading. The flower trade here lasts all day, but there is a wholesale market of flowers nearly every morning near the Madeleine which is well worth seeing. The trade in flowers here must be enormous; I must ask M. Joly what it amounts to annually. Our own growers for market are hard to beat culturally, but the people here are ahead of us in the artistic usage of beautiful flowers.

WALLFLOWER AND SAXIFRAGE.—For a bold and effective combination in spring—fragrant withal, and so to be desired near the windows of the house—one might do worse than to plant big groups of crimson Wallflower, and around them a broad, irregular border of large-leaved Saxifrage, such as *S. crassifolia* or *S. cordifolia purpurea*. The Saxifrages may remain year after year, but the Wallflowers need annual renewal. I saw this arrangement at Munstead the other day, and admired it very much as a simple way of getting a good effect. It is, of course, important to get a good strain of Wallflower from seed, and then to grow the plants well and strongly. There are a few common garden plants the potentialities of which are infinite. This is one of them, since the strongest and best strains of yellow and crimson are desirable as being among the sweetest and best of all the flowers of spring. Take, again, that beautiful first cousin of the Wallflower, the Stock, another garden flower of the finest—a plant to which, on suitable soil, a man might devote a life's work to profitable advantage. In France, the market gardener devotes his life to Lettuces or Mushrooms, to Pears or Peaches, or to Pinks and Carnations, to Pansies, or to Palms and Aspidistra, and a little of this same spirit, industrious and single-minded, would work wonders among our best and most valuable garden flowers at home.

WOODLANDS.—The woods are now full of life, and lovely everywhere; they are really wild gardens under another name, filled with our sweetest of native flowers. Every glade is a Primrose garden; the blue Dog Violet peeps out from dead leaves and grassy growths; the Fern fronds have commenced unrolling their green banners; here is a meadow of white Anemones, or there of nodding Bluebells. But there is a more subtle beauty in the woods of spring; every tree trunk is an unpainted picture—rugged Oak, smooth-coated Beech, feathery Larch, or silvery-barked Birch, all are again fresh and beautiful. There is life awakening everywhere, but one must be out early in the morning to see the woods at their best, to hear the subtle harmony of bird music, and to breathe the healthy balsam of the Pines. There is just now in the French Salon a picture of a wood nymph, by Mlle. J. Comerre-Paton, called “La chanson des bois,” which bears looking at again and again. It is only a simple little peasant girl clad in drab and blue, barefooted, and resting after her work at faggot-cutting. A fresh and dainty little figure it is lying beside her firewood, but the subtle wonder in her blue eyes as she listens to the bird-music or the soft air sighing through the Pines is most beautifully suggested. After all we also are but listeners in the woods, and the best part of their beauty eludes us in the seeing or hearing, and even more so in the expression. Wood music is past recall; no Paganini, no Listz can ever bring back to us the soft cooing of the dove, the thrush's song in the dewy mornings, or the hubble-bubble melody of the nightingale at eve. So also, even if you bring the flowers from the woods to the garden, they are not the same; they often pine away and die wearily after all your kindness; to see and enjoy them at their best, it is we who must go to them.

HERBACEOUS PEONIES.—What is the coming garden flower? was the question I heard asked the other day. Someone suggested Anemones, but then the Anemone is popular already, and Queen Iris—thanks to Prof. Foster—is already on a gilded throne. I suggested the race of Peonies as most likely to take the popular fancy, for we have but few things so bold and noble amongst our summer flowers. They are beautiful from the first day their tinted leaves and stems appear above ground until after their great many-coloured flowers fade, and then their colour variety is nearly infinite. Especially do I admire the single kinds pure white, soft pale yellow, rose, pink, peach, salmon-red, and satin-like crimson. These single kinds have a bright yellow tuft of stamens, and are most effective as seen vigorously grown and in flower. For bold effects big beds or groups of these herbaceous Peonies are not easily surpassed, and when so planted one may fill up the spaces between the roots with bulbs of any good strong-growing Daffodils, such as *N. Horsfieldi*, *N. maximus*, or *N. obvallaris*. So planted, the Daffodil flowers contrast well with the young foliage of the Peonies, and their dying leaves are hidden as the Peonies themselves develop their leaves. In all large gardens on warm rich soils a selection of say twenty of the very best varieties, single and double, would produce an effect not easily to be obtained in any other way. Cut in the half-open bud stage, their flowers are very durable and most gorgeous in big pots or vases.

GREEN LEAVES.—One would imagine that we had plenty of these around us everywhere, but for decoration indoors it is often—always so in the town—more difficult to obtain beautiful leaves than beautiful flowers. As a rule even our professional flower-sellers are devoid of good taste, and whenever I see a really good arrangement of flowers, I know that it owes much of its effect to the leaves employed. Among the best leaves I know for floral decoration indoors are the Mahonias, nearly all of which are good, but perhaps none better than the common Holly-leaved kind. Portugal Laurel also gives well-shaped, dark green foliage of the best, and *Ruscus racemosus* has a bright, pure classical beauty, not easy to be surpassed. Common Maize sown now in the open air gives fresh green growths of a boldly elegant habit, which are very useful with Lilies and other summer and autumn flowers. The leaves of the common Reed Mace (*Typha*) are also of good form and soft glaucous colour, and mix well with late Iris flowers, especially well with the Spanish kinds. Of course, Roses, Peonies, Poppies, and many other flowers are best in bold groups with their own foliage, but with some of our best flowers this much is not possible. I once saw a large vase of common field Poppies cut young and mixed with Ribbon Grass, and the effect was good enough to be repeated now and then.

OLD PICTURES OF GARDEN FLOWERS.—I walked through the Chestnut groves past the Place du Concord the other morning to pay an early visit to the Salon, but it was Monday, on which day the exhibition is not open until noon. But, remembering Gallaud's exquisite designs in the *Musée des arts décoratifs*, I turned in to see them. In one of the smaller rooms I met with a very pleasant surprise in the shape of three large and well-executed paintings of old garden flowers, in oil, in size about 3 feet by 2 feet, each flower numbered, and the names of the kinds are also painted as if written on a paper pinned to the picture. One of these is signed Hieronymi Pini de Pisto, Inventor, fecit 1614. The companion picture is signed 1615. The third canvas is of a more square shape than the above; say, 3 feet by

2 feet 6 inches, and has a darker background, although painted in the same style. It is signed Girolano Pina, and I believe the date is 1615. As to the flowers themselves, they are for the most part the showy bulbous ones as figured in "Hortus Eystettensis" (1612) or in the numerous folio volumes published between 1600 and 1650. Tulips, Hyacinths, Irises, such as *I. florentina*, *I. susiana*, *I. xiphium*, *I. xiphoides*, and several others being faithfully shown, together with a white *Gladiolus*, *Crocus*, *Pancratium*, Foxgloves, Crown Imperial, and the yellow *Muscari moschatum majus*. The double crimson *Pæony* and a single form, perhaps *P. corallina*, are truthfully drawn. These pictures are rather crowded, bulbs or roots, leaves and all being shown, but all are most faithfully painted in their natural colours, so that even without the accompanying numbers and *carte* of names, one could recognise every flower shown. Perhaps Mr. Baker, of Kew, or some of our friends in Paris or Holland, will tell us who these artists—the two Pinas—really were, and of other works, which it is more than likely they did of the same or a similar nature. If this should happen to meet the eye of anyone interested, I may say that these pictures are hung rather high, but with a binocular I could read the names even quite distinctly. VERONICA.

WORK DONE IN WEEK ENDING MAY 4.

APRIL 28.

SLIGHT frost at night, and bright, sunny days are now the rule, but the frost as yet has done no harm to anything, whilst the sunshine has proved invaluable to our forcing operations, as well as to the garden in general, and to the progress of our work in particular. Hoeing has to-day been our principal occupation, Carrots, Parsnips, Beans, Peas, and Cabbages being the plots of ground that have been gone over, first, for the destruction of weeds, and, secondly, to induce quicker growth by stirring the soil and thus admitting warmth and air. Planting hardy plants as edgings on terrace. Earthed up Potatoes to protect them from frost. Got out a quantity of bedding plants to harden, and planted out in mixed borders a few *Violas*, *Calceolarias*, and made another small sowing of *Mignonette*, and also of herb seeds in cold frame, to which we give exactly the same treatment as early sowings of Cauliflower, Celery, and Gold Feather Pyrethrum, &c. Staked Tomatoes and thinned out the fruit. Disbudded—the last time over—late Peaches and Nectarines. Potting off bedding plants, *Coleus* and *Heliotropes* being still kept in strong heat.

APRIL 29.

Cold wind, but otherwise splendid weather. Apples are hardly in a sufficiently advanced state to be at all injured by the frost we still have each night, but other fruits we still find it advisable to shelter in some of the many ways that willing minds and hands can always devise, the one most particular point about which is, that the said shelter remain over the trees the greater part of the morning on each recurrence of frost, as it is sun and frost in combination that cause the greatest injury. Planting hardy plants and edgings to flower beds. Sowed more *Mignonette* on mixed flower borders; thinned out the growth of *Delphiniums*, perennial *Sunflowers*, *Asters*, and *Phloxes*, the weakest shoots being selected for removal, and pulled, not cut, away; hence they will not again trouble us this season. Planted a few old roots of *Dahlias* at back of borders, each plant being given a few shovelfuls of well-rotted manure and old Vine border soil. The roots are covered to a depth of 6 inches, and soon as the new growths are fairly above the soil, the shoots or stem of each plant will be reduced to a couple, or at most three, to each plant, and single stems will be preferred for the more conspicuous parts of borders, the plants having double and triple main stems being reserved for cut-flower decoration. Machine mowing is now in full swing, and each morning there is scythe mowing for most of our hands—round trees, flower beds, and steep banks that cannot be mown with machines. In such dry,

sunny weather the watering of Strawberry plants in pots is required twice a day—morning and evening—and clear manure water is always given at the evening watering to all plants on which the fruit has set till they begin to colour. Thinned out the fruit of a number of plants, and shifted those ripe to a pit having a north aspect. Cucumbers grow so rampantly now that thinning out and stopping the shoots is required twice a week, and top-dressing about once a fortnight. Light loam and horse droppings in equal proportion is the surface mulching we use, and once a week a good drenching with tepid liquid manure is given. Wishing to keep *Gardenias* now in full flower in that state as long as possible, we to-day put on shadings, and gave full ventilation, and left on a little by night. They are in pots, and thickly mulched with good manure, which they fully appreciate, as is evidenced by the fine flowers they are now producing in such profusion. Potting on seedling sub-tropical plants of various kinds. Pricking out *Perilla*, more *Pyrethrum* Gold Feather, Celery, and Cauliflower.

APRIL 30.

Very drying and sunny, and we have been mainly employed in hoeing in kitchen garden between the rows of Parsnips, Potatoes, Cabbages, Lettuces, Horseradish, and Seakale. We give no quarter to weeds, for, whatever work is pressing, should there be an exceptionally dry day and a dry soil as well, we start all hands that can be spared at the work of weed destruction by hoeing. Sowed another couple of rows of Peas—*Ne Plus Ultra* and *British Queen*, than which no better-cropping or finer-quality Peas have yet come under my notice. I say nothing as to size, except that I prefer Peas to large hollow pods that are characteristic of some of the overrated new varieties. Disbudded Apricots, and pinched out the points of such shoots as were not needed to form permanent branches. The work of disbudding is not a large affair, as not a quarter so many buds are taken off as in the case of Peaches; only the back buds, those against the wall, are rubbed off, and clusters of buds thinned out to a couple. The foliage is now sufficiently dense to shelter the fruit from frost; therefore the wall covering will be taken down shortly that the trees may get the full benefit of the rain which they now begin to want; a thick mulching of long litter is spread over the surface of the borders in which they are planted, and this will prevent the necessity of artificial watering till the fruits are swelling, when they require a quantity, and indeed attain no size without it. Cut surplus bunches off *Madresfield* Court and *Gros Maroc* Grapes. They were planted last year; hence, though the Vines are extraordinarily strong, we shall not risk injury to their constitution by overcropping, and therefore only three bunches will be left on each Vine, a small number certainly in comparison to the number—at least thirty—that have already been cut off each Vine. The border inside has been given a good watering with tepid water, and fresh straw mulching put on it to keep in both heat and moisture. Air is now freely given, but cold draughts, which are so productive of mildew, avoided. Tied to Hazel sticks the earliest batch of *Chrysanthemums*, and potted on another lot of the later-struck plants. The lights are now lifted quite off the frames during the day, and are tilted up at night to a height of from 4 inches to 6 inches. Grape thinning, tying shoots of Figs to trellis, and watering Vine borders have taken up the rest of our time to day.

MAY 1.

Four degrees of frost, but, thanks to a dry atmosphere, no damage to fruit-buds is apparent, though *Asparagus* and Potatoes were slightly blackened. Besides our usual weekly sweep up, we have not found time to do aught besides completing the work of hoeing, which we began yesterday, except it be the preparing of coverings for protecting bedding plants as they are got out to harden. Work in and about the houses is most pressing, and of such a miscellaneous character that a minute record of all is impracticable; shifting plants and re-arranging the houses generally. All tender bedding plants are being gradually worked out of warm into cooler pits and frames, and hardier kinds are being put out of doors altogether, but, of course, covered up at night. Tidied up Pine pits; the manure and leaves which

we use for bottom heat having subsided unequally, some of the plants were lifted out and plunged evenly, which is necessary to the proper application of water to the plants, and every plant of which was examined in respect of watering, all fruiterers and strong successions being given clear manure water. Did final disbudding to Lady Downes Vines, and stopped most of the shoots and cut off all shows but one on each shoot; the remainder will be left till they are nearly in flower, as then it can be seen which are the finer and most likely bunches to set their fruit well; the stoutest and short-stemmed shows never fail to set satisfactorily, but weak, lanky shows often fail to do so.

MAY 3.

Another frost, followed with bright sunshine, but fruit blossoms are still uninjured, and if we can but get safely over this edition of winter there will be fair crops of all kinds of fruits except Apricots, which are thin indeed. Planting *Sedums* and *Herniaria* edgings to flower beds; some of the old edgings are in such good order, that they are not being replanted, but only cut close in with sheep shears, a plan that we have on several previous occasions had recourse to with the best results. Began to plant a long flower border with the hardy plants that form the setting for the more brilliant summer bedding plants, such as *Alternantheras*, *Lobelias*, and tuberous *Begonias*. The groundwork or design of the border is being worked out with the sulphur-coloured *Sedum* *acre elegans*, the enclosing framework being the dark green *Herniaria glabra*, both of them plants that need but little attention in respect of keeping, and in colour harmonise with plants of almost any hue or description. Digging out Celery trenches, sowed Turnips on a north border: our first sowing is likely to prove a failure, as owing to having been sown too early they are running to seed. Potting and boxing off *Heliotropes*, *Tropæolums*, and a few other bedding plants. Put in to force the last batch of *Roses*, having previously top-dressed them with bone manure and light loam. Soiled up auratum *Lilies* that are being grown in pots for house decoration. Began to thin *Gros Maroc* Grapes—the berries attain so large a size, and as we always like, as far as may be, to avoid a second thinning, pains are being taken to cut out every inside berry that is likely to hinder the full development of the outer berries or mar the general contour of the bunches. *Madresfield* Court in the same house is also ready to be thinned, but as this variety sometimes has a large percentage of imperfectly fertilised berries, thinning will be delayed till such berries can be discerned with ease, a procedure we follow with *Muscats* also. Staking *Chrysanthemums* and Tomatoes in pots.

MAY 4.

No frost; grand weather. Continued the same jobs as yesterday. Planted out *Asparagus* and Onions, and hoed between the rows of Shallots, Garlic, seedling Onions, and late Broccoli. Mulched Rhubarb plot with long litter. Got out more bedding plants to harden, and made up another shallow hotbed for *Alternanthera* cuttings. Thinning *Gros Maroc* Grapes. Stopped and tied down shoots in late *Hamburgh*inery, rubbed off a quantity of fruit in late Peach house, and gave the inside border a thorough watering, having previously mulched it with cow manure, over which—for appearance sake—was strewn a thin layer of straw, and there being a little black fly the affected parts were washed with Tobacco water, and which will be repeated for two or three days in succession. Other indoor work has been a continuance of the same kind of jobs that we have had in hand for a week or two past, such as potting bedding plants, putting in other cuttings of the same, pricking out seedlings, staking *Chrysanthemums*, and the like. HANTS.

Chinese Primulas sown early for late autumn flowering should now be shifted from 3-inch pots to 5-inch ones, slightly burying the crowns in the new soil. I make three separate sowings, allowing an interval of three months between them. The most suitable compost for them is loam, leaf-soil, dry cow manure, and silver sand. After potting they should be placed in a cool frame set on ashes

and thoroughly shaded from the sun. Under such conditions they will be found to grow and mature their growth to perfection. Slightly syringing them overhead greatly benefits them on bright days, and early closing of the frames is advisable where high culture is aimed at.—HENRY GADD, *Stoke Place.*

FRUITS UNDER GLASS.

GRAPES.

THE weather during the past fortnight, although tinged with a cold wind, has been bright and sunny, sometimes quite hot, and altogether highly favourable to the colouring of early Grapes. Should we have a continuance of the bright days and mild nights, liberal ventilation, the great factor in laying on colour, can be freely indulged in without running the risk of checks from sudden changes. Air at any rate must be admitted, and, contrary to the usual custom of ventilating to regulate the heat, firing must now be resorted to to regulate the ventilation without reducing the temperature. Air must therefore be given freely throughout the day and moderately through the night, the only time when it may be dispensed with being included in the usual afternoon shutting-up period, say from 3.30 to 6 o'clock, when heat and moisture will greatly increase the size of the berries if the latter does not improve the bloom. If perfect finish is doubtful, or even if it is not, a final watering with moderately rich diluted liquid at a temperature of 80° will greatly assist the Vines, when more mulching may be applied to keep in the moisture, and the rate of progress must be regulated by resting them through the night. The enemies to be encountered are red spider, the small spinning spiders, and thrips. Bug used to be a formidable insect, but the use of coal tar and paraffin is now well understood, and the man must indeed lack energy who now allows these disgusting parasites to destroy his crops. The first may be checked by the application of sulphur to the pipes, but it is an operation I always dread, as Vines that have been exposed to its fumes seem to lose their charm and freshness. The better way is to keep a sharp eye on husky corners, and keep Read's best instrument constantly playing where a syringe of clean water can be placed without casting spray on the berries. If this does not answer, the sponge, charged with soapy water in careful hands, will cleanse an immense number of leaves in a few hours. Spinning spiders generally put in an appearance where nooks and corners are given up for their sole use, but, like many other garden marauders, make very little progress where their haunts are frequently disturbed. The hand-brush, the bunch of feathers, or the bunch of laterals even, should therefore be plied, not only when the Grapes are getting ripe, but as often as the Vines are dressed throughout the growing season. Thrips are most troublesome in vineries which have to do double duty as plant houses, but they are by no means persistent, three smokings with tobacco paper in the course of ten days being quite sufficient to destroy the parents and their offspring as they enter into life.

Succession houses.—The principal work in these will be stopping, tying, and thinning the bunches and berries. If space remains uncovered the leading laterals should be laid in to supply foliage for covering without crowding every part of the trellis. Plenty of heat, air, and moisture will be needful where Grapes are in flower, and shy varieties will be improved by cross fertilisation. Many varieties will not set well without this aid; others will; but I have formed an opinion that all fruits grown under glass attain a degree of superior quality which they sometimes lack where fertilisation is neglected. Thinning is the most tedious work, and at a busy time becomes irksome if allowed to fall into arrear. No rule can be laid down for thinning, as nearly every variety requires special manipulation. Hamburgs even differ to an extent truly surprising, for not only do some bunches set twice as many berries as others, but some of them swell to nearly double the size. Large-berried varieties are generally close and compact in the bunch. Others which produce small or medium sized berries are not unfrequently loose, and shy setters. To treat all alike would be to court failure,

as a well-thinned bunch should neither bind before it is ripe nor fall to pieces after it is cut and laid on the dish. As there is no royal road to the art of thinning, the grower must make himself acquainted with the capabilities of his Vines, as Capability Brown would have said, before he can possibly know how to thin their produce. When thinning is finished it is always a safe rule to give the inside borders a good soaking with warm diluted liquid, to freshen all available walls with a wash of quick lime and sulphur, to clear every plant out of the house, and dress up the borders with a fresh covering of well-sweetened horse litter. The maintenance of the foliage in a clean, healthy state will now be through the atmosphere; not one drop of water must touch the berries; but heavy indeed must be the crop if some portion of the foliage cannot be brought under the influence of the syringe. Some growers pride themselves on banishing this useful instrument after the Grapes are set, but I like to see a good hand about seven o'clock on a summer evening bidding spider defiance by giving all outlying foliage a refreshing bath of pure soft water.

Late houses a fortnight ago were a month later than I have seen them for some years. One half of this time they have already redeemed, and a fine bright May will no doubt aid them in pulling up the remainder. It is hardly necessary to say we practise what we preach by forging ahead under high pressure when solar heat favours giving the Vines a Turkish bath on bright afternoons. Most of the varieties in these late structures being shy setters, we fertilise every bunch with foreign pollen about noon on fine days, and maintain a brisk temperature with a free circulation of air and sufficient atmospheric moisture to prevent the young foliage and delicate organs of the flowers from suffering. The intensely dry atmosphere formerly indulged in, however genial it may have been to Mexican succulents, is no longer thought necessary to the setting of Grapes, and I think it must be conceded that shy varieties now require more thinning than they did thirty years ago. Another important factor, perhaps the most important of all, is brisk root action in warm well-drained and aerated borders. At one time it was sacrilege to approach a 3-foot shank-all border with spade or fork unless it were to dig in a stiff layer of rotten manure rank enough to poison all the roots. Now, while the foliage is yet upon the Vines steel forks are at work, every particle of the internal or external border is taken out; drainage, clean and abundant, is put in, and sweet wholesome compost in which Vine roots can grow and live is used by all rational growers. In such borders, with a good mulching to keep out frost and drought, quick active roots run and ramify on the surface and supply the Vines with all they require when the first strain, that of setting their fruit, falls upon them. Equally valuable are these working roots when the Grapes are stoning, and again when they are colouring, as the steel fork or renovating process to which I have just made allusion testifies, for whoever heard of the Grapes shanking or failing to colour on newly-lifted Vines. The black soil out of which within a year or so they have been rescued may have contained enough poison to kill every Vine root in the parish, but having given them pure sweet loam and hard food in the shape of crushed bones, charcoal, and lime rubble, they will soon fill it with bright fresh roots capable of doing all that is required of them from the beginning quite up to the end of the season.

POT VINES.

Encourage these to make quick, but short-jointed, growth by giving them plenty of heat, air, and water. If the roof of the house admits, train within 15 inches of the glass in preference to growing them upright, as vertical canes always shade each other at the base and throw all their strength upwards after they are stopped. Canes, on the other hand, trained under the angle of the roof thicken as they go, have full exposure to the sun and light, and perfect their buds from base to summit. Pinch all laterals at the first joint, but carefully preserve the old leaves, as on these depend the future bunches. Keep all the rods tied beneath the wires and pinch out the points when they have made 6 feet to 9 feet of growth. In order to have pot Vines in the best possible condition for

forcing, the roots should be prevented from leaving the pots by placing the latter on two bricks slightly apart to allow the free escape of water, and active feeders should be drawn to the surface by the use of good sound mulching composed of rich turfy loam and bone dust. Good watering with clear, warm, diluted liquid is, of course, necessary, and the syringe must be freely used to keep the foliage free from spider.

HARDY FRUITS.

THE sudden change from a long cold winter to bright warm sunny days is already telling favourably upon all kinds of fruit trees. It is as yet rather early to raise one's voice, as we may not be quite clear of the wood, but, judging from appearances, the fruit on wall trees must have set kindly. Apricots, as I have previously stated, are with us a failure, and I believe ours is not an exceptional case in this part of the country. This failure is not, however, due to spring frosts during the time the flowers were open, as ours were destroyed when the size of swan-shot early in the month of February. Where these precocious trees have failed the growths will most likely be unusually strong, and forced forward by sun heat will now be sufficiently advanced to admit of foreright pinching. Trees, on the other hand, which have set plenty of fruit should be more tardily dealt with, as the young growths and leaves afford excellent shelter. The great enemy to the Apricot is the small grub which appears about this time, and left alone soon destroys the fruit as well as the most valuable foliage. Prevention being better than cure, an occasional drenching with soapsuds during the time the trees are dormant cleanses old walls and branches, and not unfrequently results in the grubs failing to put in an appearance. Like the Plum and Cherry weevils, their whereabouts is easily detected in the closely folded leaves, whence no insecticide can dislodge them. The only remedy therefore is pinching and picking.

Peaches and Nectarines look better than they did last year, and large extension-trained trees which have not been shortened appear to have set their fruit quite up to the points, a fair proof that the wood was better ripened than I at one time anticipated. Disbudding will now require attention, and may be carried on piecemeal where the trees stand high and safe from frost, but less favourably situated they should be allowed to get well advanced before the young fruit is suddenly exposed to the weather. It not unfrequently happens that a sudden change from genial to cold weather produces a decided check, which results in the sudden appearance of green fly and blistered foliage; add to this the check which follows premature disbudding, and the chances will run strongly in favour of the earliest and most valuable shoots being spoiled for the season. Although green fly and spider are easily destroyed if taken in time, we often hear of the concoction of wonderful mixtures which may or may not kill more than one bargain for, when a thorough hosing immediately after the fruit is set and the occasional use of soapsuds from the laundry, which costs nothing, in winter as well as summer render severe measures quite unnecessary. The worst enemy to the Peach is black fly, but I have seen old walls in which it has been located for years made perfectly clean by the use of soapsuds during the winter.

Pears on south walls which have been root-pruned within the last two years are not plentifully furnished with blossoms, while pyramids, standards, and espaliers are excellent. As yet we have only had slight frosts, and we may now reasonably hope the future flow of the sap will go on without let or injury. It will not, however be safe to trust to our treacherous climate, as I have registered 12° of frost as late as the 14th of May, a fact which should prevent the cautious from folding up their bunting. Some of the early foreright shoots on wall-trained Pears will soon tempt one to commence the finger-and-thumb process, but, for two reasons, a little patience is advisable. In the first place, these shoots afford excellent protection to the fruit; in the second, very early pinching leads to the formation of a forest of weak spray which a little delay might convert into spur wood. If dry weather continues, newly-planted and root-pruned

trees should receive additional mulching and a thorough soaking of water. Grafts, too, will require attention, as success greatly depends upon preventing the clay from cracking. Trees on south walls I generally shade by placing a broad board in front of the scions and giving them an occasional dash with the syringe. Old trees in a large cider orchard which I am now converting by grafting are not so easily managed, but a boy with a garden engine can keep a great number of scions moist by devoting an hour to them every evening.

Strawberries.—Established beds have already made rapid progress, and if, as is now generally admitted, a decided rest is favourable to fertility, the crops this year will be unusually abundant. Heavy rain having fallen just when the crowns were moving, all that is now needed is a liberal covering of manure to keep the roots moist and cool and prevent evaporation. Where good solid manure was placed over the beds last autumn fresh stable litter will now be found the most appropriate material, as it will stimulate the plants with its ammonia, and wash sweet and clean before the fruit ripens. Young plants put out in August generally produce extra fine fruit the first year. If wanted for special purposes, the flower-stems should be thinned now and tied up to small sticks to keep the fruit clear of slugs and fully exposed to sun and air. The thinning of the fruit may also be necessary, but this may be deferred for the present. Maiden plants of the same age, put out at the same time for propagating purposes, should be divested of all their flowers to favour the early production of runners. A few rows put out in near proximity to water, well mulched, and prevented from flowering, give an enormous quantity of runners for pot work, and enable the grower to avoid disturbing his netted beds when the fruit is swelling and ripening; moreover, the fruit which they produce in the year following is extra fine and very abundant. Where forced plants are put out for fruiting in the autumn or giving a full crop the following year, no time should be lost in getting them into position. Heavy manuring and deep trenching are the chief essentials, but certain points must be observed when the day arrives for planting. The plants, in the first place, must be submerged in soap-suds or sulphur water to free them from spider, all flower-stems must be cut off, and the balls, slightly picked out to loosen the coiling roots, must be thoroughly wet when they are put into the ground. Ramming, mulching, and copious watering, not only the plants, but the whole of the bed, will then complete the operation. Forced plants managed in this way no doubt give a quantity of good ordinary fruit the following year, but extra fine quality being the test of merit, they must yield the palm to maidens which have neither been cramped in pots nor forced out of season. The majority of growers plant in August, but many prefer putting their runners into nursery beds to stand the winter and make the final planting in April or May according to the state of the weather. Deep trenching, plenty of manure, and firm planting answer well in good fresh gardens, but when we come to old spots upon which fruit and vegetable changes have been rung for one or two hundred years, more careful preparation is needed. Manure in such gardens is often a drug, and new earth is the one thing needful. A Strawberry bed composed of new loam would cost too much money, but the plan which I have adopted in two old gardens has been as follows: The ground deeply trenched and firmly rammed was drilled and cross drilled, as if for small seeds, to throw it into 2-foot squares. At each of the intersecting angles a square hole the width of a spade and 9 inches in depth was taken out and refilled with fresh heavy loam. This also was well rammed, and the plants, strong maidens, were planted singly in the centres of these cubes. The plants put out in May never gave fruit the first year, but the beds produced enormous transplanted Onions and the Strawberries paid the rent the second season. Private growers who put out a few rows every year should experience very little difficulty in getting fresh soil, as an unsightly bank in the fields or the scourings of a ditch laid up to pulverise through the winter will grow fine crops, not only of Strawberries, but of vegetables afterwards. W. COLEMAN.

TREES AND SHRUBS.

CRATÆGUS OXYACANTHA SEMPER-FLORENS.

NUMBERS of well marked varieties of the common Hawthorn are in cultivation, some of them differing widely from the type and from each other in many particulars. The kind under notice is one of the latest additions to the group, and bids fair to be both an interesting and a useful one. Its principal claim to recognition is well indicated by the name *semperflorens*, for it blooms continuously from spring till autumn. The annexed illustration shows at its base fruits that are the result of an earlier crop of bloom, while on the top portion is a cluster of fully expanded blossoms; indeed, it is no uncommon occurrence to see evidences of three separate flowerings, in the shape of blossoms, green fruit, and ripe fruit, on a single



The perpetual-flowering Hawthorn (*Cratægus Oxyacantha semperflorens*).

shoot. This Thorn made its appearance in a bed of seedlings of the common kind, where it was observed by M. Bruant, nurseryman, of Poitiers, France, who, attracted by its distinct character, propagated it by grafting on the common Hawthorn. Attention was first directed to it in 1882, but up to the present time it is, comparatively speaking, unknown. Its habit is that of a dwarf much-branched bush, and when studded with corymbs of white flowers it forms an attractive little specimen, especially for spots of limited extent. So floriferous is it, that small plants which have been but one year grafted will bloom for months together. Other prominent varieties of the common Hawthorn are the double white, rose, and crimson kinds, the finest amongst the latter being Paul's Double Scarlet, which, when

sent out somewhere about twenty years ago, soon became popular. The single-flowered crimson kinds, too, are equally pretty, but they do not last in perfection quite so long as the double sorts. A single-flowered variety but little known is *Gumperi bicolor*, the blossoms of which are white, edged with red. It is of vigorous growth, pretty and distinct. The early flowering variety (*præcox*) is the celebrated Glastonbury Thorn, which in mild seasons will sometimes be in flower on Christmas Day. There are also varieties remarkable from the colours of their fruits, such as *aurea*, in which the haws are golden; *leucocarpa*, in which they are white; and *melanocarpa*, in which they are black. The Weeping Thorn (*pendula*) is a very graceful-habited variety. The variegated kinds are pretty when the foliage is first expanded, but, as a rule, the leaves become burnt up by the summer's sun, and before the season is over they have at best but a rusty appearance. The deeply divided leaves of *laciniata* give to a tree of that kind a light and elegant appearance, while a couple of curious forms are *flexuosa*, with gnarled and twisted branches, and *salisburiaefolia*, the style of growth of which and the shape of the leaves bear considerable resemblance to those of the Maiden-hair Tree (*Salisburia adiantifolia*). As a direct contrast to the weeping kind previously mentioned may be noted *stricta*, all the branches of which have an upright tendency in the way of, but not quite as pronounced as in, the Lombardy Poplar. T.

PLANTING EVERGREENS IN APRIL.

THERE can be little doubt that, given the necessary attention afterwards, April is the best month in the twelve for the planting of many Evergreens. However, the term is so comprehensive, that it is somewhat difficult to lay down hard-and-fast rules. For example, some Evergreens, such as the Holly-leaved Barberry, bloom in April, and another, the *Laurustinus*, in February or March, and some others are better planted in the autumn. Box is another Evergreen of which the balance between autumnal and spring planting can hardly be said to be very definitely determined. Another important family of Evergreens (*Rhododendrons*) are mostly planted in the autumn. They flower in May and June, and it has been held to be bad practice to transplant *Rhododendrons* or other Evergreens in full flower. The great exhibitions of these plants, so long and so successfully held in the metropolis and other large towns in the spring or summer, have thrown new and most important light on this matter. The majority of those magnificent specimens have been moved a few months or weeks before blooming, and the bloom does not seem to suffer at all in consequence nor the health of the plants either by a double transplantation within a few months. No doubt many of these plants have been specially cultivated and prepared for exhibition purposes, and all *Rhododendrons* grown in peat and frequently transplanted form such good balls, that they are rendered well-nigh independent of extraneous aid for a time from any source outside the balls. But the facility with which such large plants of *Rhododendrons* can be removed with perfect safety to the flowers on the eve of their opening has shed a new light upon the perfect safety of spring planting under circumstances that almost invited failure, and has doubtless given a new impetus to the spring planting of such Evergreens as *Hollies*, *Laurels*, *Yews*, &c. The vital merit of the April planting of Evergreens is that it bridges over the interregnum to growth as rapidly as possible.

Transplant an Evergreen in the late autumn or winter, the earth is probably cold and wet and the roots are in no hurry to lay hold of it quickly. This isolation, as it may be called for lack of a better phrase, is by no means a matter of physical

surroundings wholly, though doubtless these have a considerable influence. But the Evergreen transplanted in winter is disturbed in most cases when the top is in full vigour and the roots hastening to mature their growth. Take the Holly in December as an illustration; it is at once maturing its foliage and finishing its crop of coral or golden berries. Disturb or rupture its roots, and they resent it by standing still for an indefinite period. Replant them as skilfully as one may, the plants remain mostly unattached to the soil till the spring, and during all this dreary period of isolation are apt to suffer severely or perish in consequence of the roots having a slight or little fresh hold or grip of the ground. Most of these conditions are reversed in April. The Holly may then be said to have reached its autumnal condition of growth. One series of leafage and fruitage has closed and another is about to begin. The leaves are falling fast and there is a pause between the past and the near future. Transplant Evergreens in this state and the roots are as eager to bite the fresh soil as those of deciduous trees are in November, and so soon as this takes place the plants are safe, provided always that the young rootlets are protected from two dangers—disturbance and drought. The former happens through wind, and the latter comes of hard, dry weather which not seldom comes instead of the orthodox April showers and the genial May days of which we read in books, but seldom experience in the garden nowadays. Firm planting and secure staking are essential to prevent root-disturbance and rupture.

Without these the Evergreens become the mere sport of every passing wind. And it is too often forgotten that every breeze that bends their tops snaps the newly-made roots off sharp to their bases; and this process oft repeated results in the disease or death of the Evergreens. As to drought, the surest antidote to this consists in the flooding in of the Evergreens. By this is not meant a mere ordinary watering, but a real flooding. When the earth, which should be broken fine before use, is nearly all filled in, then water till the whole seems converted into mud. Leave the water to wash in the earth to every nook and cranny among the roots; leave all to settle for several hours; then return, and, without placing a foot on the settled, sodden earth, finish all off neatly with a coat of dry soil, and the work of planting and watering is complete. It takes a good deal, but, like most thorough work, this mode of washing in spring-planted Evergreens is the cheapest in the end, for the plants will need no more at the roots, be the season ever so dry. To make sure of this, however, it is wise to mulch the entire surface of the root-runs over with Moss litter of any kind, short Grass, Cocoa-nut fibre refuse, or to convert the surface soil into a mulch by keeping it loose through frequent stirring with a hoe. These contrivances conserve the moisture applied to the roots and root-runs, washing in the former, and also keeping the roots as near as may be at a uniform temperature. Safeguarded against disturbance and from drought, the roots speedily establish themselves in their new quarters, and are quite prepared to supply all the needs of the tops by the time the latter call upon them for supplies. Occasionally, however, under exceptional circumstances as to size of plant and climate a little extra help may be given to spring-planted Evergreens, in the form of a few overhead drenchings from the hose of a water main or garden engine, on the evenings of hot days during periods of drought of unusual duration or intensity; but these are what may be called indulgences of cultivation reserved for favourites of abnormal size or value, and must not be looked upon as essential to the success of the planting of Evergreens in April.

D. T. F.

Ribes cereum.—This is one of the small growing species of Ribes, forming a low dense bush somewhat Gooseberry-like in character, though spineless, and more nearly related to the Flowering Currant than to the Gooseberry class. It is in full flower at the present time, and though

the blooms cannot compare for beauty with those of *R. sanguineum*, they are borne in great profusion, and being accompanied by the tender green freshly expanded foliage it claims recognition. The blooms are of a pinkish tinge and borne freely in little clusters. It comes from North-west America and is quite hardy.—H. P.

MARKET GARDEN NOTES.

STRAWBERRIES.—In some respects Cornwall is an unfortunate county; the pilchards desert its coasts; its mining industry is crippled by foreign competition; and now its Strawberry trade is threatened with extinction—at least, so far as regards its connection with the London markets. This latter misfortune would scarcely have been deemed within the range of probabilities but a very few years ago, and the fact that outdoor Strawberries from such an exceptionally early district as Penzance are being pushed out of the London markets by fruit from other localities is instructive in more ways than one. In the first place, it is indicative of the great changes which are likely to occur from time to time in this country in market culture, and again it shows how little we really know of the capabilities of our climate for the growth of hardy fruits. Penzance, as readers of THE GARDEN are well aware, is so sheltered from nipping winds and enjoys so great an immunity from frost, as to place its garden produce from a fortnight to three weeks ahead of that grown in the neighbourhood of London. Something over half a century ago this fact was realised by some grower there, and consignments of Strawberries were made to Covent Garden salesmen, the returns from which were so satisfactory, as to eventually cause large breadths of some early kinds of this fruit to be grown expressly for the London trade. Of late years Princess Alice Maude was the favourite variety, being early and a good traveller, and at any time after the 20th May it might be expected to appear in Covent Garden, the berries rather white on the underside, it is true, but otherwise fairly ripe and sufficiently good in appearance to command a ready sale at a remunerative price to the growers. Had a Cornish grower seen the first consignment of Sir J. Paxton arrive in Covent Garden from Southampton, he would probably not have looked upon it as the inauguration of a series of blows which were at last to shatter his own industry. Such, however, has been the case; this Strawberry, grown in ever-increasing quantities in a district hitherto not known to peculiarly favour quality and precocity in this fruit, has lessened the value of the Penzance fruit to a serious extent. Hampshire has fairly driven Cornwall out of the field, sunny Kent being but a laggard in comparison. Thus we see that we have the chance of continually discovering new localities, which, on account of earliness or some other good quality, may be worked to much advantage for the raising of market garden produce, and we are, therefore, justified in assuming that the potentialities of England as a fruit-producing country are greater than it has hitherto received credit for. Up to the present, no Strawberry has been found to oust Sir Joseph from its proud position as the premier market kind, and for some time to come it is not likely to have a formidable rival. Quality, firmness, and productiveness distinguish it superlatively, and as an illustration of the last mentioned characteristic I give the following: A Kentish grower had cleared a piece of coppice of about two acres and planted it with Sir Joseph. When the crop was nearly ripe he sent for a Covent Garden fruiterer to look at it, who immediately offered him something over £450 for the two acres, clear of all expenses. This individual told me that he never saw anything like that crop of Strawberries before nor since. This was, of course, a crop produced under exceptional circumstances, but I do not think that any Strawberry under the same conditions of culture would ever crop up to anywhere near that value. There seems to be no limit to the consumption of outdoor Strawberries up to the

present; enormous as is the quantity of fruit grown, the demand advances in equal ratio. The question is, will this continue? Will not supply exceed demand presently and bring on depression? As regards indoor fruit; this is really the case already; the demand for early Strawberries appears to be nearing the vanishing point, and the early forcing of this fruit is, so far as it concerns market growers, almost a lost industry. When those who formerly bought early Strawberries now sell in open market, where is the market gardener's trade to come from? Only a few days since one of the largest Covent Garden salesmen said, "We can't do anything with early Strawberries now; the trade for them seems to be gone." We grow many good Strawberries, but we do not attempt to get a fruit in before the end of May now. Eight shillings per pound is not much for Strawberries in the beginning of April, and many days this year they did not realise that much in Covent Garden.

CUT FLOWERS.—On the day preceding the Beaconsfield anniversary it was computed that 5000 sieves of Primroses were sold in Covent Garden at the rate of 1s. 3d. per dozen bunches. Nothing like this in the way of Primroses has ever been seen in London. These were, of course, all wildlings, the gathering of which has doubtless formed welcome employment for women and children in the coppiced lands of the home and some other counties. Daffodils are in plenty; there has been a glut of them just lately—not an unexpected result of the Daffodil fever. It is, however, the foreigner who leads at this season with cheap flowers. He sends us Hyacinths, Narcissi, Ranunculuses, and Roses galore, and, as a salesman remarked, "People are getting to be connoisseurs in the matter of flowers; they want Roses instead of Daffadowndillies; they turn up their noses at Wallflowers, their sweet fragrance notwithstanding, and ask you for Hyacinths." As regards the latter flower, it would almost appear that the Dutch are killing a goose that lays golden eggs. They are sending from their bulb farms an enormous quantity of blooms, which entirely annihilate the English growers' trade with them. The exportation of cut Hyacinths is quite a recent enterprise on the part of the Dutch, and it suddenly assumed such large dimensions, as to cause energetic remonstrances to be made by the English growers, the effect of which was an attempt at combined action to stop, the initiative being taken by some of the larger firms who had not gone in for this flower business. A circular was issued, which was largely signed by our Hyacinth growers, but it evidently has not done what was hoped of it; the flowers come, and will come in ever-increasing quantities. The fact is, the temptation is greater than can be resisted; the flowers represent certain money, and the throwing them away now requires an amount of philosophic self-denial which the more needy of the Dutch bulb growers do not possess. It is hard to make a man believe that the refusal of present benefits will bring a greater reward later on. The Dutch are of the last to throw away an opportunity of making money; so they sell their Hyacinth flowers and take their chance of selling the bulbs, well knowing that they have all Europe for a customer. These Hyacinths come over in boxes containing about 250 spikes, and they are sold now at an average of about 1s. 6d. per box, a low price certainly, but then see what a space they are gathered from. I am told that if they realise 1s. 3d. per box, the growers get a profit over the expenses. Narcissi come to us very fine from France and the Scilly Isles, much finer than we can grow them. The French send us Tea Roses in abundance. They are put up in boxes of something over 200 in a box, and realise on the average 2s. 6d. the box. Freesias, Ixias, and Camellias are largely grown in Guernsey, which seems to be a paradise for early open-air flowers. Camellias are happy there; a single tree will yield 1000 blooms in a season. From the land where Mignonette and Roses bloom the year through comes the novelty of the season in the way of cut bloom. This is a deliciously fragrant bright yellow Acacia, *A. formosa*, I am told, of which they make hedges at Nice, and which have now developed into a

source of revenue. I saw this in fine condition in Covent Garden so soon as February; in its perfect freshness and intense colour it bore the impress of the clear atmosphere and bright sun of the Mediterranean shores, a refreshing contrast to the weary look of the flowers forced into bloom under the dismal vapour-laden sky and murky atmosphere of an almost phenomenally sunless English winter. Flowers are sold in many ways—in bunches, in sprays, and singly, but who would have thought to have seen them sold by weight? And yet this has come to pass in Covent Garden, for this yellow *Acacia* comes in boxes, which, being weighed, are sold by the pound. I believe that the average price of boxes containing about 7 lbs. is 3s. 6d. This *Acacia* has attained a high degree of popularity in a very short time. "Everyone buys a bit of *Acacia* who comes to Covent Garden," said a salesman there the other day, and who would not be pleased at such a moderate outlay to bring some of the brightness and fragrance of sunny Nice into their dwellings. We may without heartburning see this *Acacia* brought into our flower markets. We cannot grow it in such perfection ourselves, and its rich, but grateful, perfume is not approached by the flowers of any other plant grown for market in this country. With respect to selling flowers by weight, it occurs to me, however, that I have seen Violets sold in this way on the Continent. They also were grown at Nice, and were sold at the rate of 8s. the kilo about Christmas-tide. This is a branch of flower-growing industry that the south of France people have not yet worked up to the extent of largely supplying the London market in winter; when they do, good-bye to frame culture of Violets for profit in England. At the present time the large consignments of Violets are tapped at Paris, which has an enormous appetite for this flower, greedily swallowing up nearly all that can be grown in the warmer portions of the country. *Bouvardia Vulcan* is a sort far in advance of all other bright-flowered kinds, and the fact that it realises more than any other kind grown for market is the best proof of its worth. It comes, I am told, from a far country—one thousand or more miles from New York—and I cannot hold out hopes to your readers of the speedy possession of this kind, as the stock is tightly held by one of the largest and keenest of our London market growers. Up to last autumn not a plant had been let out, the stock being kept for the supply of cut bloom in Covent Garden, where, as above stated, it sold for more than any other kind; indeed, I was told that there was no sale for any other bright-coloured variety while this could be had. A household of this *Bouvardia* in mid-winter is a sight worth travelling far to see.

APPLES.—These are more plentiful than might be thought to be the case at this late period. The samples of English-grown fruit are good enough to bring the price of Newtowns and Baldwins down to 10s. per barrel. Herts and Bucks seem to furnish the greater portion of the English Apples now coming into Covent Garden, and some of the varieties are local, and are rarely if ever seen in a nurseryman's catalogue. It seems to me that local Apples are too much neglected; every kind which may be largely grown in a certain district should be tried in other parts of the country. There is an important difference between Apples which have gained a local fame and those which have become known by reason of the good quality of the fruit. The one is sure to have a vigorous, hardy constitution, and to be a more or less certain cropper, qualities often much wanting in many of the so-called standard kinds. J. C. B.

Liquid manure.—Not only is much valuable manure of this description wasted in the case of towns and cities, but its waste from all large country houses is, in the aggregate, very great, though at small expense it might easily be prevented. There is hardly a plant grown but might be benefited by a stimulant in some shape or form during some part of its life. Vines, Peaches, Pines, Figs, Strawberries, and all indoor

and outdoor plants may be much improved by a discriminate use of liquid manure. In periods of trial when the trees are heavily laden, a soaking of liquid manure given at the right time sustains the flagging powers of the tree, and enables it to carry a heavier load to a more successful issue than if left unaided and uncared for. Bush fruits, such as the Gooseberry and Raspberry, are specially benefited. Stone fruits on walls and Apple and Pear trees in orchards are all grateful for this help. Some years ago I saw a neighbouring farmer using his liquid manure cart during a dry, hot summer to soak the roots of his orchard trees, work for which he had an ample reward. Then, again, flowering plants, such as Dahlias, Hollyhocks, Roses, Phloxes, Stocks, Asters, and Zinnias, can hardly be grown to the highest state of perfection without liquid manure. Trees in impaired health may often be put right by the use of a weak solution of manure. Loss of health is often due to poverty in the soil where least expected, for a soil may be deficient in the particular constituent necessary for certain plants, though rich in other respects. Liquid manures may be had in a good many forms; the cheapest are those of home make. I have adverted to sewage, but there are other sources of home supply. Soot makes an excellent liquid manure, and can be had in a simple form by tying up a peck of soot in a bag and sinking it in a barrel of water (30 gallons), stirring it occasionally for a week. A quart of the liquid may be diluted with 3 gallons of water before using it, and may be given to almost every plant requiring a stimulant and that has plenty of roots to absorb it. Poultry and pigeons' manure may be used in the same way as that from the farmyard with advantage. Guano and all kinds of artificial manure may be dissolved in water and given to plants, thus bringing their fertilising properties into direct contact with the roots in the best possible manner.—E. HOBDAV.

UGLINESS IN FENCES.

THE beauty of rural England is a matter of admiration to many who come to see us from other countries, and therefore anything that mars it seriously deserves our consideration. If agriculture has ceased to pay for a time, those who live in the country are at least entitled to enjoy the beauty of their homes. We think the loveliness of the home counties of England is very seriously interfered with by the iron fence, the use of which is unfortunately increasing. Last week we drove from Horsham towards Three Bridges, between two lines of miserable wire fencing, without shelter for a ghost in any part. It is hardly necessary to point out the deplorable look of ugliness of these fences as compared with any other fence known; but some persons do not seem to see it. People of wealth sometimes run riot with the iron fence. In many places it is hideous to see the effect of the removal of the pretty green fences, and the substitution of the gridiron lines. We admit that iron has an important use in fencing; but nothing can save it from ugliness. We cannot do without it; but all tasteful people should reduce its uses to places for which it is essential, and not put it, as is every day done, in the most conspicuous and what might be the prettiest parts of country seats and their surroundings. In many cases it is used where it is by no means necessary, and where there is abundance of Oak requiring thinning, of which a large supply of Oak fences, which are always inoffensive, could be cheaply made. For simple divisions of fields and fencing in woods these are excellent, and, we think, often better than the ordinary live or plashed fences. In keeping away the rabbit plague, also, iron and wire are good, if properly used. We use them on the margins mainly and in places where they would not be much seen. Our country has perhaps, above all others, the most perfect native fences in the Hawthorn, the Holly, and now the Myrobellia Plum. When well kept, they are both pretty and efficient. Probably people, in abolishing such live fences generally, do not always consider the good these do in sheltering animals and plants. Good strong hedges crossing the line of prevailing winds are beneficial to stock and crops, and certainly

to fruit trees. For the purpose of temporarily fencing trees, we should say that iron is quite needless. In many places where a hard mechanical effect is obtained from iron fencing, a good wood fence would give an excellent effect. Between these wooden fences and our live fences much might be done to keep a country place from looking like a poultry yard or a market. We seldom see a country seat in which there are not a great many more fences than are required. Each person who has the place makes new fences, and the old ones are often left after their use has passed away, and they remain when they have no longer any reason to be. Little divisions, useless shaws, and needless complications abound in most places that we see, and sometimes one notices two fences approaching each other within a few yards, confining some strip that had better be thrown into the field adjacent. The doing away with such fences is a great deal towards the settling of this problem. It would afterwards be possible, by the use of live and Oak or other wooden fences, to do all that would be necessary without fear of ugliness. We speak mainly of places where the question of beauty, or, at least, the avoidance of its opposite, is of more consequence than profit. But the use of iron fencing often makes the pleasure ground or park less picturesque than the adjacent farms, where such luxuries of fencing are not indulged in; and we appeal to all who care for the beauty of our country to use their influence to stem this invasion of the gridiron, or at least confine it to its special and least obtrusive uses. Field.

FRUIT GARDEN.

NEW PHASE OF APPLE CULTURE.

THERE is much beauty (apart from the value of its fruit) in a well-developed Apple tree. From the moment the leaf-buds unfold in April till the fruit is gathered and stored in autumn an Apple tree is a never-failing source of interest, and especially so in May when in blossom. Apple trees may be planted as single specimens, and in groups in the shrubbery and round the margins of the home plantations. Tall standards on the Crab alone should be planted, but of course they will not grow under the shade of other trees. Where the plantations are extensive, clearings might be made several acres in extent in sheltered situations, and special features created by planting large groups of Apple and other fruit trees, taking into consideration the character of the soil. There are on many estates ancient woods in which the soil is rich in decaying vegetable matter; if, therefore, inlets could be made in such woods here and there, round the margins, and groups of Apple trees introduced, not only would a pleasing feature be created, but the result would be in every way profitable. Under ordinary circumstances it takes a comparatively long time to establish an orchard; but within the sheltering folds of home plantations a well-prepared and refreshed soil will induce the trees to do their utmost, not only as regards growth, but also fertility.

THE TIME FOR PLANTING is over for this season, but the matter may be thought over and discussed. Solitary Apple and other fruit trees are found in such situations, but no attempt has yet been made to carry the thing out systematically. True, in Bacon's time, and probably also in that of the monks, fruit trees were thought worthy of filling prominent situations. And where ornament and utility go hand-in-hand, the Apple has no rival. In selecting sites for it, some amount of judgment will be necessary. Low, damp situations must be avoided, and those where the land is well drained and somewhat elevated chosen. The ground should be trenched, and all roots and rubbish burnt and the ashes spread over the surface. This work may be done any time before the autumn. And in selecting sites the outlines

of plantations and shrubberies may, where needed, be improved. The best position will be found on the southern sides of the plantations, sheltered

from cold currents from the north and east, which do so much harm in spring; and here, if anywhere, Apple culture ought to pay. For the first half-

house. My friend, though young at the time, had the presence of mind to thaw the stem with a little warm water and cover it up immediately.

The Vine quickly recovered, and in this case no ill effects followed. I have seen Roses affected in the way which Mr. Crump mentions. I once had a fine Maréchal Niel growing around a doorway at the end of an early vinery; each season when the Vines were started a square of glass was removed and a long strong shoot of the Rose was passed into the vinery with the view of obtaining a few early flowers; on the occurrence of severe frost the growths on the shoot inside the vinery would flag as if severed from the parent plant, but they quickly recovered when the outside portion became thawed.—E. B. L.

EXTENSION TRAINING.

HAVING read the remarks of "T. B." and "D. T. F." on this subject in *THE GARDEN* (p. 353), allow me to say that the defects which they attribute to the extension system are more imaginary than real when under the care of men accustomed to such work. I am not aware that anyone but "T. B." has said anything about letting the young trees run wild. Certainly no practical fruit grower has ever recommended such a course to be followed. Judging from the statements of "T. B." and "D. T. F." on this subject, it is evident that they have not yet been to places where the extension system is carried out with judgment; if they had they would not, I think, have written against a mode of training maiden fruit trees which results in the wall being covered from base to summit with good fruit-bearing wood within a space of two or three years from the time of planting. A few words will be sufficient to convince "T. B." how unnecessary it is to have all the strong shoots in the middle of the tree, or to have any unduly strong shoots at all in extension-trained trees. This is how I manage my young trees, say Peaches, the first year after being planted. They are secured loosely to the wall to admit of their subsiding a few inches with the soil; when the sap begins to rise in spring I make it a point to bend the shoots which are left their full length towards the ground, and to secure them to the wall in that position, the bend starting from the point whence it is desired the first of the young shoots should proceed. The check thus given to the flow of sap causes a sufficient number of wood-buds to push from each shoot to form a good sized fan-shaped tree the first year after planting. Of course, as soon as the buds nearest the base of the shoots so treated have pushed into growth, the nails are drawn, the shoots—main shoots—spread out on the wall after the manner of a hand with distended fingers and secured thereto, leaving sufficient room in the shreds for the development of the individual branches. All superfluous shoots should be rubbed off, and those intended to form the tree should be trained at proper distances over the intervening space. In the case of Pears and Plums a judicious course of pinching of the after-growth is pursued during the summer and autumn months with the obvious object of plumping up the wood-buds, forming spurs, or promoting a balance of growth in each tree.

It not unfrequently happens that two or three shoots of young trees had from a nursery are extra strong, and a like number of shoots on the same tree proportionately weak. In this case the strong shoots are bent towards the ground, as indicated above, and the weak ones trained in their proper position at once, so as to direct the flow of sap from the former into the latter, thereby promoting a balance of growth in the tree. "T. B." is mistaken in thinking that the extension system of fruit-growing entails a waste of wall space, the fact being the reverse of this; it is the hard pruning system, where still adhered to, that entails a waste of wall space by taking six or seven years

dozen years at any rate the land must be cultivated, but for this the catch crops ought, if rightly managed, to pay, and also yield something over for rent. Afterwards when the trees come into bearing the land might be seeded down with Grass.

PROTECTING THE STEMS would be as necessary as it is in the ordinary orchard, for sheep are just as destructive to young Apple trees as hares and rabbits, but this would be a comparatively easy matter. One of the evils of our present system of orcharding is the planting of too many kinds. Therefore in the scheme under consideration only a few kinds should be employed, and those should be adapted to the neighbourhood in which they are to grow. Some of the very best Apples are also the most vigorous and free-bearing under varying conditions. Our present list of Apples requires a good deal of weeding out. At present I shall only name a few varieties, confining myself to such as are bright-coloured, but which also are good either for dessert or culinary purposes. Beauty of Hants is a bright showy Apple, a seedling from the Blenheim Orange; Beauty of Kent is also good, and so are Devonshire Quarrenden, Emperor Alexander, Fearn's Pippin, Manks Codlin, Radford Beauty, Peasgood's Nonsuch, Yorkshire Beauty, and Norfolk Beaufin.

E. HOBDAV.

** Mr. Hobday's "New Phase of Apple Culture" is one which we think will meet with approval. We have always advocated the planting of hardy flowering trees like the Apple for ornament, both for their blossom and fruit. We cannot understand why the Apple has been so rigorously banished from ornamental plantations and pleasure grounds, perhaps because it bears useful fruit. Rarely do we see Apples and Pears on a lawn, except where an old orchard has happened to exist. We do not want to turn lawns into Apple orchards, but a few Apple trees bearing the finest flowers and the highest coloured fruit would add interest to the landscape both in spring and in autumn. Now that Apples are or soon will be in bloom, it would serve a good purpose if our readers would send us the names of sorts that are remarkable for the beauty of their bloom or fruit. The habit, too, is important, as upon it depends so much of the beauty of a lawn tree.—Ed.

Effects of frost on Vines.—Mr. Crump is not alone in his experience of the effects of frost on Vines in a growing state. I have never had such a mishap myself, but a few days before Mr. Crump's remarks appeared an old gardener friend described a similar occurrence to me in the case of a large Vine of which he had charge many years ago. On entering the house in the morning and discovering the condition of the Vine an examination took place, and it was found that the protecting material had been removed by rats from that portion of the stem which was outside the

to cover a wall that could be covered as completely in less than half the time on the extension system with good fruit-bearing wood. It is quite painful to see valuable wall space wasted for three or four years, as it is in the case of the old way of managing young trees. "D. T. F." says, "T. B., myself, and others advocate the obtaining of a maximum amount of produce in a minimum of time and space, and so linking together vigour of growth and fertility as to have these qualities developed within the same areas in perpetuity." This is good logic enough so far as it goes, but by pursuing the practice which he advocates "D. T. F." must necessarily be always three years behind the extensionist, who, starting with maiden trees at the same time as he does, secures all the advantages indicated above during the interval, and maintains them afterwards.

In conclusion, let me remind "D. T. F." that I am an extensionist who endeavours to cover all my wall space with good fruit-bearing wood as speedily as possible, and at the same time secures "as nicely adjusted and skilfully balanced combination of vigour and fertility as shall prove as profitable as it shall remain permanent." To say that there is no reason why an extension-trained tree, in addition to bearing quicker returns in the way of fruit should not also remain fruitful and healthy as long—through half a generation, if you will—as trees not so trained, is a mistake. My extension-trained trees, as regards balance of growth, &c., would compare favourably with the grandly trained trees of the Morello Cherry which were at one time, and I believe still are, to be seen in Scone Palace. This being so, "D. T. F." will readily understand how much wall space is wasted by following the system which it would appear he is endeavouring to write down, and one which Mr. Sheppard, of Woolverstone Park, a good practical gardener, clearly and forcibly advocated many years since. Do not plant the trees in over-rich soil; good loam and one-third of lime rubble and wood ashes well mixed make the best compost for all fruit trees, which in such a compost produce good firm short-jointed growth.

W. W. H.

The Victoria Nectarine at Lambton.

"J. S. W.'s" figures, like his facts, will not bear examination. He makes out that the Nectarine in question having covered a trellis 36 feet wide has made nearly 4 feet of growth per year in each direction, forgetting that the tree would be 5 feet across when planted, which would leave 15 feet 6 inches for it to cover on each side in the five years, or 3 feet per year right and left. As I have already stated, the tree was a good example of judicious treatment, the right medium having been hit upon as regards needless shoot-shortening on the one hand, and the let-run-wild extension training on the other. Both extremes I have always condemned whenever I have said anything regarding the management of young trees.—T. B.

Maiden Peaches.—These "J. S. W." first said were one year old. He now (p. 378) takes up fresh ground, and says that the trees he meant were maidens "cut down to the graft in order to get limbs," the result of which is that they are trained trees, and which he has evidently all along meant, although he never before admitted as much. Allow me to assure "J. S. W." that he is greatly mistaken in supposing that anything he has said has cast any additional light on what I knew about maiden trees. I have budded the stocks myself and trained them afterwards, and I know what can be done with them. Allow me also to set "J. S. W." right about the trees planted against the house in which I live. They are, as I stated when speaking of them, good trained trees, not maidens, and they have furnished the lower part of the wall in a way that extension training, such as "J. S. W." tries to persuade people to adopt, will never effect.—T. B.

Setting Grapes.—I observe that Mr. Coleman advocates syringing shy-setting Grapes with the object of getting a good set. Would he kindly state what time of the day he does so, as by syringing at the orthodox time, on a hot sunny day, the leaves and bunches would, I apprehend, get burnt?—PERTSHIRE READER.

INDOOR GARDEN.

BOUGAINVILLEA SPECTABILIS.

IF, as "W. W." states, this Bougainvillea is flowering well in the Lily house at Kew, it evidently will bloom under widely different treatment, as there, in common with the other occupants of the house, it is no doubt subjected to an exceptionally high temperature in summer with less air than the generality of stove plants get, for doubtless at Kew, as in other places where the Victoria and other Lilies that require a high temperature are grown, there will be less air admitted than in an ordinary plant stove. Yet there is ample proof that this Bougainvillea will flower freely under much cooler treatment. "W. W." is mistaken in saying that roasting the roots, in the way described as having been practised, would be fatal to its blooming, as it was under such treatment the plant was first induced to produce flowers in quantity in this country. Yet as it subsequently turned out by the way in which it behaved in various places under cooler management the root-roasting process was unnecessary, and it was to show this that my remarks were directed. If *B. speciosa* is identical with *B. spectabilis*, then the plants which I have grown under the name of *speciosa* must have been wrongly named, for they were quite distinct in appearance, being much more like *B. glabra* than *B. spectabilis* in the strength of their growth, but the leaves were much more hairy than ever those of *B. glabra* are found to be. The Kew plant on the roof of the Lily house will get more light and direct sunshine than are to be got in most plant stoves on which some kind of shading is often used. This will no doubt ripen the wood, and thus so far compensate for the want of air. The complete dryness of the roots during winter and pruning after the plant has flowered, mentioned by "W. W." as essential to success, is exactly the treatment that I recommended for the plant, which if grown where it can get plenty of light and full exposure to the sun, will bloom satisfactorily without the amount of heat which "W. W." seems to think requisite.

"S." who comments on *B. spectabilis* (p. 369) evidently has not grown the species in question, or noticed correctly the condition of the plant that he saw in flower. To say, as he does, that *B. spectabilis* and *B. glabra* differ only in one being a stronger grower than the other, like two varieties of Apples or of Pears, is so far opposed to fact, that it seems strange anyone possessing ever so little knowledge of the plants would commit themselves to such an assertion. In describing the difference between *B. spectabilis* and *B. glabra* I did not say either directly or indirectly anything about blooming on the previous year's wood like a Peach. The substance of what I wrote I now repeat—*B. glabra* flowers from the strong shoots of the current season's growth after they have extended to a considerable length. In the case of strong plants grown in a stove, they will often run to a length of 5 feet or 6 feet before blooming; whereas *B. spectabilis* flowers on short growths made from the preceding season's wood; these run from 2 inches to 3 inches up to 10 inches or 12 inches in length according to the strength of the shoots from which they spring. To say that *B. spectabilis* does not flower from the preceding season's wood is as far incorrect as it would be to say that Raspberries do not bear from the previous summer's canes. T. B.

Watering with cold water.—What I stated about cold water having been used to plants of various kinds grown in heat at the places named is a fact. As I then stated, the Orchids, which at one time composed the Hackney collection and the hundreds of thousands now at Clapton, show in a way that cannot be questioned that they can be grown well and yet watered with cold water; but I added that possibly the improved condition of Messrs. Low's collection was owing to the fact

that they now get as much as they require; whereas when pots and syringes had to be depended on it was a difficult matter to get through the work. The latter qualifying remark "S." omitted to mention. I simply narrated the facts that had occurred at the places named, with a suggestion that those who have an opportunity would do well to test them in the case of a few of the different kinds of plants cultivated in heat, and that by so doing they would do good service. But in saying this much am I to be told that I advocate the use of cold water indiscriminately to plants grown in heat?—T. B.

—I should like to add a few remarks to the watering-with-cold-water controversy. Those who advocate watering plants with water of the same temperature as that of the air in which the plants are grown should not forget that rain is usually considerably colder than the air at the place at which it falls. Rain, being found generally at a height of many feet above the surface of the earth, naturally is of a lower temperature than the air below. Moisture rises from the earth as invisible vapour. On meeting with the colder air above it becomes visible, and forms clouds; being still more condensed, it forms drops of water, which from their weight fall as rain. I should, therefore, argue from a natural point of view that plants should be watered with water of a temperature below that of the air in which they are growing, but the difference of temperature I am unable to suggest, and I cannot find anything in any books to which I have access to guide me; the difference, no doubt, varies much, rain falling from high clouds being much colder than that from those of a less elevation. Many plants, however, growing in sheltered situations may possibly never directly feel the rain. To such plants which would derive all the moisture they required from the soil or atmosphere, syringing with cold water would be most unnatural. To grow plants in a perfectly healthy manner, the nearer the natural condition of their growth can be copied the better. This point, however, many cultivators never seem to take into consideration.—G. S. S.

Plumbago capensis in pots.—This fine old plant, so often used to cover walls and pillars in conservatories, does not receive much attention as a pot plant, but it is easily managed as such, and is useful in the conservatory late in summer and autumn. We grow a few plants of it in 8-inch pots for that purpose. They are kept dry in winter, and in spring they are hard pruned, shaken out, and repotted. When they have made 2 in. or 3 in. of growth their tips are pinched out. Under this treatment they become bushy little plants which need no staking, and thus managed they are very effective and graceful. A few cuttings rooted in spring make useful little plants for indoor decoration in autumn.—E. B. L.

Gloxinia gesneroides.—This *Gloxinia* does not bear out the description given of it in THE GARDEN (p. 403)—that is, if the plants which I obtained represent it truly. I raised several plants of it from a sealed packet of seed, all of which turned out to be very ordinary erect-flowered *Gloxinias* of a dull purple colour; in fact, without any redeeming features. They were, therefore, consigned to the rubbish-heap. Possibly the seed might have been a little mixed, and the poor varieties germinating first, were potted off under the impression that they were the true *gesneroides*; but if I made such a mistake as that and am speaking wrongly of the plant in question, no doubt some of your correspondents will be able to set me right.—H. P.

Sweet-scented Camellias (p. 403).—M. Guichenot asks if any of your readers "have ever heard of a sweet-scented *Camellia* before?" I do not remember ever having heard of one, but I noticed this year among some seedling plants one with a distinct fragrance, not very powerful, but pleasing. If I mistake not, it was a semi-double form, I think white in colour; but I have a clear recollection of meeting someone walking about with a fine blotch of yellow pollen on his nose, the

result of investigating the peculiarities of the individual in question. Since the Camellias' half-sisters, the Teas, are favoured with no small attraction in the way of perfume, it does not seem impossible that they, too, in some cases should not have inherited or developed a little of it.—C. R. S. D.

EXHIBITION OF ORCHIDS.

THE annual summer show of Orchids which Mr. Bull makes in his nursery in the King's Road, Chelsea, was opened on Tuesday last. The display is quite equal to any made in previous years, and, as may be imagined, includes an astonishing number of Orchids of all sections, and from every region to which the Orchid flora extends. Besides the every-day Orchids which please the ordinary visitor, the connoisseur will find at the present early date a number of out-of-the-common kinds, and not a few that are new. The most remarkable novelty is *Cattleya Lawrenciana*, of which there are some fine specimens, each carrying spikes of from four to seven flowers. Besides one or two extremely dark forms of this *Cattleya*, there is one with an unusually pure white throat to the labellum, such as we see sometimes in *C. Skinneri*. This white throat is so marked as to render the plant conspicuous among all the rest. It has been appropriately named *oculata*. Other *Cattleyas* include a few stragglers in the *C. Trianae* varieties, but the stock of *Mendeli* and *Mossiae* is fast coming into bloom. Already several fine varieties have turned up, and of these we noted two forms of *C. Mendeli* which we thought possessed extraordinary merit. These were named *Empress* and *grandis*. This first has large, finely-formed flowers, pure white sepals, and a lip richly adorned with amethyst. The second differs in having tinted sepals and an enormous labellum very much crumpled and highly coloured. *C. Skinneri* is now at its best, and contributes much to the present display. One plant we singled out from the rest as worthy of note bore a spike carrying no fewer than ten flowers of a very deep colour, so deep and rich, in fact, that it has been considered worthy of the name *splendens*.

THE *LELIAS* are best represented by *L. purpurata*, of which there is at the present time some exceptionally fine forms out. One named *Schroederi* is the most remarkable. Its flowers are somewhat different in shape from typical *purpurata* and scarcely so large. The sepals are white and the lip of a delicate rose, veined with crimson and with a zone of a deeper hue running round it. It is as lovely as it is rare. *L. purpurata rosea* is in a similar way, but differs in size and shape and depth of colouring. The varieties representing the other extreme of colouring are scarcely less beautiful, particularly those with snow-white petals and sepals, and an unusually dark, almost black, crimson lip. *L. elegans* may be seen to perfection, and its white variety also; while the vermilion-tinted *L. harpophylla* quite lights up the groups with its singularly distinct coloured flowers, which are only comparable with *L. cinnabarina* and *Epidendrum vitellinum majus*, both of which are shown well here.

CYMBIDIUM LOWIANUM is one of the features of the show, there being some grand specimens of it. One has several spikes quite 5 feet in length, and bears as many as twenty-seven flowers on a spike. One can imagine the beauty of such a plant. There is a variety called *atropurpureum*, having the colour of the lip of an intensely deep maroon-crimson, which makes it distinct from the rest. In contrast to this is the snow-white *C. eburneum*, which is among the specialties of this nursery, and another *Cymbidium*, rarely seen in bloom, is *aloifolium*, which has long pendulous spikes.

ODONTOGLOSSUMS make up the bulk of the display, there being some two dozen distinct species. The queen of the group is *O. vexillarium*, which will hold sway during the whole time the exhibition is open, as those in bloom are unusually early, and there are hundreds of plants in close bud only. Among the distinct varieties is one called *rubrum*, of a colour several shades deeper than ordinary, and roseum, scarcely so dark and of a different shade of rose-pink. *O. Alexandræ* is, of course, abundant, and among them it is not difficult to single out the finest, as it is so conspicuous. It is called *chelseiense*, and will

hold its own against any other named variety. Its flowers measure $3\frac{1}{2}$ inches across, and the spotless petals are $1\frac{1}{2}$ inches broad. The sepals and lip are heavily blotched with chestnut-red. Among other *Odontoglossums* notice should be taken of an exceptional variety of *O. citrosum*, named *aurantiacum*, which has an orange-red crest to the flower, instead of pale yellow. Of the little *O. Erstedii* there is a specimen with fifteen flowers, and among the numerous specimens of *O. Rossi majus* there is one in a 5-inch pot bearing twenty flowers, and another, a very deep-tinted one, named *excellens*. *O. Phalanopsis*, *Roezli*, *nebulosum*, *Cervantesi*, *Edwardi*, *Uro Skinneri*, *triumphans*, *Pescatorei* and *cirrhosum* all contribute largely to the show.

AMONG THE *ONCIDIUMS* may be seen a fine specimen of the rare *O. undulatum*, which has olive-green flowers with white-barred petals. It is not showy, but experts in Orchids may like to see it. The majority of the visitors will, no doubt, prefer the lovely golden *O. concolor*, of which there is a large number of finely-bloomed plants, each furnished with pendulous spikes of flowers of the richest golden yellow imaginable. Besides the noble *O. macranthum* there is a variety of it called *aurorum*, whose flowers are decidedly more yellow than those of the type. The great branched spikes of *O. Marshallianum* which hang gracefully over the other stages can only be compared to a swarm of yellow butterflies, and it is one of those that will at once attract attention. There are various other *Oncids*, including the rare little *O. nigratum*, which has tall branching spikes of small flowers, white blotched with black, and the new *O. Jonesianum*, already an established favourite in Orchid collections.

THE *MASDEVALLIAS* are as yet not at their best, but a few days of bright weather will bring on a crowd of varieties of *M. Harryana* in which this collection is so rich. Already there are such beautiful sorts as *conchiflora* and *acanthifolia*, the first remarkable for its exquisite shell-like shape, the latter for its extremely rich colour. *M. Veitchi grandiflora* stands out prominently from the rest on account of its rich colour of purple overlying a ground colour of orange-scarlet. *M. Chelsoni* and its parents, *M. Veitchi* and *amabilis*, may be seen side by side. The curious *M. trochilus*, the Humming-bird Orchid, may be seen in bloom, and likewise *M. Benedicti*, one of the singular triangular-flowered species that flowers from the bases of the leaf stalks.

THE *LADY'S SLIPPER ORCHIDS* (*Cypripedium*) are represented from various regions—*C. pubescens* from North America, the *Selenipediums* from South America, and among the eastern kinds are the little *C. concolor* and *niveum*. The rarer *Dendrobies* include *D. albo-sanguineum*, with fawn-coloured flowers blotched on the lip with crimson; *D. Cambridgeanum*, *Jamesianum*, *Falconeri*, a beautiful specimen covered with flowers. Other notable East Indian Orchids are *V. cœrulescens*, quite a gem and most distinct in colour, blue and purple. The above are a few of the noteworthy kinds in bloom during the first week of the show, but every week one may see a different class of flowering Orchids, as the show is continually replenished from the growing departments.

Eucharis mite.—I have at present under my charge twenty pots of *Eucharis* infested with this mite, and I am unable to understand how they came to be so infested. Eight years ago they were in apparently good health, and in the course of three months or so they all bloomed freely. After that they were placed under the care of my predecessor, who misunderstood their wants, and from that time to the end of five years they never bloomed once, and never at any one time had more foliage on the twenty pots than ought to have been on one. Their treatment was as follows: They were plunged in fibre in a bed in the stove; bottom heat from 75° to 80° ; but the one thing necessary, viz., water, was very sparsely given them. Three years ago they came under my charge. I supplied them with plenty of water and, when growing freely, with liquid made from soot and cow manure, and I have had plenty of bloom up till Christmas last. As regards the treatment in other respects, I may say that they were rested (but never allowed to flag) for about six or seven weeks, and on

being plunged again in bottom heat and given plenty of water they gave us plenty of bloom. I have repotted them once and removed all small bulblets. The compost consisted of two-thirds loam and one-third cow-manure, leaf soil and sand and a few half inch bones, the whole being used in a rough state. They have all bloomed since, but those required to flower at Easter failed to do so, and two or three of them beginning to look unmistakably unhealthy, I examined them and found that they were covered with mites, and on examining others I found them also infested. Could the mite possibly have been introduced in the soil or Cocoa-nut fibre? Would anything in the previous treatment of the plants be conducive to its increase? What heat should *Eucharis* be rested in? ours have been in a temperature as low as 50° . One potful was imported here about six months ago and plunged with the rest which we find infested; could the mite have spread from that one to the rest in the time? Is there anything that can be given in the water that will kill the mite without injuring the plants? What is the best, safest, and most effectual cure for this pest?—AMAZON.

—I do not think that "W. I. M." need be afraid of the *Eucharis* mite attacking his Melons and Cucumbers, for I presume the *Eucharis* plants are in pots, in which case I do not think that there is any chance of the mites getting into the Melon beds; they are poor pedestrians, and not likely to leave the bulbs willingly. I have never heard of them attacking Melons or Cucumbers, and I should not think they were likely to do so; if the *Eucharis* plants were not in pots and have been attacked by mites, I should be very careful to remove any soil which would possibly contain these creatures.—G. S. S.

Prunus Pissardi.—Late summer or early autumn is the season at which this *Prunus* is at its best, for then the purple tint of the leaves has been intensified by exposure to the sun. The young foliage is more of a rusty hue at the present time, and anyone unacquainted with the great change it undergoes would be inclined to condemn it from its present appearance. This year it has flowered freely, the blossoms being small and white in colour, with just a trace of pink in the centre; but though pretty, it is not equal in this respect to the *Myrobalan Plum* (*Prunus Myrobalana*), of which P. Pissardi is considered to be a variety.—A.

QUESTIONS.

5490.—**Flowering age of Limes.**—Will any reader kindly give an answer to the following, viz., how many years old Lime trees must be before they will produce flowers? In some soils, of course, they will grow quicker than in others. Where I think of planting some the soil is good loam for 3 feet deep, then a bed of gravel. The flowers of them I want for use for s.—R. W.

5491.—**Good flavoured Strawberries.**—Will some of your readers kindly tell me what Strawberries are really good to eat after the British Queen? A distinguished surgeon tells me that the most dangerous thing that he knows, as regards producing lithic acid in the blood, is the Strawberry. I ask myself sometimes whether this is due to the fact that the common market kinds have a good deal of acid in them, and whether we could not change this bad character of the Strawberry. I should say there must be an immense difference between the British Queen and some of the sour sharp varieties that I taste.—J. H. H.

LATE NOTES.

Grapes (Cook).—The footstalks of the berries sent are dead. The evil, we suspect, must be looked for in the border, which is probably too wet and cold.

Names of plants.—*W. H. M. Dalbœdicke*.—1, *Primula officinalis* var. *inflata*; 2, *Primula Auriculata* var. —*T. G. P.*—An *Epidendrum*, but which one we cannot tell from specimen sent. Cannot you send fresh flowers?—*A. J. Gibbons*.—1, *Mertensia virginica*; 2, *Narcissus incomparabilis* fl. pl.—*H. J. Van*. The variety of *Odontoglossum Cervantesi* is that known as *decorum*; the *Dendrobium Falconeri* represents a very fine variety, large and highly coloured. *C. L. H. J.*—*Narcissus odoratus* fl. pl.; 2, *N. incomparabilis*, *Sulphur Phoenix*; 3, *N. incomparabilis Orange Phoenix*. *H. J.*—*Narcissus incomparabilis* Butter and Eggs or *Orange Phoenix*.—*W. R. J.*—1, *Narcissus incomparabilis* Frank wiles; 2, *N. incomparabilis* Figaro; 3, *Romulea Bulbocodium*; 4, *Pancratium maritimum*.—*J. S. A.*—*Assrum carpatum*. *T. J. D.*—*Trichopilia tortilis*, apparently *Dendrobium transparens*.—*Bob.*—1, *Franea rufosa*; 2, *Cheilanthes liliifolia*; 3, *Pteris umbrosa*. Palm is a species of *Lantana*. Name next week. —*Mrs. P. Jones*.—*Chrysanthemum frutescens* (yellow variety, probably *Etoile d'Or*).

WOODS & FORESTS.

SMALL COVERTS ON FARMS.

THROUGHOUT some counties and in various parts of others there is still too much woodland existing for carrying on farming successfully, but there are many districts virtually bare of wood, and which would be benefited by the shelter afforded by woods. For such situations re-planting has been freely enough recommended, but generally the writers upon the subject do not put their views in a definite form. The intricacy of the question has no doubt something to do with this, but a word as to where planting may be likely to be of some early and practical value will not be amiss. I take it, then, that there are few more simple and useful plans of establishing a moderate amount of wood over bare districts than a system of setting out small coverts for the use of farms. The question is undoubtedly a small one in relation to the whole matter of re-planting, but in the aggregate, if the suggestion was adopted over the whole area of the country where no wood exists, its effect would not be inconsiderable.

The circumstance which leads me to believe in the usefulness of some such arrangement is the case of a farm of some 300 acres near here. Formerly a small covert of some half-a-dozen acres stood in the centre of this holding, from which a supply of wood for the use of the farm was always available. At the instance of a late tenant this was destroyed, and the area thrown into the adjoining field. The result is, that now there is no wood for use, and supplies have to be brought from a distance at a considerable outlay. In walking over the place with the present occupier, he has often strongly commented upon the mistake made in destroying such a useful adjunct to the farm; and I have no doubt there are hosts of others who would gladly welcome some little addition to the mere clippings from the hedgerows, which are of practically no value, except for fuel.

The planting of such coverts as these need not be an expensive process, and they need not occupy land which is of any considerable value for pasture or tillage. As an illustration of what I mean, in contra-distinction to the case already cited, there are farms in this neighbourhood which are well supplied with small coverts. There is, I know, a horror of anything in the shape of wooded land, on account of the game it is likely to harbour; but in plantations of these dimensions, where there is not other wood in the immediate vicinity, there need be no fear on this head. Of this I speak from experience, as I lived for some years near enough to a covert of this sort to feel the benefit of its shelter to the house and garden from the cold winds, yet, although the shooting over a large area within which this was situated was strictly preserved, there was hardly ever enough game to repay the sportsmen for having it beaten, and positively none to do damage to the garden or the surrounding fields.

To return, then, to the coverts of which I have spoken as existing on some of the farms here. There are two or three of small acreage, but which produce a quantity of wood, such as Hazel, for sheep hurdles, for Pea and Bean, and other garden stakes, Ash poles for fencing and other farm uses, besides a quantity of rougher wood for the fire. These occupy the slopes of hills, with, in most cases, a northern aspect, and where very little in the way of pasture would grow. In another case, a small covert occupies the slope of what would be otherwise unproductive ground down to the margin of a millpond. There are

plenty of such spots as these upon the average farm which the agriculturist would be glad to be rid of the care of, but which would nevertheless under wood be amongst the most useful crops on his holding. A point to be looked to in the laying out of a small covert is the availability of existing hedges in forming its boundary. There are few cases where at least two of these cannot be made to answer for the covert fence. In other places where three hedges can be made use of it will be necessary to fence on one side only. These are matters which, of course, the capabilities of the situation must govern, but which should be kept well in sight. It is, perhaps, hardly the place within the limits of this paper to refer to the selection of the most suitable kinds of plants beyond the Hazel and the Ash, which are the most generally useful, and which will grow upon a wide range of soils. It may, however, be mentioned that in the wetter parts a little Alder may be introduced with advantage, and for the sake of their peculiar beauty a few Birches should be interspersed here and here.

DEUID.

RENOVATING TREES.

IN going through the country one cannot but regret that so many trees planted for ornament are to be seen in an incipient state of decay. There are few properties, even of limited extent, that have been handed down from a series of generations but contain some fine old specimen trees, some of which may be of historical account, or perhaps associated in some way or another with some of the past or present members of the family; and it is a great pity to see these old landmarks tottering into ruins by every blast of wind for want of a little timely care and attention. Such trees, in place of answering the end for which they were planted, give a property a neglected, ruined appearance, and considerably lessen its value in the market; whereas, were a little timely attention paid to their wants and requirements they might in many cases be kept in a progressive, healthy condition, and thus add beauty and a furnished appearance to the landscape and enhance the value of the property in no small degree. In the renovation of such trees the first step to be taken is to ascertain the real cause of decay; sometimes this can be traced to stagnant water at the roots, through the choking of drains in the vicinity, while at other times exhausted soil at the top, or hard impervious subsoil inimical to the trees' growth, may be the cause. I have, however, occasionally found all these conditions present, and when such is the case, the first step to preserve the trees is to have the ground thoroughly drained, by which means the temperature of the soil will be increased, and the latter converted from a dormant to an active state, and thus brought into a fertile condition as food for the trees. The roots should then be examined, and if any of them should be found to be in an incipient state of decay, or affected by fungoid growths, which is frequently the case, such should be cut off and removed, care being taken at the same time to preserve intact all the young roots, as these are the first to take to fresh soil, and thus renew the vigour of the tree. All ungenial and exhausted soil should be removed as far as is consistent with safety, and the vacuum filled up with rich friable loam, spreading the small rootlets carefully out with the hand as the work proceeds. Such trees often contain dead branches and splintered wood at the top, and where this is the case it should be neatly and skilfully cut off in such a way as to prevent the lodgment of water, and at the same time the wound had better be covered with a coat of paint. By applying this resuscitative process before the

trees are too far gone, the effects produced are simply marvellous, and many old stationary trees may be preserved in this way for many years after they had shown evident marks of failure and decline. In cases where the trees are comparatively sound, but beginning to show marks of decline, a heavy top-dressing of rich loam mixed with decomposed manure, leaf-mould, or wood ashes may be applied with advantage. I have likewise used road-scrappings mixed with lime for this purpose with the most happy results. Previous to applying the compost in this case, the surface of the ground around the tree should be slightly broken up with a fork, so that the stuff can be the more readily washed into the ground by rain, and thus promote early root action at the surface. Decayed holes in the trunk should be cleaned out and roofed over with zinc or filled with concrete so as to exclude water, and now at this season, when planting is about finished, the forester would do well to devote a little of his spare time to this matter.

J. B. WEBSTER.

ASH TIMBER FOR COACH-BUILDERS.

THERE are few instances in the case of timber where increased value over the raw material, by manipulation, is better seen than in the coach trade. Here, between the figure which the rough natural product sells for and the price which the manufactured article costs is a very wide margin for skilled labour. It would of course be a mistake to assume that timber is the only thing which is required to turn out the average type of vehicle which emanates from the coach-builder's yard, yet it is one which enters largely into its composition. Like most other branches of trade, coach-building has admitted to its service a considerable proportion of foreign material, but home-grown timber has not up to the present been banished from its use in this industry.

The most important tree to the coach-builder is undoubtedly the Ash. This, although pressed by imported wood of the same class, when really good is certain to hold its own. Used as it mostly is in very small dimensions, its toughness is the great essential. It has been from time to time pointed out that the supply of first-class Ash is rapidly disappearing, and were it not for the wood which comes in from abroad, and is used in its stead, would now be realising a very high figure indeed. The actual number of Ash trees growing—or rather standing—in this country at the present time is by no means inconsiderable, but there is scarcely a tithe which may be fairly classed as coach-builders' wood.

If home-grown Ash gets into bad repute, it will be through this circumstance, as from the mere sense of sight when the wood is sawn into planks, it is very difficult to distinguish what is and what is not really first-class material. It would of course be perfectly easy to determine at once that wood which showed signs of black heart, knots, or shakes would be quite unsuitable for introduction to the best work; but when two planks of what appears to be perfectly clear and sound wood lie side by side, it is not so readily decided which does and which does not possess the requisite degree of toughness. To be positively certain of growing tough and first-class Ash in any particular position is obviously beyond human skill, but there is certainly room for much exercise of judgment in this direction. There is one point in this connection where there seems to be a grievance, and that is in buying; enough distinction is not made in the price between what is first-class and what is indifferent Ash. Unlike most other wood, the younger and smaller Ash is cut in reason, the more likely it is to be

tough and lasting. With the landowner the object naturally is to make as much return as possible from his timber; therefore if no higher price is obtainable per foot for young and small tough Ash, there is no encouragement to sacrifice size to quality.

There is, however, another side to the question, and that is the presence of so many Ash in the hedgerows which have long ceased growing. It is a very doubtful point whether hedgerows are the places in which the best Ash is produced at all, but this is little aside the subject at issue. It is very clear that when a tree has ceased to increase in size, it has ceased to be of profit to the owner, and should be, as soon as circumstances will allow, cut down. Beyond this, with the Ash there is the question of rapid decrease both in its intrinsic and market values—more perhaps in the former than the latter. The whole of the existing Ash will have to find its way into consumption, and, in the majority of cases, will have a large percentage of skilled labour bestowed upon it. If as has been said, nine-tenths of this is, to say the least, of indifferent quality, there seems a likely prospect of much waste labour, *i.e.*, the employment of skilled labour on inferior material. It may be argued that long experience will be a sufficient safeguard against using any but the best wood, but in practice it is scarcely so, as such a large proportion of the raw product as what has been indicated cannot be discarded. There is room for the intelligent co-operation of the grower with the manufacturer in this direction. The process necessarily must be gradual, but it is important to be upon the right line of action. This I take to be, as an initial move, the overhauling of the existing supply of Ash, and the marking out of such trees as have not passed the period which has been spoken of, *viz.*, when they still retain their tough and durable qualities. What has already passed this stage could be dealt with as the opportunity arose. The longer it was delayed the more marked of course the deterioration would be, but it is not so essential a point as securing what is still at the age of its greatest usefulness. The adoption of this plan would certainly still further diminish the existing stock of the wood, *i.e.*, the stock standing in reserve, but it would open out a field for the planting and encouragement of young trees. There is a widespread feeling against too severely cutting into our comparatively small timber reserves, and it is one with which I fully sympathise; still it is of no possible use to retain a supply which is becoming of less value year by year.

The Ash is the one tree which in this respect requires really looking after, and if it could be worked out in the way proposed, a better era would have commenced for the grower and the user. There are, of course, other trades in which the Ash is used besides that of coach-building, but it will serve as an illustration of the principle. In another aspect the question may come nearer home still, as it is often the producer and the seller of the wood who has to repair to the coach-builder and invest in his manufactures. To help in producing the best possible material will be one step towards getting a reliable article in return.

WILTSHIRE FORESTER.

Sale of Oak timber.—The annual sales of Oak timber, the property of the Ecclesiastical Commissioners, Earl Cowper, and other landed proprietors in Kent, have been held during the past week, and have been attended by most disappointing results. Owing to the agricultural and general depression there was a very restricted demand, and absolutely none for the large trees. The nett result of the sales shows a decline of 30 per cent. on the prices realised last year.

THE ALDER.

THE Alder, as its name indicates, is essentially a riverside tree, and although in its ornamental character it cannot be compared with the Birch, it could often with advantage be substituted for the Willow, or selected in connection with it. The Willow in its maiden form is very commonly highly ornamental by the waterside, but the great danger of its use is that it will sooner or later be pollarded and its beauty destroyed. This is hardly likely to occur with the Alder, as when it is cut down, a mere stool is left, and the new growth will spring from nearly the ground level. In this way it is most generally cultivated, but here and there some fine examples occur of its reaching the dimensions of our larger forest trees. This, however, is not usually the common species (*Alnus glutinosa*), but the cut-leaved tree (*Alnus glutinosa laciniata*). Some writers assign the Alder to a position in a marsh or a bog, or some place where it cannot be seen; but although it may not be so ornamental as some species, I cannot agree with the idea that it should be so disposed of. Whether grown as a tree, or cut down periodically as poles, the Alder is certainly nothing to be ashamed of. I recently noticed a small plantation of Firs in a waste spot by the margin of a river. As was to be expected from the nature of the soil, these were gradually dwindling away, and will never be worth the sum they cost to plant. Had this site been planted with the Alder, by this time there would have been a thriving growth, and in due course a little belt of wood formed quite in character with the surroundings. It seems almost impossible now that so much is said and written upon trees, and the positions best suited to their propagation, that so little regard should be paid in making a selection of subjects. The value of the roots of the Alder in binding up the banks of rivers has often been referred to, and there is no doubt that in many cases they are very useful for this purpose. As all know who have wended their way much along by the riverside, it is very common to find spots which are of no use for culture or for pasture, and where, from a bend or some other cause, the action of the water is gradually widening the channel by washing away its banks. It would be absurd to suppose that the planting of the Alder, or any other tree, would entirely prevent this; but it is certain that when the roots become thoroughly established they will do much towards holding the soil above the water-line, which would otherwise, from being undermined, be continually falling away.

THE USES OF THE WOOD.—The Alder in the market, as regards price generally, gets classed with the Birch and the Poplar, and consequently does not command a very high figure. For its class, however, it is a very useful wood. According to old writers, it has a quality which appears to be but little regarded at the present day, *viz.*, that of enduring a long time under water or in moisture. It is stated that in the past it has been considerably used for piles. Assuming its properties to be as good in this respect as has been represented, there would now be a great difficulty in getting a supply of wood large enough for works of any magnitude, and whatever it may be worth in this direction, it is more likely to be used for small works of a private nature than in anything where material would have to be bought off the market. The Alder has been suggested as a suitable wood to cultivate for pit and mining props. Looking at the present position of the supply of this commodity, it does not seem as though there is much chance of Alder growing for propping being successful; the idea may be recorded for what it is worth for districts where propping is not

very plentiful, and where the soil is not fit for the growth of the woods which are more commonly used. In the districts where they are required, Alder of a suitable size is sometimes prepared for Hop poles, but on the whole it is more the wood for the turner than for any other handicraftsman. The smaller wood in the turning industry goes for bobbins, of which vast quantities in the shape of cotton reels and similar articles are annually consumed. Another use of a similar nature is the manufacture of brush backs. The toy broom of the drawing-room and the scrubbing broom of the scullery are alike prepared from this wood. Another use of the Alder, which was referred to some time ago by a writer, is the manufacture of clog soles. Here, in the south, very little of this work is seen, but for the soles of pattens it is occasionally cut up. For charcoal burning the Alder is regarded as of considerable value, and in some districts the better portions of the wood are turned to account for the staves of dry casks. As it has been stated, the wood is more generally grown in the form of poles than in that of timber, so the majority of the manufactures from it consist of small articles. Where the tree grows to what may be regarded as a timber size, the uses to which the Willow and the Poplar are generally put would as nearly as anything represent what may be ventured upon with the Alder. It is a wood which is spoken of as being used for wheelwrights' work, such as the lining of carts and wagons, but where Elm is to be had, and at the present prices, it certainly seems unadvisable to use Alder. For work where a soft and non-splitting material is essential, it may now and again be advantageous to use it, but the general lines upon which its admissibility may be determined are those previously given. D. J. Y.

CARRIAGE OF TIMBER.

In speaking of 50 feet of timber as a two-horse load, "Yorkshireman" first assumes (p. 388) that it will weigh but little more than a ton, and that a loss will be entailed by using two horses for such a small load; yet further on he says he is interested in the assertion that two horses are sufficient for the removal of trees of the average bulk of 50 cubic feet. What is to be made of these statements when placed side by side, I do not know. It is clear "Yorkshireman" must have been thinking of very diverse conditions in a very short space of time to have arrived at such opposite conclusions. To say that 50 feet of the lightest timber grown in these islands would not weigh much above a ton is to make a very extreme statement, as, except in the case of some of the Firs, which may have been allowed to lie about so long as to lose a great quantity of their normal weight, 50 feet of average timber would weigh nearer two tons than one ton. Take the case of Oak, Beech, Elm, or Ash at a relatively short time after being cut, and determine how much short of a ton 25 cubic feet would be. Taking the hardwoods through—which was the class of timber I had in my mind when writing—I do not think "Yorkshireman" will find that 50 cubic feet is a very bad two-horse load. This brings me to the second proposition where "Yorkshireman" directly negatives his first assumption. To this it seems hardly necessary to reply, as the propounder virtually answers it himself; yet, as the positions in which timber is found are so various, there are cases where 50 feet could not be moved with two horses. It must, however, be a very bad place indeed where four could not do the work, and these would be always available if done in the way I suggested. It is hinted at in one place that I have advocated the use of two-horse teams and lighter carriages more for the sake of argument than from the belief that they would answer better. I cannot accept this impeachment, but it gives me the opportunity of asking "Yorkshireman" whether it is not for something such a reason that he goes to the other extreme. It is perfectly obvious that the width and shape of the wheels will have much to do both with the ease of removal and the amount of damage done to roads. D. J. Y.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WEST MIDLAND FRUIT PROSPECTS.

ALTHOUGH the wind has been for a long time in the east, the weather has been remarkably dry, and the slight morning frosts we have had have fallen harmless on the most tender blossoms. On May 6 I completed my first disbudding of wall Peaches, and, judging from the way in which the flowers have set, we have only one tree, and that on a bad stock, which will let us off without much pleasant labour when the time arrives for thinning. The trees, moreover, thanks to repeated washings with soapsuds through the autumn and winter, are perfectly free from aphids and blister, and but for the removal of the decaying blossoms the usual washing with the hose would now be unnecessary. This, however, I never neglect, and all my trees having been slightly checked at the root while last year's leaves were yet upon them, mulching with long stable litter, washing the foliage, and a thorough soaking of the roots have this day been completed. At one time I was afraid my strongest trees had not properly matured their wood, but, judging from the way in which the main extension shoots, untouched by the knife, have set to the very tips, there exists but little doubt that our prospects with all healthy and well-managed trees are highly satisfactory.

Plums, Cherries, and early Pears on walls have also set well, and although literally devoured by aphides last year, soapsuds have done their work, for the branches and walls are free from Moss and Lichen, and the foliage is bright, broad, and healthy. Morellos on north wall, Pears, pyramids and standards, are now in full flower, but as yet it is too early to say how they will stand this parching dry weather. Fortunately, the ground is wet enough within, and showers which now threaten may tell greatly in their favour.

Apples in orchards densely laden with blossoms are very backward, and the foliage is more forward than I like to see it. Many people say the leaves protect the flowers, but I have often observed that the fruit sets best when the flowers precede them. The fruit on a few trees in the garden appears to have set well, the Astrachan being the most forward. This is an excellent early Apple which always colours well, but, strange as it may appear, the flowers are completely destitute of colour. Lord Suffield, a pale Apple, on the other hand, produces fine large crimson-petalled flowers, which should increase its value for ornamental planting. Now is the time to make note of the varieties with brightly coloured flowers, but instead of planting all that show the lovely crimson tint, I would suggest the selection of a few of the best in duplicate which brighten the landscape in the autumn and ripen fruit worth eating. Black Currants with us look starved and yellow in the foliage; Red and White are good, and Gooseberries untouched by birds or caterpillar are thickly set and perfectly safe, unless succeeding frosts prove unusually severe. Strawberries, which so far are unusually short in the leaf-stalk, as one might expect after such a winter, are producing flowers from every bud, a sure sign that crops of fine fruit must be secured at the cost of severe thinning. The earliest here now in full flower are Princess of Wales and La Grosse Sucrée. Vicomtesse Héricart de Thury may catch them

up, but at the present time it is a few days behind them. We are now busy mulching the beds with long fresh stable litter, as it can be used without interfering with the flowers or foliage, and in the event of rain holding off, the hose will be employed to wash down the ammonia. A correspondent inquires for a good late sweet Strawberry in the way of British Queen. The best with which I am acquainted is Loxford Hall Seedling. The quality and flavour of this variety are all that one can desire, but some complain of its being a bad grower and rather liable to die off. The same, however, may be said of The Queen and Dr. Hogg when grown on light warm soils, but give them deeply trenched, heavy calcareous loam, and put out good runners in cubes of new soil every year, and this disposition to die off will almost, if not entirely, disappear. Many varieties, not only of Strawberries, but of other plants, might be condemned if they refused to grow and do well under ordinary treatment, which might suit nine-tenths of the members of their respective families; but give them the one thing which the soil may lack, and complete success may follow.

Eastnor Castle.

W. COLEMAN.

ROSE GARDEN.

MARECHAL NIEL IN INDIA.

IN THE GARDEN of March 13 "W. I. M." makes out a strong case against dear old Maréchal Niel, and if all our experiences were as unfortunate as those described, the "Rose of Roses" would, I fear, soon sink into oblivion. It may interest some of your readers to learn how this Rose succeeds in India, where it necessarily receives very different treatment from that accorded it in England. To commence with propagation; this, in the North-west Provinces and the Punjab, is generally effected by budding on stocks of Rose Edouard (Bourbon), or by cuttings made of half-ripened wood, which take very freely; this method is now exclusively adopted in the Botanic Gardens at Saharunpore, where, I am informed, that the average of plants is about 95 per cent. of the cuttings inserted. In Lower Bengal we are compelled to adopt another method of propagating this, and in fact almost every other kind of Rose, that is, by approach-grafting, generally using an indigenous species as a stock. This is *Rosa gigantea*, belonging to the multiflora group, a plant of semi-scandent habit and a very vigorous grower, almost rivalling the Maréchal in this respect, and propagated most easily from cuttings.

CULTIVATION under glass is, of course, entirely unknown amongst us. Brick walls also attract far too much heat for Roses. For a quantity of plants, especially where cut flowers are a desideratum, an espalier fence about 8 feet high running north and south is, I find, the most satisfactory. On this the plants are trained as loosely as possible—in fact, almost allowed to grow at will—and in the course of from two to three years they form a dense hedge from 4 feet to 5 feet through. At the time of planting we dig a trench about 3 feet wide and 4 feet deep; at the bottom is placed a layer of 6 inches of ordinary steam coal (an effective preventive against white ants), and over this the same thickness of broken bricks of about 2 inches in diameter is put in order to ensure good drainage; then we fill up with a compost consisting of good turfy loam and old cow manure. For the first year the plants require no further manuring; but in the following October, that is, at the expiration of our rainy season, we remove about 12 inches of the top soil for a distance of about 2 feet all round the plants, exposing as many of the roots as possible to the sun, and they are thus allowed to remain open for about

three weeks. This ensures a thorough ripening of the season's growth. This system was described as a novel idea in one of the London gardening periodicals a year or two since, and, if I remember rightly, was termed "Mentonising Roses;" the idea, however, is undoubtedly of Eastern origin, having been practised for ages, so to speak, at the Ghazipore Rose farms. After exposure for the period mentioned, fresh compost is filled in, and the plants receive their annual pruning. This consists in cutting back all the strong wood about from 12 inches to 18 inches, and all weak, scrubby growth is cut back to within one or two eyes of the main stems. The plants require little or no attention during the next six weeks or two months. About the end of December the flower-buds commence to appear, and water must now be freely given. In large gardens this is supplied by irrigation channels, and the water is pumped up until the ground is completely saturated—till, in fact, it becomes little more than a mud puddle. This must be repeated at intervals of about a fortnight up to the commencement of June, unless we have exceptionally heavy rains—a very rare occurrence at this period, our rainfall from the end of October to the commencement of June frequently being under 3 inches, and in some years none at all; whereas from June to October we average from 70 inches to 80 inches.

So much for treatment; now for results. In the North-west Provinces, with a soil capable of producing the finest Roses in the world, Maréchal Niel thrives gloriously for a time. Budded plants, or plants on their own roots, grow equally well up to their sixth or seventh, or sometimes even their tenth year, but sooner or later premature decay sets in, and in Lower Bengal also plants propagated by either of the above methods succumb in precisely the same way. Plants propagated, however, in the manner described on *Rosa gigantea* fare very differently. In all my experience, extending over nearly twenty years, I have never found a plant grown on this stock affected with canker, except where the stock had previously perished. The Maréchal, in that case, must have pushed out roots of its own, and the stock must have died at a very early period after being planted. My oldest Maréchal Niels have now been planted upwards of thirteen years, and are as robust and vigorous as ever. From one plant alone in February last I cut more than 600 blooms. This is, of course, a small number compared with results frequently recorded in THE GARDEN, but it must be borne in mind that in this country Roses are really evergreen, and bear continuously more or less throughout the year.

STOCKS.—During the past ten years I have tried, I believe, every stock that has been recommended for this Rose, and the result of my experience is this, that the best preventive against disease is to employ a stock that is equally or more vigorous than the Maréchal, and the more closely allied, botanically, the greater the chance of success. The latter, I am aware, is in direct contravention to prevailing ideas on the subject, but it has been forced upon me by the success that has attended the employment of those good old Roses, Solfaterre and Lamarque, as stocks for Maréchal Niel. It is now nearly ten years since I commenced operations with these as stocks, and up to the present time have not lost a single plant from strangulation, while plants on Gloire de Dijon, Devoniensis, and on their own roots planted at the same time have long been dead. Plants on Solfaterre or Lamarque stocks possess one great advantage over those propagated on *Rosa gigantea*, and that is their first flush of bloom is produced quite a fortnight earlier—an

important point with us, as in an average season they are in good time for Christmas. It, however, yet remains to be seen whether the plants will prove as lasting as those on the giant Rose.

WANDERER.

Scented-leaved Roses.—I am sorry if my attempt to point out when technical terms are used they should be clearly defined has merely conveyed to "T. B." the impression that I can only admire one particular form of Rose, as I had thought myself especially catholic in that connection, and I am equally dejected to learn the "inconsistency" of trying to distinguish between the merit of a plant's habit of growth and the merit of its flowers. It might be interesting if "T. B." made a list of his favourite or most beautiful Roses to note how many of them were also included in the lists of exhibition Roses which have so little merit. I do not presume to champion any kind of teaching; but if the "generality of people" and "the public who are fond of gardening," as represented by "T. B.," can find neither elegance nor beauty in the Roses displayed at the great shows during July, the "select few" must have a wonderful power of spreading themselves about. For the signs of the times to which "T. B." alludes no doubt are the increasing number of Roses shown in all parts of the country, the vast extent of the great metropolitan exhibitions, the lengthening lists of members of Rose societies, the annual additions to the ranks of exhibitors, and, above all, the enthusiasm of those few unconsidered outsiders who contrive somehow after every great exhibition to get up the semblance of a crowd in their anxiety to obtain possession (even if it be by considerable payment) of the "inelegant" and "conventional" productions of the wicked exhibitor.—T. W. G.

Rose William Allan Richardson.—This Rose with me this season has been quite sportive in character; one large branch of it on a plant in a pot has produced several flowers nearly white, but in shape and build in no way different from the true form and quite as freely produced. Has anyone else noticed any variation in blooms of this Rose? With us there is another Rose, named Shirley Hibberd, in the same line of colour which sports every year in the same way, producing many blossoms of a creamy white, and that character is evidently quite fixed in one branch of it, for it has continued to produce white flowers for five years without interruption. Whether right or not I do not know, but it seems to me that this trait in these two varieties points pretty conclusively to the way in which they have originated, viz., as sports. I have never cultivated any other Rose that sported in the way just named as the varieties in question.—J. C. C.

Butterworts.—One of the prettiest of all bog plants is the greater Butterwort of Killarney (*Pinguicula grandiflora*), with its pale yellowish green leaves and rich violet-purple blossoms, but I was a little startled yesterday by the receipt of a bright rosy pink kind, which seems exactly like it, excepting in the one matter of colouring. It was found last year rather plentifully, but very local, in the Alps of Dauphiny, and I should like to hear if there is any record of a pink-flowered species being indigenous to Europe, if we except the Italian *P. hirtiflora*. I have referred to Wood's "Tourist's Flora" and also to Bennett's translation of Dalla-Torre's "Tourist's Guide," but find no allusion to a variety of *P. grandiflora* with rosy pink flowers. This form may be a reversion from the type caused by the suppression or absorption of the blue pigment, as now and then happens in the case of the *Polygala vulgaris* of our hillside meadows, which not only reverts from blue to rose, but even to white, a colour much lower in the social scale. This colour-mystery is one of the most interesting of all the botanical

questions of our time, and is worth careful study, but, in the meantime, can anyone give information as to this pink Butterwort of Dauphiny?—F. W. B.

KITCHEN GARDEN.

LATE CELERY.

WHEN Celery is required as late in spring as it is possible to get it, the seed should be sown on a warm border in the open early in May. Space enough must be allowed for the seed-bed to produce a sufficient number of plants without transplanting them, an operation which, in the case of late Celery, would check its growth too much, unless treated with more than ordinary care. Therefore, if more plants should come up than are wanted, they must be pulled out as soon as they have grown an inch in height, in order that the plants left may stand from 3 inches to 4 inches apart each way. It is desirable to select a dwarf-growing hardy Celery for this purpose. We find Major Clark's Solid Red to stand the winter best; therefore we grow it in preference to any other sort. As every encouragement must be given the seed to vegetate, the surface soil must be kept moist. We generally place a couple of mats on the bed as soon as the seed is sown, pegging them down to prevent the wind from blowing them off. If the mats are allowed to remain on the bed for about eight or nine days, the seedlings soon appear after they are removed—in fact, much quicker than when the surface is left exposed. The treatment of Celery to stand through the winter differs somewhat from that given main crops. In the first place, no attempt is made to get it so large, nor is it expected to be so well blanched. Therefore, such deep trenches as are used for ordinary Celery are not required. We dig out a trench 9 inches deep, and in this are placed 3 inches of rotten manure and 2 inches of soil on the top. The trench is then ready for planting. We find the middle of August to be quite soon enough to get out the plants. When planted, they get a good soaking of water if the weather is dry, and then we leave them to take care of themselves until the beginning of November, when each plant is tied up with a piece of matting, and a little earth worked down from the sides so as to earth them up about 2 inches in height. Half of the stock is left in this condition to go through the winter, and the other half is earthed up altogether about the middle of December. If the winter is not too severe the partially earthed-up plants sustain no injury, and then they receive their final earthing early in February. Under this treatment they keep later in spring than the others, but in order to make sure of their standing through a hard winter they must be earthed before severe frost sets in. Celery is more tender when blanched and ready for use than at any other time; therefore the longer it is earthed before severe frost reaches it the more it suffers. This is why Celery earthed up late in the year escapes while much of the main crop is rendered worthless.

J. C. C.

Tomatoes in pots.—The great demand that has arisen for Tomatoes has led many to give up other crops and to concentrate their energies on the production of Tomatoes, which never seem sufficiently plentiful. With such a strong-rooting plant as the Tomato, there is little difficulty about growing it, the main question being how to get a maximum weight of crop from a given space. We find confining the roots to a limited area, and cutting off all side shoots, so as to make regular cordons of each plant, to produce the best results. For main crops under glass, we sow in January in heat, and grow the young plants on by giving them successive shifts until they are in 8-inch pots, which are allowed to get rather full of roots. This induces free flowering, and then they are set on boxes filled with good rich soil, and allowed to root through into it. By keeping the soil moist by frequent applications of water, a heavy crop

may thus be produced in any position under glass exposed fully to sunlight. As regards varieties, I find a good selection of the old smooth red kind to be very prolific, and not easily excelled for general use; but all have their special merits. The main point is to prevent excessive leaf-production by timely attention to pinching out the side shoots directly they are visible, and only leaving large and healthy foliage on the main stem. It is sheer waste of force to let a crowd of shoots grow and then cut them off. Preserve the foliage on the main stem intact, and do not let any other be produced. Plenty of fruit will set on the leading shoot for any one plant to swell off to full size.—J. GROOM.

Late-flowering Daffodils.—I send you a box of Daffodil flowers that are all distinct. The Nelson group has been very fine with me, but I am told they perish on the London clay. A variety of trilobus which we get from Holland I consider to be the best of all for cutting purposes. The blooms herewith sent are now six or seven weeks old, and if put in water with any other sort, they are stiff and full of effect when all the rest are gone. With the poeticus section there will be a "big war" yet. I send you dwarf forms from Italy. They peep from the soil like Snowdrops, bloom very early, and are of all sizes and shapes. They come into flower with angustifolius and ornatus. I fancy there should be a certain portion of the Narcissus committee set apart to unravel the poeticus section. I have the true recurvus of English meadows now in bloom, planted for two years in a fine rich, deep soil, and it still keeps its character with the ugly, unsightly foliage, increasing rapidly in oblong clusters, and makes small ill-shapen bulbs. I have another sort, blooms of which I send; the foliage is erect and very stiff, and the blooms are flat. This I believe to be majalis. The true poeticus is also in flower, and a variety that comes from Holland with a distended spathe. The foliage of this is also very neat, and the blooms fine. Verbanensis is also in bloom, a pretty kind for rockwork, the blooms being small and neat. I have now been cutting Daffodils in the open since the 10th of February, beginning with Ard-Righ, or Irish King; then the white variety, Bishop Mann, and Tenby and princeps about the end of February, so that by the time the double poeticus, gracilis and muticus are over, I shall have had four months' enjoyment of Daffodils. I fancy that in England prolonged succession may be frustrated by late frosts and then very hot sun-heat when the flowers are at their best. With us they are cool, and keep in good condition much longer. Daffodil knowledge is yet in its infancy. Anyone purchasing a stock of white moschatus from the Pyrenees will be disappointed as to size. It is my belief that all the small forms now being sent from there will, in the course of three or four years, grow to a large size. Minnie Warren has maintained its small character for years in our genial soil; so has white minor. I am told substitutes have been sent out this spring from these wild Pyrenean gatherings for M. Warren. This should be guarded against, as the plant is distinct.—W. B. HARTLAND, Temple Hill, Cork.

Siebold's Primrose.—This most beautiful Primrose, which goes also by the name of *Primula amœna*, is just now in the full height of its flowering season. The fine group of varieties shown at South Kensington on Tuesday last seemed to be quite a revelation to some of the visitors, and really it is not too much to say that even now after this variety has been in gardens for years it is still a little-known plant. The numerous varieties which now exist of it astonish everyone. There are now whites and every shade of tint between these and deep crimson. Some have purple and slaty hues, and others are beautifully mottled and variegated. Some have petals uncut; others are deeply fringed. In short, there is enough beauty and variety in this Primrose to satisfy even the most enthusiastic flower lover for some weeks at this season. Mr. Hartland has just sent us a gathering of the different varieties of this Primrose which he grows at Cork, and, judging from his specimens, it seems to succeed well with him.

FLOWER GARDEN.

SUB-TROPICAL GARDENING.

I HAVE occasionally come in contact with friends—gardeners—who have considered the idea of having fashions in gardening so utterly absurd, that their expressions of contempt for them have verged very nearly on the profane. I could, I think, tell you, Mr. Editor, why they got so wrath, but it must only be whispered—they were afraid of the work that new fashions bring. My best wish for these friends is that they may get into the service of an employer who is very fond of gardening fashions, and if he gives them all the present styles, Chrysanthemums, single Dahlias, herbaceous plants, and Orchids, to carry out fully—provided he affords abundant help—I for one shall rejoice that they have met with their deserts. I have been led to make the above remarks by reason of the would-be obloquy that is sometimes tried to be thrown on what is known as sub-tropical bedding, and of which the illustrations accompanying these notes, though very beautiful, give but a faint idea of the many grand effects that it is possible to make with fine-foliaged plants—not necessarily tender varieties either, for there are numbers of plants, some hardy and others very nearly so, that are equally well suited to this style of gardening. The plants in the arrangements illustrated, Castor-oils (*Ricinus*) and Indian Shots (*Cannas*), are two of the plants most generally used for this purpose. First, because they are easily raised from seeds; secondly, they grow away well in the coldest summers; and thirdly, they withstand wind-storms and heavy rains better than most of the tender section that fail to make satisfactory growth except in a hot season, this last being an excellent reason for discarding all such plants, a procedure that as regards our own practice we have now followed for some years, and in each advancing year—almost unconsciously—we find ourselves discarding more and more all plants that are short-lived, that is, cut down by frost, or that require heat and house room in the spring time. Unfortunately, through the severity of the winter having killed some of our most valued all but hardy plants, such as Australian *Dracænas*, *Eucalyptus*, *Chamærops*, *Melanthus*, and the Tree Mallow, we are this season compelled to revert to the employment of a larger number of tender plants than usual, but it will, we hope, be for one season only. The following is a list of kinds more or less tender that we are preparing for use this year: *Acacia lophantha*, *Amarantus caudatus*, Chilean Beet (*Beta chilensis*), *Cannas* (several varieties), Giant Hemp (*Canna-*

nabis) white Fishbone Thistle (*Chamæpeuce diacantha*) green kind (*C. Casabonæ*), Blue Gum (*Eucalyptus globulus*), *Ferdinanda eminens*, *Grevillea robusta*, Tobacco (*Nicotiana wigandioides* variegata), *Perilla nankinensis*, Castor-oils (*Ricinus*), several varieties, *Salvia argentea*, *Solanum robustum*, *S. marginatum*, and *S. pyracanthum*, *Wigandia caracasana*, variegated Maize (*Zea japonica* variegata). Of course there are numerous other species of plants that might be used, but this selection has the merit of being economical; the seeds are cheap, and the labour and appliances used in raising them are at the command of most gardeners who are required to carry out this phase of summer bedding. Of suitable hardy species of plants for producing sub-tropical effect, the following we have proved to be amongst the best: All the finely cut-leaved, and particularly the coloured foliaged, varieties of Japanese Maples, the variegated variety of *Acer Negundo*, *Aralia Sieboldi* and *A. canescens*, Bamboos, *Arundinaria falcata*, *A. conspicua*, *A. Donax*, *Bambusa Metake* and *B. Fortunei* varie-

for summer use only are *Gnaphalium lanatum* variegated *Mesembryanthemum*, the creeping *Abutilon vexillarium* variegatum, *Cineraria maritima*, *Coleus Verschaffelti*, and *Amarantus melancholicus*. No matter which of the two modes of arrangement is adopted, the outer margins or edgings of beds should be different from the plants contained in the beds; the enclosing framework, in fact, though it should always harmonise, should never be of the same colour as the centre, and its width and height should be decided by the size of the bed and height that the central plants attain. On account of the term sub-tropical bedding plants, most people (myself once amongst them) came to regard the introduction of flowering plants amongst them as, to say the least, inappropriate and contrary to good taste, and if it be such, I am guilty—but it has proved to be pleasurable guilt—and, in order that others may share it, I give one or two examples of arrangements of this double style of bedding. Let us take a bed of circular form, there is a tall old plant of *Acacia lophantha*,



Group of Castor-oil plants and *Cannas* at Waddon House, Croydon.

gata, *Ailantus glandulosa*, *Bocconia cordata*, *Chusan Palm*, *Chamærops humilis*, *Funkia Sieboldi*, *F. Sieboldi* variegata, *F. ovata aurea*, *Ferula communis*, Pampas Grass (*Gynerium argenteum*), *Melanthus major*, New Zealand Flax (*Phormium tenax*) and its variegated type, *Rhus glabra laciniata*, *Yucca filamentosa*, *Y. variegata*, and *Y. recurva*. There are numerous other hardy kinds that we occasionally use as undergrowth to the taller plants, which latter are, in that case, necessarily planted thinner, and are far more effective than are beds of but one or two kinds of plants that always present a bunched appearance. The following are amongst the best of the hardy under-growth plants for association with the hardy taller species just named: All the variegated *Euonymuses*, *Snow in Summer* (*Cerastium tomentosum*), variegated *Coltsfoot* (*Tussilago Farfara* variegata), *Dactylis glomerata* variegata, *Pyrethrum Gold Feather*, *Herniaria glabra*, *Veronica rupestris*, and the mossy kinds of *Sedums* and *Saxifrages*. Other excellent kinds

then three single Dahlias, next six large plants of *Ferula communis*, and round these an outer circle of *Grevillea robusta* and white-flowered *Abutilon Boule de Neige* alternated, the edging being white Thistle (*Chamæpeuce diacantha*). The beautiful effect produced by the flowers of single Dahlias intermixed with the Fern-like foliage of the *Ferula*, or of the white-flowered *Abutilon* with the grand foliage of *Grevillea*, would, I think, convert the greatest stickler for propriety into a disciple of this mixed way of planting. Again, in another round bed there is in the centre an immense old stool of *Bocconia cordata*, which possesses the combined merits of hardiness, grand, finely-cut leaves and most graceful panicles of flowers; this is surrounded by the tall-growing variegated *Abutilon*, the next line or circle being *Ricinus* *Gibsoni* pinched and dwarf *Sunflowers* alternated, the edging variegated *Euonymus*, and groundwork *Cineraria maritima*. The next arrangement is a bed of a large oval form; the central plant is Giant Hemp, and two end plants *Ricinus*, intervening plants tall-growing *Cannas*, next a line of miniature *Sunflowers* and Australian *Dracænas* alternated, and *Grevillea robusta* and *Ficus elastica* in the next line, the whole having a broad edging of the mauve-coloured *Mesembryanthemum conspicuum*. One of the best foliaged arrangements we have yet had was a very large round bed; the central plant was Giant Hemp, next three tall *Ricinus*es, then a row of *Cannas*, next *Aralia Sieboldi* and *Ricinus* *Gibsoni* pinched to keep them dwarf; the two outer lines consisted of the following four kinds of plants in mixture: *Solanum robustum*, *S. pyracanthum*,

S. marginatum and *Perilla*; edging plant *Gnaphalium lanatum*. These examples will be sufficient to indicate my style of arrangement; not that I think them suitable for everybody, for tastes differ; besides, position or situation of the garden has always to be taken into account. For instance, supposing that the sub-tropical garden is in an open position and conspicuous from various parts of the grounds, nothing could be more appropriate than that the arrangements should be large masses of one species of plant, for the simple reason that distant effect should in such a case be the first consideration. If, however, the garden is a sheltered place (as it should be) and well backed up with trees, shrubs, and turf, then the mixed style of planting will be found to be the best, as it most certainly also is for single beds in quiet nooks among the shrubberies. My *final* consists of a warning; it is that all preparation of plants and all arrangements will be useless unless the beds are well prepared by good drainage, deep trenching, and high manuring. Our summers are so short, that to get anything like satisfactory results we must warm the soil by good draining, and, by deep tilth and by rich food, push the plants along to perfection.

W. WILDSMITH.

NOTES FROM BADEN-BADEN.

SAXIFRAGA SPECIOSA, a hybrid between *Stracheyi* and *cordifolia purpurea*, has been unusually beautiful, its large umbels of full-sized, bright rose-coloured flowers being very attractive. As to *Iris*es, I. Leichtlini has chestnut-brown blossoms, whilst those of I. Korolkowi and some new species from Turkestan show an exquisite network of maroon, olive-red, and violet on silvery grey grounds. The little *I. arenaria* and *Blondowi*, with their golden-yellow flowers, pleasing in outline, perfume the air. *I. precox*, a very dwarf, large bluish grey-flowered species, forms a good companion for *I. pumila macrocarpa*, clothed in indigo and violet. The beauty of *I. paradoxa*, now re-introduced from the Caspian Sea, is truly striking; the standards are comparatively large and of a dark violet colour; the claws are ochreous yellow, speckled with small crimson spots; and the falls, which are attenuated, are tongue-like, and much resemble small pieces of black velvet. *Ixiolirion macranthum* is another desirable novelty. Its flowers, which number about twenty in an umbel, are twice the size of those of the other species. The pale blue *Ramondia serbica* and the dark blue *R. Nathalie* are very gay just now. *Vicia armena*, clothed in pale green, has very large and showy spikes of bluish purple flowers. Of *Trillium grandiflorum* a very large flowered variety is grown here as *grandiflorum majus*, and is really a very distinct plant. In the greenhouse *Lachenalia Cammii*, a hybrid between *pendula* and *aurea*, raised by Dr. Camm, of Hereford, is making a show with its large spikes of yellow and red flowers, which are slightly tipped, or rather shaded, with green. It is a robust grower, and will be a welcome addition to the other sorts. Its leaves are large, regularly spotted, and the spikes are strong and borne well above the foliage. It produces as many as 20 bells on a spike.

MAX LEICHTLIN.

SHORT NOTES.—FLOWER.

Tritonia squalida.—I have only grown this *Tritonia* in pots; therefore I do not know whether or not it is amenable to any other system of culture. In pots it flowers freely, and gives but little trouble. I do not consider it equal to *T. aurea*, but it has the merit of flowering before that variety, being generally in blossom in a cool house by the middle of May, and it is of dwarfer habit. The flowers, too, are suffused with a stronger tone of red. —J. C. C.

Akebia quinata.—This grows freely here, and produces its pretty blossoms in great profusion, planted at the foot of a south wall. If wires or other supports are near, it requires very little attention in the way of training, as it clings closely to anything with which it comes in contact. The leaves, owing to their firm texture, are useful in a cut state, when associated with flowers, for the decoration of small vases. —E. MOLYNEUX, *Belgians' Waltham*.

NAMING AND CLASSIFYING DAFFODILS.

THE Daffodil season is now almost over, and certainly it has been a long one. We shall probably see some exhibited at the next meeting at South Kensington and perhaps at Regent's Park, and these will conclude the public appearance of Daffodils for this year. Those unfortunately who have not attended a festival of Daffodils, such, for instance, as that held at South Kensington the other day, cannot realise how many and beautiful are their forms, and what close study is needed to enable one to enter into a thorough appreciation of their minute and in some cases, perhaps, trifling points which make up diverse flowers. The fact is, great growers of *Narcissi* who send huge bunches of flowers to our shows are all trade growers and have a deep interest in the sale of their infinitude of varieties. Did one of the big groups of flowers come from an amateur grower who was more desirous to instruct than to dispose of his roots, he would most probably in the first place set aside all inferior or worthless sorts, adding to each one "superseded by some other variety." That course would enable the public at once to note what kinds to avoid, and trade growers would do well to destroy them. Then in such a collection we might hope to see all kinds not only legibly, but sensibly named. The numbers of Latin names, such as *maximus*, *obvallaris*, *incomparabilis*, and myriads of others, all no doubt perfect in the estimation of the botanist, and possibly correct enough if adhered to, sounds absurd when allied to English common names, such as *Mary Anderson*, *Sir Watkin*, or *Princess Mary*, and it is even more absurd to find one variety named *Mary Anderson* and another also of recent introduction and closely allied to it with the latinised appellation of *Barri conspicuus*. It would have been just as absurd to give names of this kind to *Hyacinths* and *Tulips* as to *Narcissi*. Happily, in the naming of *Hyacinths* and *Tulips* more good sense has been displayed. Then a desirable feature in our amateur's collection would be an arrangement into decided groups, so that those anxious to obtain useful information as to family relationships might gather it without much difficulty. The grouping into bold sections according to character would render special service, especially if only the best of each section were retained.

A. D.

Gentiana acaulis.—In a garden in which, perhaps, as many hardy plants are cultivated as is generally to be found in private gardens anywhere, this lovely *Gentian* surpasses all others that are in flower at the same time, slightly elevated masses and broad lines of it being clothed with myriads of flowers of the deepest blue. Some of our plants which are growing on slightly raised mounds amongst stones suffered greatly from drought last year, but when well watered in dry weather and a green branch or two laid over them to break the force of the rays of the sun, these mounds always produced the greatest number of flowers. I would recommend all who are not successful in getting this *Gentian* to grow in ordinary soil to place some flat stones edgewise, then fill up the spaces between them with good loamy soil, and after that dibble in the young plants. Those who are prepared to afford plants of this *Gentian* the requisite degree of shade and water during the summer may safely make new plantations of it as soon as the plants go out of flower. Plants thus treated will produce a few flowers next year; but when they have to take care of themselves, September is the best month in which to plant. —J. C. C.

New Cannas.—The following varieties, raised by M. Croix, of Lyons, are said to be far in advance of any now in cultivation, both as regards beauty of foliage and brilliancy of bloom: *grandiflora picta* is clear citron-yellow; *Commandant Rivière*, rosy red, dotted with golden yellow; *Claude Bernard*, fine red, shaded with yellow; *Madame Bernard*, golden yellow, striped with bright red; *roseiflora*, fine magenta-red; *Emile Guichard*, deep vermilion-red; *Madame*

Alcagère, fine brilliant orange-red; and *Emile Leclerc*, crimson-red, bordered and striped with golden yellow. —J. C. B.

NOTES ON HARDY PLANTS.

ANDROSACE CARNEA AND **A. LAGGERI** are among the freest of the family of *Androsaces*; they will run over the little pots which are plunged in sand and root like bits of *Stonecrop*. There can be no doubt that when these are put under proper conditions, they are no longer to be deemed fickle, and at the same time they belong to one of the brightest of alpine families. These two kinds most readily root from the spreading offsets, and bits slipped off and stuck into sand and peat, where, however, moisture should never be wanting, very soon grow into strong plants. I think the main point, after giving them this class of soil, is to depress the surface on which they are set, so that plenty of moisture can collect about them.

CROCUS RETICULATUS.—I find that amongst plants of this there is considerable variety, and this fact alone should commend this species to the notice of those who are wanting something both beautiful and striking in the way of miniature flowers for rockwork. I find it to do well in gritty loam, such as we should make by mixing rotted turves with sandstone grit.

MEGASEA CILIATA and also all the hairy-leaved varieties are in fairly good form, and hardier than we took them to be. By accident they had been left out during the past trying winter, and not a plant is, I believe, killed, though the old leaves, which when sheltered may be termed evergreen, have become much blackened; the midribs and middle parts are not dead, and the roots are as sound as ever. If with even these drawbacks we can plant out this distinct and beautiful section of *Saxifragas*, we shall have added something to our rock gardens at least equal and somewhat similar to the various rare and charming *Ramondias*.

PRIMULAS.—These are very late this year, and even those which came into flower first yet linger in blossom, thus showing, I think, that a late season is conducive to flowers of more substance and more enduring quality than those of an early one. The kinds at present in blossom are *P. Allioni*, *denticulata*, *d. purpurea*, *d. capitata* and *d. Henryi*, *cashmeriana*, *Murettiana*, *ciliata*, *c. purpurea*, *viscosa* in variety, *intermedia* (of which, and I think naturally enough, there are several varieties), *latifolia*, *hirsuta*, *carpathica*, the pretty *nevalis* (true rosy purple form), also the white variety of gardens, *integrifolia*, *pubescens*, *longifolia*, *Obri ti*, *minima*, *Facchiui*, *daonensis*, *in flata*, *carniolica*, *Wulfeniana*, *spectabilis*; less rare varieties of the *curtusoides* section, *scotica* from last year's seed, our own *Bird's eye* or *farinosa*, *marginata*, and, of course, a host of *Auricula veris* and *acaulis*. Strange as it may seem, nothing is more beautiful than the old *Barfield Oxlip*, especially when grown in a bit of rich soil and kept well top-dressed; all collections would be greatly enriched by the fine yellows of *inflata*, *Obri sti*, and *carpathica*; *hirsuta* is a little purple gem, though rather weak in the scapes, and *Murettiana* commends itself for its bright purple colour, especially when the pips, somewhat funnel-shaped, are scarcely opened. I have said before that *spectabilis* is a better coloured variety than *Wulfeniana*, but this only occurs in the case of well established plants. I always find that the coriaceous-leaved section is somewhat slow to establish itself, at least, as regards a well-bodied colour in the flowers which they produce; plenty of light should be afforded all the species of alpine if we want to fully realise their colour-beauty.

CORTUSA PUBENS is a charming little object at this time of the year. It is almost white with down and the leaves are prettily cut. It is earlier than *Matthioli* and as hardy as the stones between which it loves to grow. A little tuft here and there may be strongly recommended for choice bits of rockwork from which strong growing plants are altogether absent.

HUTCHINSIA PETREA, one of the prettiest of *Crucifers*, luxuriates on a dry soil. I think this is a plant which ought to be more cultivated than it is. Its habit is all that could be desired, and the distinct blue-green hue of its foliage renders it well adapted

for planting along with other less showy things as regards habit and foliar tints. The flowers are pure white.

MEUM ATHAMANTICUM.—Scarcely another plant, I think, could be mentioned to compare with this as regards beauty of foliage at the present season. It is hardly enough to say that it is beautiful among so many others of which the same may be said, and, being a native plant, its hardiness of course is beyond question. It might be introduced to the rock garden with great advantage. If given a sandy soil, I find that it increases pretty fast. That is not all. I find that the growth is much more vigorous when the crowns are divided every year, or where it does not grow freely perhaps every two years. It is not needful to divide the roots far asunder, as then the effect of grouping would be lost, but if each offset is removed, say, 2 inches or 3 inches apart, the patch will not be wanting in density, and the plants will be afterwards benefited.

DOUBLE WHITE ROCKET.—This I have examined from no less than five sources, and all alike are infested with caterpillar, which is always found rolled up in the smaller young leaves. I think it would be well to make the search for and destruction of this pest part of our treatment of this plant, so nearly is it identified with it.

ONOSMA TAURICUM.—From all parts one hears that this plant has been killed during the past trying winter. I think it may be safely stated that it is not to be trusted in the open, and that it can only be deemed really safe under the shelter of cold frames during wet and fogs. It is, however, an advantage to bare the crowns pretty well during the wet season. This may seem like inviting injury by frost, but I do not think that the plant suffers from cold nearly so much as from wet, and if by baring the crowns we can get rid of the wet, we at least allow the frost less grip of the plant.

ANEMONE RANUNCULOIDES.—This, notwithstanding its Buttercuppy appearance, is a most desirable little flower, and well-established pieces of it have a striking effect. The beautiful bit of foliage strongly reminds one of that of the yellow Fumitory; and if luxuriously grown, the beauty of the plant is much enhanced, the bright yellow flowers set in the midst of the leaves being very pretty; they are even more telling than when numerous in proportion to the spare foliage. I find nothing suits this plant better than a mixture of old Cocoa-nut fibre and sandstone grit, and the pots in which it is grown should be small. Plants of it are thus kept compact. I find many think it best to plant it in the shade, but I have always found it most healthy and the flowers more durable when grown fully exposed both to light and the breeze.

RUBUS CHAMEMORUS.—The leaves of this Bramble, when young, crisp, wrinkled, and of a pale green colour, are very pretty. Having short stalks, they form a pretty garnishing for the seams of nearly sunken stones in rockwork. It is a dwarf plant, but deserves praise on account of its flowers and fruit. It thrives best in a bed of peat of putty-like substance, slightly mixed with a little coarse sand. I have long grown this in 6-inch pots, and I have found it best not to drain them.

SAXIFRAGA FLORULENTA.—Of all the rosette section, if not the largest, this is one of the most distinct and characteristic. The leaves are small, short, and densely, but most evenly, arranged. The raised part reminds one of longifolia, but the under part of the rosette is ball-shaped, while the upper part is in the form of a cup. We have, therefore, in this plant a combination of rosette forms. Its culture is not of the easiest, so far as my experience goes, and I think it as well to allow it its own way as regards its stems—that is, it should not be planted too deeply nor yet be stripped of its old foliage, but be allowed to stand as it were in a leggy state. I have grown it for several years, but never yet had the pleasure of seeing its flowers.

PRIMULA CAPITATA GRANDIFLORA.—This is a variety which I have but recently received. Its flowers strongly remind one of those of *farinosa*, but they are larger, as is also the foliage. The bract is a pretty feature, large compared with the small umbel of bloom, evenly arranged all around, equally divided

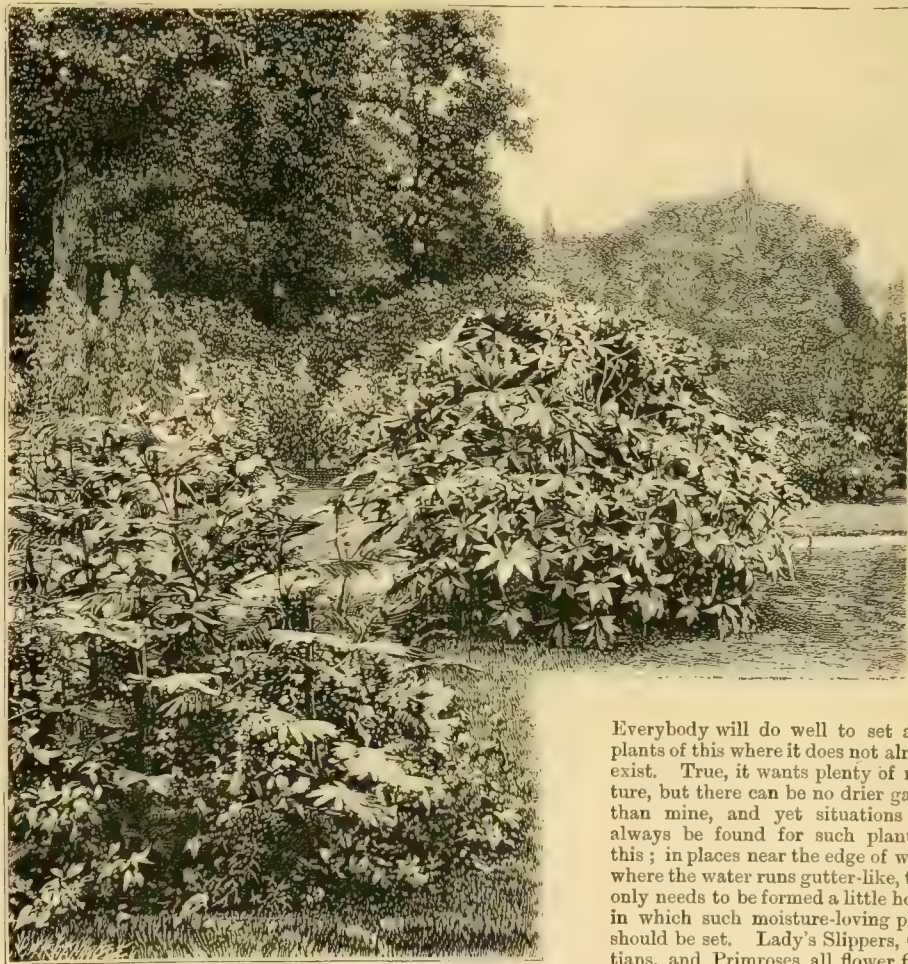
and furnished with golden farina, as are also all the buds and the upper half of the scape. My plant is small. What the usual height may be I cannot say, but the scape of mine is 4 inches long and very stout. It is a pretty variety; doubtless we shall hear more of it shortly.

PRIMULA PURPUREA (Roylei) is a most distinct species, nearly white all over, or, I should perhaps say, the farina is silvery white and thickly laid on. The under surface of the blue-green leaf is very thickly coated with it. The habit is erect and rather attractive.

THALICTRUM ANEMONOIDES FL.-PL.—Amongst other double flowers, such as the double blue Hepatica and the double *Anemone nemorosa*, this is a little gem, though much more puny than either of the plants just named. It seems happy in a mixture of peat and sand, but cannot endure drought. If set out on rockwork the surface should be depressed so that water can naturally collect about the tubers. Its

too much moisture in winter. Indeed, the bulbs, when put in in autumn, should be planted on a small mound, and as they should be set somewhat deep, the mound, of course, should be made in proportion. Just the reverse condition of soil seems to be wanted in the summer time; then the presence of moisture is desirable, and this can be secured by filling in soil around the mound and leaving a slight depression somewhat near the plant. In these conditions of dryness and moisture consist the whole secret, if there be one, of success in the cultivation of a plant which many fail to manage.

CALTHA LEPTOSEPALA is at present one of the most striking plants in the herbaceous garden. Its flowers, which are nearly 2 inches across, have large white sepals and a tufted pale yellow centre; it almost reminds one of a white Water Lily. The foliage, which is very ample, is of a fresh green hue, and also reminds one of that of an aquatic plant. The flower is borne on a strong scape and well above the foliage.



View in the subtropical garden at Heckfield.

hardiness is beyond doubt; some roots in small pots which were frozen through seem to have sustained no harm.

VERONICA SALICORNIOIDES.—This has proved to be one of the hardiest of recently introduced dwarf shrubby species. Very small plants of it, quite exposed all winter, are now pushing new leaves, and have a very lively appearance. The pale green older parts are all tipped with yellow new growth, and its spreading, tree-like habit further commends this species as a distinct rock shrub. It is in no way particular as regards soil; sandy loam or sand and leaf-mould suit it perfectly.

ARISEMA TRIPHYLLUM is not only hardy, but a plant which increases most rapidly, quite as freely as the common *Arum italicum*. The soil in which it is placed should be very light, and such as will not hold

Everybody will do well to set a few plants of this where it does not already exist. True, it wants plenty of moisture, but there can be no drier garden than mine, and yet situations can always be found for such plants as this; in places near the edge of walks, where the water runs gutter-like, there only needs to be formed a little hollow in which such moisture-loving plants should be set. Lady's Slippers, Gentians, and Primroses all flower finely in such situations.

GAZANIA LONGISCAPA.—It is to be regretted that this charming plant is far short of being hardy; not only was it severely cut with the first frost, but every inch of the plant, a very strong one, has decayed during the winter. Many plants which suffer, but start again, from a partially damaged crown we deem tender; but in the case of this *Gazania* there is no crown, no root, no anything left; there is in it a total want of power to resist cold.

CUTTINGS OF HARDY PLANTS.—Many of these may now be put in and grown into fine plants for autumn planting in open borders. There is one little point about striking cuttings worthy of notice and not generally observed, if even known. It is keeping their leaves as fresh and firm as possible. Take cuttings from where you will, they are nearly always inclined to one side as regards the leaves, and what I want to say is this, that if you set the cuttings so that

the strong light catches the under surface of the leaves, you not only place them contrary to what they have been, but you set them in such a way that a more rapid means of withering them up could scarcely be devised. This sudden subjection of the under sides of leaves to full sunshine, whether in the case of established pot plants, seedlings, or cuttings, is, I feel sure, of sufficient importance to merit attention.

RAISING SEED.—Raising seeds of hardy plants, as everyone knows, is easy enough; still, many fail to become successful seed-raisers, and among that number I fear I must class myself. Many fatal errors are committed either by pouring too much water on at a time, thus causing flooding, or by allowing fierce sunshine to dry up the seed. In order to obviate these mishaps, little dodges have been adopted, which have proved effective, the results being steady, and often rapid, germination, and a young plant of more than ordinary strength. The means employed have been in some cases scattering sandstone grit somewhat rough over the seed and without soil. In other cases, half-rotted stable manure has been employed, and, again, longish new Cocoa-nut fibre. Those who care to try such material, placed thinly and immediately on seeds, will not only find the same benefits as I have done from their use, but they will readily see how, by their length in one case and weight in that of the grit, disturbance by watering and by excessive evaporation is avoided. Never before have we sown seed with such offhandness as of late, and certainly never before have we had such fine seedlings. In every way we have the advantage, unless in taking up the seedlings for transplanting we find the somewhat flaky, half-rotted manure rather inconvenient as regards getting the young plants asunder. A material gain also is that much less care in watering is required, not only as regards the number of waterings in a given time, but as regards the time required to grow the seedlings strong enough for moving.

BAMBUSA METAKE.—A plant of this, about 3 feet through, has suffered somewhat during the past winter, mainly at the tips, but the young growths, which are coming very stoutly, seem in no way to have been affected. Indeed, they hardly could be under the ample shelter afforded by the upper evergreen foliage.

Can we properly call plants hardy which have tender leaves and tender flowers? Since the last few nights of severe frost we meet with many which might be placed in this category. The leaves of the various *Spiræas*, *Dicentra spectabilis*; the flowers of *Megasea purpurascens*; the new growths of *Saxifraga Fortunei*, occur to one at the moment. But a look round will show us that far too many suffer from late frosts, and yet the roots can in no way be deemed tender, and year after year they increase in strength and numbers, for all the cutting down they receive from late severe frosts. J. W.

NOTES.

THE MONTH OF MAY.—Green Grass and green trees with a glistening sheen on the fresh young corn, over which the larks warble in delight. The Hawthorn is later than usual, but the Sloe bushes here and there in the fields give us a suggestion of the hedge-blossoming which is yet to come. There are Cowslips everywhere in the grassy meadows, Primroses and Bluebells in every wood and copse. Finer than aught else beside is the rich blossoming of the fruit orchards near to the cottages or the well-tilled farms. After all, there are but few countries more beautiful than this England of ours with its chequered fences everywhere, and commons rich with golden Furze or Broom. I was looking at Leader's picture in the Royal Academy the other day—I mean the big landscape entitled, "With verdure clad," in which the wild native flowers near the stream are faithfully shown—and I thought to myself that one might spend much in travel and not find more satisfying beauty than that around us in our own land. It is also so with our native flowers, many of which hold their own with those

of other temperate countries. The Violet, Water Lily, Flag Iris, Crocus, Ox-eyed Daisy, Corn Marigold, and Foxglove are all most lovely, even among garden flowers. What other flowering shrubs surpass the Crab, Sloe, Gorse, Broom, Heather, and Hawthorn? The last is so subtly perfect when at its best, as to almost defy portraiture. The bit of Hawthorn painted by Wm. Hunt, now in the Water-colour Gallery at South Kensington, is the only good bit of painted Hawthorn which I remember; but, luckily, rare as are true paintings of it, everyone may have the tree itself if they will. It is a lucky tree near the house, bringing beauty of snowy blossom to the eye, and to the ears the song of many birds.

OLD-FASHIONED GARDEN FLOWERS.—It is pleasant to see and hear on all sides that the most universally popular of all the garden flowers just now are those which existed around the best old country houses in England during the time of Spenser's "Fairie Queen." Even in the days of Disraeli, the garden of old sweet-scented flowers at Hatfield was worthy of being immortalised as that of Lady Corisande, but the Renaissance is far more commonly followed and its partisans more wide-spread to-day than ever before. If one grows rare Orchids or hothouse plants, they are rarely obtainable in quantity for cutting, but where hardy flowers are grown well the flower basket and every empty vase in the house may be filled again and again. Every lady having a garden may now grow her own flowers—Roses, Lilies, Daffodils, Irises, Tulips, Anemones, Pæonies, and other finely coloured or shapely flowers by the hundred if she will; and it is to lady gardeners that a large measure of the success of modern floriculture is due. We are, for once, beginning to realise the truth of the axiom that "a garden of hardy flowers is a garden for cut flowers," and so beautiful blossoms are ennobled by their being used and enjoyed in a beautiful way. The gardening of the future will be to a still larger extent open-air floriculture; even as it is, no nursery is complete unless hardy flowers are grown, but this will be yet more evident in the future than it is to-day. The reason of this is that the best of hardy flowers are unrivalled in beauty, sweetness, and grace.

QUINCE BLOSSOMS.—Is there, after all, a fairer sight in May or June than that afforded on warm rich soils by a Quince tree in full bloom? The leaves are perfect in their soft rounded shape, and the blossoms of snowy whiteness remind one of cup-shaped single Roses. Formerly the Quince was a much more common tree near old country houses than it is now. The earliest of marmalade was that made from Quinces, and my early memories always make me regret the peculiar smack of rich flavouring which a quarter or two of a Quince fruit imparts to an Apple pie. European Quince fruits are not readily eatable, but in China there are varieties having tender flesh and a delicious flavour. But even supposing that our garden varieties of this old-fashioned Quoining never bore a single fruit, a few trees should be planted for the sake of their beauty as spring flowering ornamental trees. The late Carl Koch maintained that some Pears are hybrids of the Quince; but, be this as it may, a dish of Quince fruits yields an aroma, rich, piquant, satisfying, such indeed as but few, if any other, fruits can rival. Even in cold northern districts the Quince would form a by no means indifferent wall shrub, where its snowy white blossoms might well be contrasted with the coral-red ones of its relative, the Cydonia of Japan.

ORCHID NAMES.—It is always "the darkest hour before the dawn," and as we have now attained to that perfection of Orchid nomenclature which obscures rather than reveals, we

may naturally hope for daylight to appear. Even Prof. Reichenbach himself acknowledged having lost his way in the jungle of Orchid names, and it is quite pathetic to find him asking his way out of a maze woven by himself! We long ago passed the date at which a specific name means anything definite. If you write to ten nurserymen for *Odontoglossum Alexandræ* or *Cattleya Triangæ*, you must not expect any one thing, but are much more likely to get ten distinct forms of either of these plants, good or bad as the case may be. Nor is this so with Orchids only, but with nearly all our so-called species of plants now in cultivation. The really wise purchasers of Orchids nowadays either buy guaranteed forms which they may have seen, or they enter their names in a lottery by buying imported plants. There is no *via media*; you either pay for the gems of a well-known collection, or you put your money into the auction room lucky bag and take your chance, be it blanks or prizes. The conference to be held at the Liverpool show of the Royal Horticultural Society is to have for its subject the question of "Orchid nomenclature." So far so good, but would it not be as well to deal generally with the whole subject of plant names? Let us decide once and for all how best to waddle safely over this quicksand of varietal nomenclature. Also as Prof. Reichenbach is the acknowledged authority on Orchids, pray allow Hamlet to appear in the play. If we are forced to keep moving on with the times, we may at least try to find a good sound road and be equally careful in avoiding a bad one.

WOOD ANEMONES.—Our old friend the native *Anemone nemorosa* is far more variable than is generally supposed. At Munstead the other day I saw a bold clump of a strong-growing kind having flowers nearly as large as those of the European Globe flower (*Trollius*). Then there are two or three rosy forms, one pale, and one a deep purple-red. The pale lilac-blue variety (*A. Robinsoniana*) is most distinct and beautiful when well grown, and quite as well worth a first-class certificate as was that poor little *Primula mistassinica* so honoured at the *Primula* Conference the other day. After all, one need not complain, for certificates only confirm facts; they never controvert them, and so those who already have *Anemone Robinsoniana* will continue to cherish it as a gem in its own way. Apart from the above single-flowered kinds, we have two double varieties, viz., *A. nemorosa* fl.-pl., with perfect little double blossoms brilliant as a silver star, and a larger, and to my mind less beautiful, form having greenish outer segments (*A. nemorosa bracteata*). All the above grow well in moist soil and endure fresh and fair best when planted in partial shade. Even where they do not naturally exist it is often easy to naturalise them in grove and copse by planting roots in July or August. With them we can also group their ally, the sky-blue *A. apennina*, and, if possible, the larger-blossomed dark blue *A. blanda* should also be planted in pet nooks and corners near to them for company.

VEGETABLES IN PARIS.—Early the other morning I walked through the Covent Garden of Paris, the Halles Centrale, and quite enjoyed the fresh, sweet fragrance of the herbs, flowers of spring, and the crisp, fresh green vegetables which are there exposed for sale in perfection—young Carrots and Turnips, fresh green Watercress, and such Asparagus as one can see in quantity in Paris only. Every workman in the French capital may now eat such Asparagus as only the rich citizens of London can afford to buy. You see great bunches everywhere; heaps of it fresh as just cut from the beds in market and café

alike, and there are barrowloads of it half hidden in cool lush young meadow Grass at the corners of the streets, or wherever there is a chance of disposing of it at a fair rate. Just now this vegetable must be brought into Paris by the ton, and the best samples are very fine succulent produce, even the very butt end of the stalks being eatable. Of course I know that a few samples equally fine are grown in England, but the bulk of that sent to Covent Garden is inferior to the third-rate produce as sold in the markets and shops of Paris. Add a perfect and simple method of cooking to this perfect vegetable, and you have a dish fit for a king. As with Asparagus, so with Lettuce, which is fresh and succulent, and a delight to eat during the warm days of spring. The best French salad is of Lettuce only, properly dressed with finest of oil and vinegar, and during summer sliced Tomatoes may be added, but one is never offered the half-wilted mixture so common in even good English hotels and restaurants. All this has been said before many times, but it is true, and so perhaps worth repeating.

THE JUDAS TREE is not very showy in English gardens, perhaps because our spring is not quite warm enough to flush its sap into yielding a flame of blossom. I am not quite familiar with the average temperature of Paris in May, but from a little personal experience this year I should imagine it to be like an English July. Here at home the Judas tree is not so remarkable as in Southern Europe, although as a wall shrub it blooms pretty freely. It is when one can see it as a tree from 30 feet to 40 feet in height, and when every branch is a flame of salmon-pink blossoms, that it is most beautiful. In the suburbs of Paris it is quite commonly planted as one of the best of spring blooming trees. You see it everywhere—in the Bois de Boulogne, in private gardens, in the Jardin des Plantes, near St. Cloud, and in the gardens at Versailles—towering up like a soft pink mist in the distance among Poplar, Chestnut, Birch, and other trees. Amongst Leguminose plants it is peculiar in having simple cordate leaves instead of the feathery pinnate ones one generally expects to see, and later on in the year its legumes or fruits render the tree again most interesting. A fair specimen formerly existed near the entrance to the herbarium at Kew, and on the warm, gravelly soil near Balham this tree flowers well enough to secure for it a place in even a select collection of ornamental trees. Its flowers are now and then used in salads, to which they impart a not unpleasant astringency.

TREE PÆONIES.—On warm rich soils these noble plants are worthy of all the cultural skill one can give them. They are noble alike in leafage and in flower, and even on cold, wet soils and in severe climates where their buds of promise are nipped by untimely frosts they may be grown quite freely in pots or tubs, and so become lovely ornaments to the cool greenhouse or conservatory during May or June. After all they are nearly as hardy as the Rose, and if the slightest protection of coarse dry Grass or Brake Fern be given to them, they come out of the worst of winters well nigh unscathed. They certainly grow and flower more luxuriantly in France than with us in England, and only last week I saw several forms most beautiful in their blossoming in the Jardin des Plantes at Paris. They were fully open in the May sunshine, and reminded one of magnified Roses—so much so, that one irresistibly thought of the "Stockbroker's Rose" (Paul Neyron) when at its fullest stage of expansion. An illustration in *Gardening Illustrated* last week shows to what a satisfactory state of beauty the Tree Pæony attains even north of the Tweed. One of the finest

bushes I ever saw was years ago at Belvoir. Then at Hampton Court do they not bloom beautifully soon after the Horse Chestnuts are at their best? I must ask Mr. Veitch to get for us the very best of the varieties which have been grown in China for at least some 1400 years. Like Narcissus Tazetta, the Moutan Pæony is most popular as a Chinese flower, and one might do worse than make of it a speciality.

SHOWERY MAY.—A good garden is at all times beautiful, but perhaps never more so than between the showers of a fresh cool day in May. Every leaf is bathed in moisture; the air is full of perfume, not of flowers only, but there is the soft fragrance of the bursting leaf-buds, the breath of the Larch, and the balsam of the Fir, or of the Pines. The earliest Tulips are at their best on a soft day like this; every flower is perfect; whereas on bright hot days the open petals flaunt themselves Poppy-like in the breeze. The Anemones are also most brilliant, and the golden bosses of the Globe flowers most perfect in their own way; so also in partial shade are the yellow Crown Imperials and the parti-coloured Fritillaries, which old Parkinson calls "chequered Daffodils." Polyanthes of all colours are in their most exuberant stage—great umbels hanging over fresh green Lettuce-like leaves; while the polished nobles on the Pæonies promise a most gorgeous show by-and-by. A rake has been accidentally drawn over a tuft of Lemon or Golden Thyme and all around it the air is quite aromatic, and the Sweet Brier always has a delicious atmosphere of its very own on these cool fresh showery days in May.

BLUEBELLS.—The wild kinds of wood Hyacinths found scattered through Europe are variable, and of those cultural forms reared from seed in gardens there are some most distinct and beautiful. One of the finest now in flower is a variety from Munstead, a seedling, I believe, from Mr. Nelson's Aldborough garden. It is of bold and graceful habit; the flowers are of a distinct hyaline or opalescent shade, not at all easy to describe in words, a fact which shows in a way how lovely the colour itself must really be. Then we have half-a-dozen or more white varieties belonging to the Scilla nutans and S. patula or S. campanulata sections of the group, and of lilac, rose, and blue shades at least a dozen varieties, if not more. As now in bloom beneath copse-like groups of flowering trees these Bluebells are very lovely, varying as they do in height and size or shape of their bells. Wherever the wild Bluebells already exist in quantity near the house or lawn it would be well worth while to plant some of the best of all the cultivated forms. On the Grass they are quite at home, and soon establish themselves if planted at any time between the end of June and September. For half-shaded shrubby borders where but few other bulbs will grow these Scillas seem just the thing—perfectly at home among the roots of shrubs; perfectly happy under tree shade.

VERONICA.

First-class certificates.—Anything that my friend Canon Ellacombe writes carries weight in the gardening world. I therefore shall be obliged for space to say that he and others are mistaken in supposing that the rule of the society under which the floral committee have to judge limits certificates "to plants of high merit and newly introduced," it has been enlarged to plants of high merit, new, or but little known in cultivation. I have not the schedule by me, but that is the sense if not the exact words. I have to read all criticisms on the committee's work,

and I find that one criticism often answers another. There are several suggested improvements which I hope will be introduced when the time comes; at present the most pressing want is a proper room for the committee's work. The number of passers-by and the bad light, under which delicate colours are lost, add to the difficulties of judging. Those present at the Primula Conference must have noticed how much better the plants showed themselves when moved from the bad light of the conservatory to the good light of the Royal Albert Hall room.—GEORGE F. WILSON, Heatherbank, Weybridge Heath.

THE VERNAL ADONIS.

AMONGST plants suitable for spring gardening, none, perhaps, excel the charming spring Adonis (*A. vernalis*), represented in the annexed illustration. Its habit, fine graceful foliage, and large clear amber-yellow flowers make it far more effective in spring than Tulips of the same colour; over the latter, too, it has many advantages. It flowers annually with increased vigour, and even if the beds in which it grows were to be used for summer bedding, the foliage of the Adonis would add rather than detract from their beauty. There is, moreover, no reason why this plant should not be permanently established in our wild gardens. It is perfectly hardy, being found



Adonis vernalis.

plentifully over a wide area of Europe, while *A. pyrenaica*, a nearly allied plant with more robust habit, and flowers generally furnished with more segments, is confined entirely to the Pyrenees, where it was plentiful a few years ago. It also differs strikingly from *A. vernalis* in having hooked or beaked seeds, half an inch long, curled or straight, and horny in texture, smooth and shiny. It may, however, be grown with advantage along with *A. vernalis*, as it is an equally free flowerer, readily adapting itself to border or bed culture; *pyrenaica* flowers much later than the other species, and a succession of lovely flowers might therefore be had from early March in ordinary winters almost until July. They make charming patches on rockwork, and, indeed, when all other plants of a like nature are flowerless, these species of Adonis stand bravely out, heedless alike of frost and snow. As with all other showy hardy plants, they are most conspicuous in large patches. Both are readily increased by division or by seed, which unfortunately they ripen but sparingly. For room or table decoration they are also very useful, as they last a considerable time in good condition in a cut state in water. They thrive best in a light,

well drained soil, where they appear to be more floriferous than in heavy or damp material.

K.

FLOWER PAINTING AT THE ROYAL ACADEMY.

THE pictures of flowers and fruits and kindred subjects in this year's exhibition at the Royal Academy are not generally distinguished for powerful or specially effective treatment, though there are a good many that are pleasing, and a few that are interesting. Flowers especially, whether painted as subjects or merely as accessories, are invariably a great source of attraction to the picture-loving public. One of the happiest instances of their employment in the latter capacity is the introduction of a beautiful white form of *Iris Kampferi* in Mr. Frank Miles' charming portrait group (6) of the daughters of Captain Price, R.N.; and, again, the effect of Mr. Alfred Parsons' clever landscape, "On Shannon Shore" (40), is greatly enhanced by the mass of golden Gorse in the foreground. In Mr. A. H. Marsh's "Moorland Garden" (48) it is perhaps natural that there should be more moorland than garden, the visible horticultural produce being limited to some *Nasturtiums*; but the interest of the picture, in spite of its title really centres in the well-drawn figure of the woman standing with the baby in her arms, and talking to a small child whose head appears over the low rubble garden wall—a fence without which the garden would soon cease to exist in the teeth of the rabbit's opposition.

The boldest and most effective treatment of flowers in large masses is to be seen in Mr. Luke Fildes' picture of "The Flower Girl" (61). The scene is laid presumably in the silent city, and the splendidly drawn and solidly painted figure of the fair Venetian, who is in the act of making up a bouquet, is surrounded by floral wares brilliantly, albeit harmoniously, depicted. Following the order of the catalogue, the first study of flowers pure and simple to attract attention is Miss Provan's "Autumn Flowers" (200), consisting of *Gladiolus brechenleyensis* and *Sunflowers*, with a few *Grasses* and single *Dahlias*, skilfully grouped and good in colour; while in the next room there are two other very attractive autumnal groups, a brilliant study of *Blackberries*, *Arbutus*, *Berberis*, wild *Clematis*, and *Buflushes*, in a brown glass jug on a library table (299), by Miss Wood, and Miss Parsons' exquisite arrangement of white Japanese *Chrysanthemums* and scarlet *Brier* hedges on a quiet green background (327). That Mr. Chamberlain's portrait (274) is painted by so powerful and versatile an artist as Mr. Frank Holl, R.A., ensures the perfect presentment of the ex-minister's habitual *Orchid*, which, by the way, is almost the only example of its lovely class in the exhibition. Miss Beard sends a strong and natural wreath of white *Convolvulus* (373), characterised by excellent drawing and painted on a long narrow canvas, a form well adapted to display certain flowers to advantage, and one which Mr. Stoney has employed (282 and 499), but his *Roses* have too much the appearance, both in colour and texture, of artificial flowers.

Nos. 302 and 1127 (water-colour) are reminiscences of gardens, beloved of artists, of the stately long-ago, when horticulture was half architecture; but the French painters have shown us that even the homely Cabbage plot may be pictorially treated with effect, the example thus set being ably followed by Mr. T. F. Goodall in his low-toned, but intensely human, picture of "Norfolk Peasants" (465) in their kitchen garden.

In Mr. Waterhouse's splendidly powerful picture (450) the fateful *Poppy* is conspicuous in the foreground within the "Magic Circle," and har-

monises well with the lurid surroundings of the weird enchantress; but myriad *Marigolds* fail to impart interest to the dreary oriental picture (434) of Mr. Val Prinsep, A.R.A.

Mr. Ladell's still-life group (490) will, perhaps, be most admired for perfect finish and elaboration of detail in all its parts. The black and white *Grapes*, *Walnuts*, and *Raspberries*, grouped with studious carelessness on a red marble slab beside a half-emptied green Venetian glass of *chablis*, complete a tale of that painstaking labour which was the glory of the Dutch painters. With this study it may be interesting to compare an instance of the very opposite of treatment—though no whit less effective in its way—the plain white jug filled with white and yellow *Chrysanthemums* in Mr. Frank Bramley's exceedingly clever painting "Domino" (491), one of the most truthful pictures in the whole exhibition.

The treatment of the Moon *Daisies*, with which the little lady so charmingly portrayed by Mrs. S. E. Waller (696) has filled her lap, is especially happy; and in "The Rose of all the *Roses*" (818) Mr. Alma-Tadema, R.A., shows how luxuriantly the queen of flowers grows in the sunny south, whose old-world life no other painter can endue with similar vitality.

But these are cases in which flowers are merely accessory, and it must be admitted that the pictures consisting of flowers only are far less satisfactory. Perhaps it is among the *Roses* that the best and worst flower-painting is to be seen. Unfortunately, the latter quality is the rule; but among the exceptions Miss Edith Ellison's No. 880 may be cited as an instance of a *Rose* admirably drawn and painted. It is catalogued under its varietal name, and is in all respects a portrait. In spite of its being hung in a corner, so that it is impossible to get exactly in front of it, anyone who has ever grown *Comtesse de Nadailac* will recognise the autumnal bloom, less in September than in July, with its petals curling back, and the flower passed on all sides by its own buds mounted on their wiry red and leafy stems; the abrupt turning back of the sepals, exposing the pale base of the bud; and the still rich flush of colour in the central depths of the flower. The vigour and truth of this example may well be contrasted with the formally formless presentments with which it is surrounded.

M. Fantin (860 and 889) of course paints flowers and especially *Roses*, as no one else can, and if he chooses to arrange them conventionally, at any rate they are portraits to which there would be little difficulty in assigning the correct names. Mr. Sanders' Tea-scented *Roses* (815 and 839) are beautiful, though almost supernaturally clean and pure. But for the rest, if they are capable of affording anyone pleasure, it is a merciful thing that there are people in the world who are so easily pleased.

There are several instances of good work being spoiled through clumsy arrangement. The red and white *Snapdragons* (324) have nothing in common with the pale *Irises* (probably *I. stylosa*) by which they are encircled, except the dumpy mug into which they have been thrust all together. Either kind of flower alone would have been effective; but they are not the sort of plants which, in a natural state, would occur together, and certainly not with the one carefully surrounding the other—a kind of derangement utterly inadmissible in any vase of flowers. Even Fantin produces but a bizarre effect in placing a bowl of rather exaggeratedly-coloured *Tea Roses* in front of a fine bunch of "Double *Larkspurs*" (353), though he does keep the two kinds of flowers in different vases, and is perhaps unfortunate in being hung above the exquisite work and splendid colour of the president.

The natural arrangement of *Fleurs de Lys* and *Marguerites*, white and yellow, according to their habit as they lived, renders Mr. Page's "Fleurs de France" (1065) a striking and handsome group, while Miss Brinton's "Still Life" (841), representing yellow *Iris* in a quaint brownish-green pot, is similarly effective. In the same room a heap of white *Pinks*—a difficult flower to make an effect with—on a Palm leaf screen (910) is cleverly treated, and 922 is a very careful study of autumn *Daisies* and ripe *Thistle* heads. The only striking water-colour is Mr. Muckley's fine group of *Christmas Roses*, half beaten down by, but triumphing through, the snow. The greenish tint of the flowers, when seen against the pure white of the snow, is skilfully indicated, while the bold and effective grouping contrasts very favourably with the flimsy and artificial group hung as a pendant; in fact, the bulk of the remaining floral subjects may be taken as admirable illustrations of how not to arrange and paint flowers.

It is not at all improbable that much of the triviality in flower painting, as annually displayed in the London exhibitions, and the inane repetition of utterly unpaintable subjects, such as bouquets consisting of one *Violet*, two *Primroses*, and a *Snowdrop* in a tumbler of water, with a *Crocus* perhaps laid on the table to break the line of the base of the glass, is owing to the inability of the art students to obtain good subjects to paint from. It stands to reason, even if there were no difficulty about means (which is not always the case among cadets in the artist ranks), that flowers obtainable in the London flower market are utterly unfit to paint. In the first place, they are generally half faded and crushed, unless they are of first rate quality, when, in addition to being very costly, they have practically no stalks or foliage, owing to their having been cut with a view to their manipulation by the florist, who supplies them with wire-stems and alien greenery, so that the poverty of subject and consequent loveless treatment in so many flower-pieces is not much to be wondered at.

But there is no doubt that those who have extensive collections of herbaceous plants might with very little trouble to themselves give a great impetus to flower painting among the art students in London by supplying them with good and paintable flowers. Almost any kinds of *Liliaceous* or *Amaryllidaceous* flowers, *Roses*—especially the delicately-tinted Tea-scented varieties—*Composites* of all sorts, from *Sunflowers* to single *Dahlias*, and all with pretty long stalks, so as to be easily arrangeable—these are what are wanted for flower studies. At many studios it is customary to devote one day in the week to flower painting; would it not be possible to get a list of names of those who would be willing to send a box of good flowers occasionally, to supply one or two schools to begin with, once a week? and before long it should not be difficult to make the list sufficiently numerous to cause any sender's turn to recur only at a considerable interval. Perhaps even the great trade growers might not be unwilling to occasionally incur the slight trouble of, let us say, putting a few handfuls of spare blooms into a basket and addressing it to some neighbouring school of art, after setting up a great collection of *Daffodils* at South Kensington, or of *Irises* at Regent's Park—especially when they knew with what delight they would be received.

At any rate, horticulturists ought to do their best to establish flower painting on a broader base, and the subject is well worth the consideration of those who, having flowers and to spare, or through any cause, such as absence from home, may be willing that others, to whom they would

be of real use, should enjoy the floral treasures which might else be wasting their sweetness on the desert air.

THETA.

FRUIT GARDEN.

OUR APPLES AND APPLE ORCHARDS.

I AM glad to notice Mr. Coleman's thoroughly practical remarks (p. 389) on this subject, although I consider that he takes rather a pessimist view of what is being done; at all events, his somewhat sweeping assertions do not apply to Worcestershire. There are estates, and large ones, too, in this county on which hundreds of trees have been planted annually for several years, and these too of the best known Apples of good size and colour. I am told that the demand for good trees has been so great, that our Worcestershire nurseries have with difficulty been able to supply them. I do not mean, however, to imply that our orchards are nearly perfect; on the contrary, there are many acres of Apple trees that are certainly not worthy of the ground on which they grow. Not only are they worn out, but the kinds are of the worst possible description, and useless, except for cider-making. Old and worthless Apples are, however, fast giving way to kinds which will undoubtedly produce wholesome food, and financially assist the depressed cultivator; and last, though not least, hold their own with foreign productions. Here, however, another difficulty presents itself, viz., two-thirds of the growers have yet to learn how to store, pack, and market their fruit. Their present method is to wait for the dealer (one of the middlemen) to come round and make an offer for the whole of the saleable kinds, the price accepted for which is often about one-fourth what the actual consumer has to pay. Moreover, the produce all comes in at the same time and glut the market. The weight of a pot of Apples varies in different districts, but is generally about 80 lbs. net.

The next question is one regarding suitable kinds for certain districts, and this can only be settled by actual experience. People assert, and truly too, that an Apple orchard planted on pasture land and ploughed up some years afterwards will at once cease to be fruitful and commence to decay. This may result from the loss of surface roots; but can anyone account for an orchard planted on cultivated land, and afterwards laid down with Grass, collapsing in the same way? On the estate with which I am connected we have a home nursery consisting of two acres, from which 1000 standard Apple trees are supplied free annually to tenants, both farmers and cottagers, in proportion to their wants. The Crab stocks on which they are worked are raised in beds from the "must" or refuse of cider-making, and the pips of coarse kinds of Apples make good free stocks fit for budding in about three to four years, bud failures being made good by grafting the following spring. It is necessary, we find, to remove the stocks before they are worked with a view to obtain fibrous roots. We have also a reserve or test garden in which over 120 kinds are on trial, and as each kind proves itself worthy of extended cultivation, and likewise well suited to our district, its buds and grafts are utilised. Varieties that flower late are especially noted, and we think that those with deep-tinted flowers are harder than those with pale ones. All the best known sorts are grown, and we have one local kind of which we entertain golden opinions—the Newland Sack—good in every respect, and when in bloom of a highly ornamental character.

We do not believe in grafting old trees, as

oftentimes the land which they occupy requires draining, an operation often damaging to old trees. Young trees and fresh sites are what we like. Holes 6 feet in diameter prepared to receive them are a *sine qua non*. The planting should be done in October and November when possible, and then they should be mulched and staked.

Madresfield Court, Malvern.

W. CRUMP.

MILDEWED VINES.

I SEND you a leaf of a Gros Colmar Vine which appears to be affected with a peculiar kind of mildew. Can you give me any information regarding it? There are three canes of that variety in one of the houses here more or less affected as the sample sent, yet, strange to say, other varieties, such as Black Alicante, Black Hamburgh, Lady Downes Seedling, and others which are growing between the rods of Gros Colmar do not show any symptoms of the disease which has manifested itself in the Colmars. When I took charge of the gardens here three years ago, mildew was rampant in all the vineries, seven in number. To eradicate this terrible evil, I applied borax at the strength of 1½ ozs. to the gallon of tepid water. The mildew showed itself just as the Vines were coming into bloom, and I found that an application of this compound was detrimental to them at that stage. I, therefore, determined to revert to the old cure, sublimed sulphur, and was able to bring the fungus under subjection. A good many of the berries were, however, rusted, but I was able to ripen a crop of very good Grapes. During the winter months I had the Vines divested of their loose bark and painted with a mixture in which sulphur predominated. The following spring mildew again showed itself, when I returned to the sulphur as the best weapon with which its advance could be stopped, and my efforts proved so far successful that I managed to confine it almost to one house, and all the Vines showed a decided improvement in health, the Gros Colmar producing and finishing off some fine bunches. This year the pest again appeared at the usual time (just as they were coming into bloom in the early house). This time I determined to give it, if possible, the finishing stroke by having all the leaves indiscriminately dusted with sublimed sulphur, notwithstanding the fact that it might rust all the berries in the house. Few, however, are rusted, and the sulphurous fumes which smell strong in the house at all times, but principally during sunshine, seem to have killed the fungus germs, as none have appeared in any of the other houses. Therefore, I was congratulating myself upon the success of my efforts in having exterminated one of the worst evils which can affect Vines when a friend drew my attention to the Gros Colmar. He stated that the form of mildew was peculiar and hereditary to that variety, and that the only cure was removal of the Vines. Can you tell me if this is correct? Although all the other varieties of Vines grown here have improved in strength as the mildew disappeared, the Gros Colmars have become weaker. The gardens here are situated in a low-lying valley on the north side of the Rye; the soil is heavy and tenacious and consequently cold, and we are naturally subject to frequent fogs and frosts—the fogs favouring the development of the fungus germs, and rendering the visitations of frost injurious to fruit blossom and tender vegetation in spring.

J. R. D. P.

* * The thin cottony growth on the upper surface of the leaves of your Gros Colmar Vine, which has been described by your friend as a peculiar form of mildew hereditary to that variety, is a natural growth of healthy down. It is strongly developed on the lower surface and grows weakly on the upper. The leaves appear to be slightly scalded, otherwise there is nothing the matter with them. There is no mildew.

W. G. S.

The Lambton Nectarine.—This notable example of extension training cannot be explained

away. I am astonished that the "small tree from the nursery" has all at once developed into a large tree, 5 feet across, seven or eight years after the original description appeared, but I cheerfully give "T. B." the new addition, which still leaves within a fraction of 100 square feet of surface to be covered annually—on the average—for the tree must during some portion of the time have covered nearly half as much again in one year, seeing that during the first and second years it could not lie on 100 square feet unless "T. B.'s" 3 feet on each side are extended to 6 feet or 7 feet. The figures given in a contemporary are the strong point. If this tree be the "medium between the two extremes," what must the maximum or minimum be like? It is to be regretted that "T. B." should be left to defend this tree as a medium example of restriction. Dare he not ask for corroboration in the best quarter?—J. S. W.

WATERING TREES ON WALLS.

THE Peach, Apricot, Plum, and Cherry need liberal supplies of water during times of drought, especially those trees occupying the southern sides of walls. Few trees really get all their wants in this way supplied in such a trying time as last season was, for instance, and it is just possible that we are now at the beginning of a cycle of dry seasons. Trees planted at the foot of south walls with their branches braced up tightly against their hot surfaces must suffer severely if their roots cannot keep up the supply of moisture. When we see a stunted tree with leaves infested with red spider, does the real cause ever come to light? It may be attributed to over-cropping, to the cold spring checking its progress, or to blight—a most convenient term. The borders must of course be drained. Some cultivators put heaps of stones or brickbats under their trees to make sure that no stagnant water remains in the soil occupied by their roots. It is well to get rid of stagnant moisture, but in doing so we must not introduce a greater evil, viz., starvation from lack of moisture. With many of us the difficulty is to get water for the trees. One has hundreds of things in a dry time, all, so to speak, calling out for drink, and there may be a supply of water which is practically unlimited within a quarter of a mile, and yet from sheer lack of power it cannot be moved? Cannot engineers do something for us in such a case as this? Yonder, say, for instance, taking a supposition case, are thousands of plants and fruit trees crying out for water; here are a million gallons of beautiful clear water, well softened by the sun shining on it; and yet, from want of force, not will, the two cannot be brought together.

When the water is laid on and the pressure is sufficient, one man with a hose will do as much work in washing and watering wall trees as half-a-dozen men who have to resort to the reservoir for all the water they use. Summer showers that come scudding before the wind are frequently of little or no benefit to trees on a hot wall, and it is certain that when wall trees, especially stone fruits, growing on the hottest aspects and having no supply of moisture but what falls from the clouds, do not get enough, mulching may and does help them, but it is not enough when the trees are laden with fruit. Branch dying in Apricots may possibly be in some measure due to the check received in a dry time by an insufficient supply of moisture. At the present time and onwards till the fruit is ripening an effort should be made to keep the roots in a fair state as regards moisture, and as soon as warm nights come the engine and hose will be of great benefit in keeping down insects and encouraging growth. When we consider what a very large proportion of all fruits consists of simply so much water, there should be little cause for surprise that in a dry time Peaches and Plums and other fruits are so small. In watering any trees that require it, the trees should be mulched over the roots first, and if the border slopes, a ridge of soil should be placed about 4 feet from the trunk of the tree to hold the water up till it has had time to soak into the soil.

Watering in driblets will not be of much use. Three or four thorough soakings during a month's dry, hot weather will be of more real use than a potful or two poured round the trunk every evening; in fact, this little-and-often plan is a delusion. Give a good-sized tree ten or twelve large pots holding, say, from 3 gallons to 4 gallons each, and although it may not reach every root, a great deal of good will nevertheless be done.

E. HOBDAY.

VIGOUR & FERTILITY IN STRAWBERRIES.

If Mr. Cornhill (p. 390) will investigate the case which he cites a little farther, he will, I doubt not, discover that his forced Strawberries failed to bear, not because they were over-vigorous, but in consequence of their being badly matured, or else from causes which render early forced Strawberries barren the third year, a circumstance which often happens in the case of forced plants, otherwise gardeners would not go to the trouble of layering a fresh stock annually. Strawberry forcers will be surprised to hear that Mr. Cornhill keeps on the old stools till the third year, but nobody will be surprised to hear of their failing at that age. A striking contrast to Mr. Cornhill's experience is that of the late Mr. George M'Ewen before he took charge of the gardens at Chiswick. He was the best Strawberry grower of his time, and I do not think he has been beaten yet. He was the most successful exhibitor from April to the end of November at the Royal Horticultural Society's shows, and also those of the Royal Botanic Society, the Crystal Palace and other places, with plants in pots, the best three dishes, and the best single dish, and his theory was that Strawberry plants could not be too vigorous. Those who grew his plants for him at Arundel Castle tell me that they never saw their like for size of leaf and crown, a statement borne out by Mr. M'Ewen's own words in his treatise on the Strawberry, published in 1856. He there says that he preferred strong heavy loam from the Melon beds after its natural strength had been "made more rich and mellow by fermentation from the beds," adding that "he grew Melons in a richer soil than is recommended," and for Strawberries he added to this already rich soil night soil or cow manure. In conclusion, he says, "If by these means you happily can produce the vigour, elasticity, and power of which the roots are capable, so as to almost burst and break the pots, it is a capital sign of good management." In other words, this champion Strawberry grower held that the greater the vigour the better the crop, and that is the principle upon which all good growers act now, and the principle upon which Mr. Cornhill acted in the case of the strong plants which he mentions, only he puts failure down to the wrong cause. But after all, not nearly so much importance is to be attached to cases like the above as to the actual behaviour of the Strawberry itself under culture. No one, I suppose, disputes that Strawberry scapes vary greatly in the number and size of the flowers which they produce, nor will anyone dispute, who understands Strawberry culture, that both depend on the strength of the crowns. This is where the weakness of Mr. Cornhill's example is apparent. Had his plants only borne fewer fruits in proportion as their vigour increased, the fact would have proved something, but they proved too much, for the plants were either barren altogether, or mostly so. There may be a limit to vigour in the Strawberry where fertility ceases, but I have never heard of it yet; whereas barrenness from the opposite cause is common enough. The difference in the quantity of the fruit or flowers produced by single crowns is sometimes remarkable, but the quantity is invariably greatest on the strongest crowns, and *vice versa*.

J. S. W.

Vine-leaf excrescences. I send you some leaves of Hamburg Vines and shall be thankful if you can tell us the cause of the warts on their under-

sides. At first they appear in a very minute green form; later on they turn rusty or burnt-looking, and give the top part the appearance of being affected by red spider, a pest which we scarcely ever have. The Vines have been planted about six years; the house has a full south aspect; the depth of the border is about 2 feet to the drainage, which is about 1 foot deep. The border is made both inside and outside of the house; the Vines are planted inside, and receive copious waterings during the growing season. We have an Alicante in the same house which is never affected in the same way as the Hamburg and Madresfield Court. Any information on the subject you may be able to offer will be gratefully received.—J. S., *Croydon*.

* * The leaves to which these remarks refer seemed to be in excellent health. The little warts or excrescences on their undersides do no harm. They are thought to be the production of too close and damp an atmosphere.—ED.

Setting Grapes.—In reply to "A Perthshire Reader" (p. 435), permit me to say that the Grapes in question, including Muscats, Buckland Sweet-water, and Muscat Hamburg, were lightly syringed with warm soft water at the usual closing time. When I state that the Grapes are now colouring, he will infer that the period at which they were in flower would necessitate closing about 2 p.m. on fine days. It, however, so happened that the sun was conspicuous by its absence, and this part of the country was ice-bound, covered with snow, and shut off by a cold black pall, which solar heat could not penetrate. "A Perthshire Reader's" fears that syringing at the usual closing time may result in scalding are fallacious, as I have lately been syringing Peaches, Plums, and Muscats, not heavily, as one would syringe for the destruction of spider, but moderately with pure water at the usual closing hour—3.30 to 4 o'clock.—W. COLEMAN, *Eastnor Castle, Leicestershire*.

Effects of frost on growing Vines.—In answer to Mr. Crump (p. 391) I would mention that I once saw a Vine frozen through at the neck just outside the vinery during a cold night, owing to the portion of the stem being frozen where it entered the house, the covering of litter having been accidentally removed. The fact was discovered by the foliage—which was in an advanced state—drooping severely, but the Vine was at once shaded and syringed, and the neck thawed by pouring cold water on it, and it recovered in a few hours and was none the worse.—J. S. W.

Late Apples.—Mr. Coleman, Eastnor Castle, recommends the following, viz.: Ashmead's Kernel, in use from Christmas to May; Brownlee's Russet, in use during the same months; Lodgemore Nonpareil, from July to June; Baddow Pippin (spring Ribston), from Christmas to April; old Wyken Pippin, from December to April; and Beachamwell, from December to March. These are all dessert Apples and excellent in quality. The following are chiefly for kitchen use, viz.: Winter Quoining, in use from November to May; Hanwell Souring, from December to March; Alfriston, from Christmas to April; Brabant Belle-fleur, from November to April, very handsome; Calville Malingre, from January to April, an excellent Apple; Lemon Pippin, from Christmas to May, a good old Apple; Besspool, from November to March, a very good Apple either for dessert or kitchen; and Flanders Pippin (not Flemish Pippin), one of the best kitchen Apples during the first three months of the year.

SHORT NOTES.—FRUIT.

Pear insects.—I am obliged by the reply of "G. S. S.": it coincides with what I expected. The Pears stand in a place formerly occupied by a Gros Colmar Grape, and it was affected somewhat similarly. Would the same insects produce different results in the Pear and the Grape, or would the insects be themselves different? It does not seem as if the Pears would be much injured; the disease seems giving way to the strengthening of the foliage.—W. I. H., *Abbeots, Abbeots*.

Blackberries. It would be interesting to get reliable data as to the success or otherwise in the north of attempts to cultivate Blackberries. I have tried for the last two years the Mammoth, Snyder, Dorchester, America, Newman's Thornless and New Rochelle varieties, and they have done nothing. They are planted against espaliers between Apple trees; the wood has not ripened properly, and they have suffered from the winter frosts.—W. I. H., *Abbeots, Abbeots*.

GARDEN FLORA.

PLATE 544.

SCOTCH BRIERS.*

ONE's thoughts may well turn to the Scotch Briers in such a season as the present, when with 18° and 20° of frost after the middle of March the merit of Roses which can be fairly included under M. Geschwind's triumphant description of "absolument insensible" is convincingly brought home. These varieties of our hardy native *Rosa spinosissima* are as callous to frost and snow and wind and storm as the proverbial highlander inside a plaid and outside the whiskey; and if only the ground be well broken and manured when the plants are first put in, Scotch Briers are better able to take care of themselves than any other kind of Roses of garden origin. Climbing Roses want training and tying; Hybrid Perpetuals involve pruning, mulching, not to mention the keeping down of aphids and mildew; Teas and Noisettes need protection in winter. But Scotch Roses, if carefully planted at first on their own roots need neither pruning nor protection, training nor top-dressing, are not victims to greenfly or mildew, and, in fact, may be trusted to thrive without any special attention for a considerable number of years.

These Roses are not at all particular as to soil, but if it is very poor, a light mulching of short manure in November will keep them in good condition. They should be planted in a place by themselves, when they will throw up their spine-covered suckers freely from the base, and soon entirely cover the ground; and as they do not grow more than 2 feet, or at most 3 feet, in height, they thus make a very ornamental mass, flowering freely at every joint. Indeed, their very floriferousness tends indirectly to render them essentially garden Roses, as opposed to Roses for cutting, for in addition to their innumerable thorns, making them somewhat uncomfortable subjects to handle, the flowers are so freely produced at every bud, that they are liable to be inconveniently short-stalked, unless an entire wreath be gathered. It is true that the Scotch Briers are only summer-flowering, but then their delightfully fragrant flowers come so long before the generality of garden Roses, that they are especially welcome. Moreover, one of the prettiest and most sweet-scented varieties is a Perpetual, blooming a second time in autumn. This variety was raised at Stanwell, and distributed by Mr. Lee, under the name of the Stanwell Perpetual. In habit and appearance it is not very different from the summer-flowering varieties, but its pretty globular blush flowers, of a most delicious fragrance, are freely produced both early and late, it being no uncommon thing to find them in good condition during October.

Numerous varieties have been distributed at various times. Max Singer catalogues about thirty named sorts, raised chiefly by Prévost and Vibert, of which, however, probably few now exist, at any rate in this country. Mr. William Paul records some two dozen more names of varieties hailing principally from over the border. But these Roses are now hardly ever referred to or even obtainable by name, being as a rule merely described according to colour, as white, pink, yellow, &c. There are, unfortunately, in cultivation many very dingy-coloured varieties, which have got these Roses a bad reputation from a decorative point of view. Perhaps this may to some extent account for the fact stated by the eminent authority above quoted that the Scotch

* Drawn at Munstead, Godalming, in July.



Briers have never been really popular among English amateurs, although it is surprising to find them entirely overlooked by so catholic a rosarian as Canon Reynolds Hole in his inimitable book about Roses. For when only delicately-coloured varieties like those shown in the plate are grown, nothing can be more charming than a mass of these dwarf, delightfully fragrant and very hardy Roses, whose buds are in miniature the perfection of form, a quality which is maintained in the globular flowers of the more double varieties, while in soils and situations where the successful cultivation of most other Roses would be hopeless, flourishing plants and flowers in abundance may be had of the Scotch Briers.

T. W. G.

SUCCESES AND FAILURES.

It is not, I think, too much to say that a lover of flowers may learn as much from failure as from success, and I believe it is the same through life in other matters besides gardening. When failure takes place, one begins to ask what was the reason why it should occur; and then begins a series of questionings, which ultimately lead to finding out the cause, and some little change makes matters smoother for the future. We may even learn more from failures than from successes, for when we have grown anything well for some time, we perhaps grow careless, and are not so particular about small things as we once were, and are astonished to find that our success has suffered an eclipse. We then try, as I have said, to discover the reason; everything is investigated; we find out the cause, and hope that our failure in this respect is at an end.

CYCLAMENS.—I think we all know that, properly treated, there is no bulb more easily grown than the Persian Cyclamen, although one is old enough to remember when it was considered a difficult plant to manage, and especially to propagate, and yet now no plant seems to be more ready to submit to the will of the cultivator than it does. I have, like a good many others, grown this in my small greenhouse in considerable quantity, and have been very successful with it, and relied upon it for getting a good many flowers in the early spring months; but this year I was surprised to find my plants having a starved and miserable appearance. I had not superintended their potting, but on turning them out I found that there had been very little root action, and that they evidently did not like the material in which they were potted. I made enquiries, and found that an alteration had been made in the compost, and this I have no doubt had been the cause of the failure. This will be remedied, I hope, another season, and the failure make me more circumspect for the future.

DISA GRANDIFLORA.—One great success that I have in a small way achieved has been with this grand Orchid, which one so often finds in indifferent condition, even in the collections of accomplished Orchid growers. I have when looking through some of them been asked whether I grow Orchids. "Yes, I grow one, and I should like to see how you manage it." Very often the reply has been, "We cannot get on with it at all, or but indifferently;" and I feel no little satisfaction in being able to say that with me it succeeds without any trouble; in fact, if its requirements are attended to, there is no easier plant to cultivate; all it requires is to be potted in a well drained pot or pan in lumps of peat and charcoal, to be kept in a cool house and constantly syringed; it requires no heat, and in a house where Geraniums, Azaleas, and all sorts of things are grown, it is in the perfection of health. I have a pan now of it (one of Dominy's Orchid pans) about 9 inches across; five or six of the shoots are spindling for bloom, and out of every hole nearly in the sides of the pot small shoots are making their way, and it is impossible to have it in a more healthy condition. I have frequently given away plants of it, and have always told those to whom I have given them how to treat it,

but the great difficulty one has is to persuade people that it does not require heat, and I have too often found it placed in some hot position where it was gradually diminishing in vigour. To some people the very name of Orchid suggests heat. I have again during the past year come across some plants of a very inferior variety which I have alluded to as the Glasvein variety; it is apparently more vigorous in growth, but no one who has grown the finersort would care to grow this.

FREESIAS.—With these again I have succeeded very well, and have had no difficulty in flowering them; if I recollect rightly, a correspondent questioned whether I should not after all find them refractory; that, like *Ixias*, they might grow, but would not bloom, and at the same time questioned the value of the roasting system. Well, they have bloomed very well indeed with me, and I thoroughly roasted them. Of course, I know that there is such a thing as confounding the "post hoc" and "propter hoc," but yet there does seem to be a sequence here. I have bloomed also several seedlings, one with more yellow in it than *Leichtlini* major; nothing can excel in delicacy of perfume this exquisite flower, and I am glad that it has proved so amenable to treatment; but if I have succeeded with *Freesias*,

IXIAS bother me. I only grow a few of them, and these are imported bulbs. They grow well, and some of them bloom well, but they are never of any use to me the second year. One variety which I look upon as the most charming of all, *viridiflora*, is still more disappointing. Nothing could have looked stronger or healthier than they did; they showed their spikes of bloom, and immediately afterwards, and before the flowers expanded, the foliage began to turn yellow and looked very sickly. This has occurred year after year, and I have tried everything to prevent it, but have as yet not succeeded. What makes it seem to me more strange is that I have no difficulty with the allied genera of *Babiana* and *Sparaxis*, and can keep them year after year, but any attempt to do the same with *Ixias* results in a lamentable failure.

LAPAGERIA ROSEA AND ALBA.—Let it be remembered that mine is only a very small greenhouse, and that I have to grow a quantity of plants to come on in succession, and it will be seen, I think, that it was rather an ambitious thing for me to attempt to grow these beautiful climbers. Persons who have every facility and can exhibit their ropes of bloom will, I have no doubt, smile at my feeble attempts, but they are none the less interesting to me. I had them for some time growing in large pots, but finding that they wanted more room, I had a large box made, and in this I planted them. Some correspondent somewhat ridiculed my practice, and thought that I should find it a failure. However, so far it has answered admirably, and I had last season an abundance of bloom; they now fill up the north end of the house and at present do not at all interfere with the other plants.

MARECHAL NIEL.—I have a somewhat novel plant of this which has given me a great deal of satisfaction. I had it a few years ago, and planted it in a large pot, and placed it on the ground in a small *annexe* I have to my greenhouse, where I grow a Vine and put all sorts of odds and ends during the year. I expected to have got a couple of years out of it and then thrown it away, but it grew on, and on attempting to move it for repotting I found that it had pushed its roots through the bottom of the pot, and was well established in the ground. I therefore left it. It is trained to the back wall of the house, so that it does not interfere with the Vine, nor the Vine with it. From this plant I cut at least 120 blooms last year, and hope to do the same this year. Of course, this is nothing to those who have large houses and much facility for growing this favourite Rose; but to those who are obliged to resort to makeshifts and do many things at once it may be encouraging to know what can be done. How long it will continue to do this I cannot say, but it has already given me much pleasure.

HYACINTHS.—The question has been mooted of late as to the wisdom of neglecting these bulbs after they have flowered in pots the first year of their importation; they are generally thrown on one side and considered useless, or if planted in the border the complaint is that they deteriorate from year to year until the blue varieties become little better than the wild Hyacinth of our woods. My own experience is just the reverse of all this; my practice is to dry off the imported bulbs after they have flowered in pots and then planting them in clumps in my borders. I brought up both this year and last to our horticultural club some spikes gathered from these clumps which somewhat astonished even experienced growers, and were pronounced equal to many which had been exhibited in collections grown in pots, a verdict which I do not think was exaggerated. This touches on a subject which has been ventilated in the columns of a contemporary, viz., the possibility of growing Hyacinths in England to supply the market instead of sending over to Holland every year for them, and suggesting that there were parts of the country where this might profitably be done. It was said it could be done, but that the public would not be satisfied unless they could obtain Dutch bulbs. This may probably be so. There is a place on our south-eastern coast where there are manufactories of sardines carried on by Frenchmen. The sprat is utilised for this purpose; but if they were sent into the market branded as best English sprats, they would not find any sale; so the proprietor puts a French label on them and the public who consume them are quite satisfied, and, in truth, there is very little difference between them and the genuine article, and so it might be English-raised Hyacinths would have no chance with the Dutch ones. But can it be done? It may not be generally known that large quantities of Snowdrops, Crocuses, and early Tulips are grown in the neighbourhood of Spalding, in Lincolnshire, where the soil has some analogy to that of Holland, and where a large Dutch population, brought over for making the dykes which drain the fen country, settled down. Indeed, on the Ordnance maps we find "parts of Holland in Lincolnshire," and it is very probable that the Hyacinth might be added to their cultures. But then comes the question of profit. M. J. Mooy, of Haarlem, lately told us in the paper he read before the horticultural club that so large has the culture become amongst the farmers in the neighbourhood of Haarlem, that it does not pay. When, then, we consider the greater expense of labour in this country, I very much doubt, even taking into account the reduction of rent, whether it could be done with any likelihood of profit. I have written to a horticultural friend at Spalding with regard to some statistics of the bulb farming there, and when I obtain a reply shall be glad to communicate them to readers of THE GARDEN.

Such have been some of my experiences in both successes and failures. I say some, for I might considerably enlarge the list, but there will be, I think, sufficient to show that even in a small garden like mine there may be much for not only the owner thereof to learn, but much that may be of use to others. DELTA.

Major Superbus.—We must all regret to learn that our very old acquaintance Major Superbus is no more—has, if we use the expression without levity, joined the majority. The gallant officer had so long been enfeebled by the obscure and tedious complaint to which he has at length succumbed, that he never within our memory appeared in public. A rumour that he was to be seen at the Daffodil Conference at South Kensington in 1884 was, with reason, thought to be a mere hoax, especially as the conference was held on the 1st of April. Since then his friends have often promised to bring him to our gatherings, but have apparently found it impossible to do so. He was naturally of a retiring disposition, and probably feared lest he should be prevailed upon to blow his own trumpet publicly, a thing indeed which he never did, even in private. Some of us would

have gladly improved our acquaintance with him at his own home, but he was obliged to deny himself to visitors, partly because of this extreme sensitiveness, and partly owing to some difficulty which he had of late in keeping up appearances. It is no secret that the only known portrait of the major was taken, as a touching inscription says, under greatly reduced circumstances. Curiously enough, there is much difference of opinion about the authenticity of this portrait, some asserting that it is nothing but an imaginary or fancy picture, and that our friend could never be found to sit to any artist. We are left, therefore, with the strange memory of one whose name is almost too familiar to us all, while his features are absolutely unknown. He has left no family, nor any legitimate inheritor of his name, according to the opinion of those who profess to know best, though we believe there are claimants living near Manchester and elsewhere. Both the more intimate circle of his friends—if he had any—and those who at a greater distance knew him only through a more or less nebulous and wearisome correspondence will express their regret, not unmingled with a certain sorrowful relief, in the wish, *requiescat in pace*.—DAFFODIL.

MARKET GARDENING NOTES.

FOR weeks past it has been a trying time for market gardeners. How could things be expected to grow with such a continual prevalence of cold northerly and easterly winds, excepting for a few hours each day when the wind is tempered by the sun while in the meridian? Rhubarb is now being freely gathered; the Early Albert or Nonpareil is yielding a large supply, the Victoria coming on to follow it. These two are the sorts depended upon by the market growers round London, and the Victoria will keep up the supply for some weeks to come. Radishes are coming on, but need warm rains to quicken their development. One market garden in my neighbourhood has a large number of beds, leading to the conclusion that Radishes are eagerly devoured in the great world of London. But these are successional beds, following those of earlier sowings. Those who were able to get out their summer Lettuces before the late showers fell are now reaping the advantage of doing so. They all made roots, and are growing as fast as might be expected under such retarding atmospheric conditions. The sort grown is known as the Fulham White Cos, which I take to have been originally a hardy selection from the Paris White. That it is a hardy Lettuce is shown by the fact that it is sometimes raised from seeds in September and planted out in autumn to stand the winter, thus affording an acceptable early summer supply before the bulk of the main crop of Lettuces comes in. The plants recently put out were raised from seeds sown in cold frames in January and February, and they are planted in the open as soon as convenient in well-manured ground. The ground must be rich to produce crisp Lettuces, and when the weather is genial and showery they come on with amazing rapidity. A better stimulant for Lettuces can hardly be imagined than the decomposed manure from spent Mushroom beds that are made up in the open air. This becomes a rich friable mould, and if a good dressing be given to the ground it proves of the greatest advantage, accelerating the development of the plants.

Cauliflowers are being put out in some sheltered spots—an early variety to turn in quickly. Coleworts appear to be heavily grown this season. The seeds were sown in drills in the open a few weeks ago somewhat thickly, and the plants are well above the soil. As soon as large enough to handle they will be thinned out by taking the most forward plants and dibbling them out thickly on spare pieces of well-manured ground. This is generally done during showery weather; but if a time of drought follows after dibbling out, as it did last summer, the plants are some time in getting established.

One of the largest market gardeners in this district said a short time ago that he was at his wits' end

what to grow that will pay. Last year he grew a quantity of crimson, white, and purple Ten-week Stocks for bunching, and, finding there was a demand for them and that they fetched fairly remunerative prices, he is this season growing larger quantities. The seeds are sown in frames, having a gentle bottom heat in early spring, and the plants are now being put out in the open ground. Close by here a large piece was put out a few days ago, but unless rain comes at once they will all be roasted up. They were, no doubt, put out in the belief and hope that rain was imminent. One market gardener said that he expected rain a few days ago, because on Easter Sunday the worms were very busy throwing up their casts; on the Wednesday in Easter week a good soaking of rain fell. This practical observer remarked that the throwing up of worm-casts is a sure indication that rain is imminent.

Wallflowers, Anemone coronaria, single and double early Tulips, Forget-me-nots, and Narcissus poeticus, where they are in flower, are being gathered and bunched. I saw the other day a large piece of Ornithogalum umbellatum, the Star of Bethlehem, coming on into flower, and by the side of it a piece of cultivated wood Hyacinth, both of which are bunched for market. Of Stocks there are practically none; the winter settled them. In the absence of Stocks some of the other flowers will perhaps command a higher price.

FRUIT CROPS seem safe, but much will depend upon the frosts that often happen during the third and fourth weeks in May. The two leading market Plums are Prince of Wales and the Victoria, both good and constant bearers, the former the best, and both, though they carried heavy crops last year, are blooming well this season, or I might say the bloom is over; and now the question is, are they setting their fruit? I am afraid the cold winds are interfering with this. A large grower of Plums told me a few days ago that Prince of Wales Plum should be picked with the stems on, not without them; but the great difficulty is to get the workmen to take this trouble. If Prince of Wales is picked without the stems, packed and sent some distance, the juice exudes, and the fruits become moist and sticky, affecting their value for sale purposes. The Victoria does not bleed in this way—although it should not be picked without the stems—and therefore can be packed and sent a distance with greater certainty. The William Pear is blooming freely, and if all goes well there should be a good crop this season. I recently saw about 130 trees, young and old, and they were all in full and heavy bloom. In a good Pear season these trees will yield 300 bushels of fruit, besides windfalls; but it is so seldom the grower can rejoice over a good season. Old trees of Hesse that had a spare crop last year are full of bloom, but young trees that bore well last year are very spare of bloom. An experienced market grower states that it is best to have young and old trees so as to be certain of a crop annually. In the Chiswick district standard plants of Marie Louise are full of bloom, but rarely fruit; it is thought to be too tender to mature its fruits in the face of the biting east winds, or perhaps the London smoke proves too much for it. At this time of the year, when the wind is in the east, it comes sailing over towards the west in clouds. Beurré Bosc and Calebasse, two good useful market Pears, are also blooming well.

Of Apples, that popular market variety, Keswick Codlin, has the trees full of bloom, and Manks Codlin is not far behind it. Wellington is rather spare of bloom, but the Yellow Ingestre, a favourite in the market, promises to bear well. It takes a good many of this variety to fill a bushel, but it commands a good price. Besspool is very late in blooming. A variety locally named Mincham's Crab, really Minchall Crab, though a culinary Apple of only second-rate quality, is in demand for preserving, and it is an excellent bearer. It is said to be extensively grown in the southern parts of Lancashire, and a great favourite in the Manchester market. The tree is very hardy, and is not subject to canker. Catshead also promises well.

MUSHROOMS from beds in the open air are now being sent to market in considerable quantities, and a little warm weather will greatly help the production. It is a kind of tradition with the growers of Mushrooms that, as the moon waxes to the full, Mushrooms are produced freely; as it wanes, less numerously. Is this belief founded upon any known phenomena, or is it a mere stretch of imagination? R. D.

WORK DONE IN WEEK ENDING MAY 11.

MAY 5.

THE bright, sunny weather of the last few days has so dried up the soil, that rain is badly wanted for such crops as Onions, Carrots, Turnips, and Parsnips that have not attained sufficient strength to root deeply, and thereby continue to grow without check. Turnips, Radishes, and recent sowings of Broccoli and Kale are consequently being ravaged with fly, and either good waterings or dustings of lime or soot are needed to keep the plants growing till rain falls. Lately-planted shrubs also show signs of suffering, and where practicable we have, and shall occasionally continue, to water them till the roots have got well established, and, as a matter of course, the mulching will be left on all the summer. Apples, Pears, Gooseberries, and Roses that were moved during winter and spring have also been given a good watering, and the mulching again put in neat order and well pressed down. The border of the early viney, now that the fruit is swelling up for ripening, has been given a good dressing of artificial manure, and the long straw mulching replaced. Ventilation is now much increased, and a little air is left on—top and bottom—all night long, and this, with slight warmth in the pipes, never fails to produce high finish, colour, and bloom. Potted remainder of Calanthes and Ferns and Dracenas into larger pots. With shading from sunshine and heavy syringing night and morning, these plants now grow away at a rapid rate. Potted sub-tropical plants of several kinds into larger pots, and got out other bedding plants to harden, temporary shelters being improvised with mats, canvas, hurdles, &c. Thinning Madresfield Court and Gros Maroc Grapes; as both varieties produce large berries, they are thinned proportionately.

MAY 6.

Cold at night; no frost, but hot by day. Watered recently planted wall fruit trees, and whilst this sunny weather lasts the trees will be syringed each evening. Plums seem to have set their fruit well; Pears have suffered a little by frost, but, judging by appearances, there may be a crop. Apples now nearly in full blossom could not possibly look more promising, and small fruits are all first-rate. Apricots alone are thin; most of their flower-buds were destroyed before they unfolded by the long-continued cold weather that prevailed from Christmas to April. Planting out hardy groundwork plants in summer bedding arrangements; *Antennaria tomentosa*, *Veronica incana*, *Sedum acre elegans*, and *Herniaria glabra* are the kinds we use most largely. Cleared runners off Violets, pricked up the soil between the rows, and afterwards sprinkled over the ground a mixture of leaf soil, soot, and droppings. The best of the runners we have had dibbled in on a north border, and when well rooted they will be used for making new plantations. The Czar, Queen Victoria, and Marie Louise (double) are the only varieties we care about, and therefore none others are grown. Earthen up Potatoes, also Runner Beans, to protect them from frost; should this seem imminent, a length of tiffany will be stretched over the Runners, and Potatoes be covered up with long litter. Made another sowing of Mignonette, Sweet Peas, Parsley, Peas, and dwarf Beans; a regular supply of the latter is best assured by frequent sowings in small quantity, for which purpose we reserve the warmest borders. Thinning Grapes. Put out of doors a quantity of bedding plants to harden off; they are shaded from bright sunshine with tiffany for a few days to prevent scorching of the foliage; all, Fuchsias in particular, are very susceptible of injury from bright sunshine when first they are put outside, as are Abutilons, Castor-oils, Cannas, Hemp, and Wigandias, by cold winds; hence we steer clear of this difficulty by giving

such plants positions sheltered from east and north-easterly winds. Tied to sticks and potted a few more Chrysanthemums, and pinched out the points of all that are to be grown as bush plants; the tallest plants having outgrown their quarters in frames, and it being still unsafe to risk them to full open-air treatment, a kind of tent has been made for them by driving strong Alder poles into the ground, to which canvas 6 feet wide is secured, to form the walls, and over that is stretched cords for tiffany protection to rest on, should night covering up be needed, which it will be if the thermometer is less than 40° at ten o'clock at night.

MAY 7.

Still very sunny. Planting hardy summer bedders, also planted a few Calceolarias, Violas, and the first line of Pyrethrum Gold Feather. The plants were pricked out in light vegetable soil a month ago and now move with such an abundance of roots, that they will hardly feel the shift; a notion prevails that when sown too soon this plant fails through early seeding. Of course, it does seed earlier, but the remedy is a very simple one, and that is, to pinch out the flower-points as soon as they are observed. We give preference to early plants because they get large and well established in the ground before summer drought sets in, and consequently retain their effectiveness. Staked Peas; our earliest plots are in full flower, and to prevent watering we have had them mulched with long stable litter, a plan we shall follow with succession lots as soon as material can be had. Asparagus is now plentiful, and all heads that are 6 inches above ground we cut each evening, and tie in bundles of twenty-five, and put in water till required for use. The salt that was put on the plots some time since has, up to the present, kept down weeds; a few are now visible, and when rain comes down we shall put on another dressing, which will keep them down throughout the remainder of the season. Top-dressed Tomatoes in pots with loam and cow manure, as they are in rather small—10-inch—pots; a goodly amount of feeding is needed, and therefore, in addition to this top-dressing, manure water is given on alternate days. Cucumbers and Melons we thin out, regulate, and stop growths always once, and sometimes twice a week. The former, in frames, have been soiled up; and Melons in houses have had their fruit supported by fixing pieces of netting under each individual fruit. A soaking of tepid water once a week and a nightly dewing over with the syringe is all the watering they require, and as the fruit approaches maturity, horse droppings are spread over the surface of the beds for the double purpose of preventing the escape of moisture and of supporting the surface feeders. Potted off newly-struck cuttings of Coleuses, Marguerites, Carnations, and Begonias; also divided some of the fibrous-rooted section that we use for bedding purposes; the new white-flowered variety, Princess Beatrice, is likely to prove a great acquisition. Grape thinning; pinched back side shoots of Lady Downes Vines and tied down those that were touching the glass—work that has to be done piecemeal, as the shoots are so brittle they snap off if the least force to bend them be attempted. Watered Figs; the fruit is swelling preparatory to ripening, and liquid manure was freely given. Late Muscats will be very shortly in flower, and that there may not be an excess of atmospheric moisture during the time they are in blossom, the inside border has had a good drenching, as also have second and late Peach houses.

MAY 8.

Very hot, but sunshine less intense. Watering newly-planted fruit trees and shrubs has now become a necessity, and we have had a busy day with this kind of work and cleaning up. In fact, this is really the only kind of work our outdoor hands have been able to accomplish. Washed Apricots and Plums on walls with garden hose. By the use of a moderate amount of force, dead blossoms, cobwebs, &c., are removed, and the water does an infinity of good as it descends from the walls into the slight cavity that the dry weather causes—however thick the mulching—between the wall and soil. This cavity we are careful to disperse by treading or pounding the soil against the wall the day following the washing of the trees. One or two trees of Plums were badly attacked with fly, and, in addition to the wash with

the hose, dustings of Tobacco powder have been given. Did final disbudding to cordon Pears on walls, and well pressed the mulching against both the tree stems and walls. The work in houses has been a general overhaul in respect of cleaning up and shifting of plants, Strawberries in particular; the last batch of Vicomtesse Héricart de Thury was put in, together with the first batch of President, these being the only kinds we force, and that for the best of reasons, namely, that they have never failed us, but have always been good alike. President does not set such a profusion of fruit as the Vicomtesse, but they come larger, and have therefore to be thinned more freely. From nine, or at most twelve, fruits to a pot is never exceeded. Finished thinning Madresfield Court and Gros Maroc Grapes, and began that operation in a vinery containing Alicante, White Tokay, Barbarossa, Mrs. Pearson, Alwrick Seedling, Mrs. Pince, Gros Colmar, and several other kinds. Got out a goodly number of bedding plants, rearranged plants in other houses, and made all places look as neat as the present crowded state of the house will allow.

MAY 10.

Very warm, cloudy, but fine weather, conditions that we shall not be sorry to have continued till we get a good rain. Planting out hardy groundwork plants in summer bedding arrangements. Planted out Cabbage and Cauliflower. They are spring-sown plants, and having been pricked out in light leaf-soil they move with balls of earth and are planted in drills with trowels, and having been well watered they will start into growth at once. Another piece of ground that was lately cropped with winter Spinach is being prepared for late Peas by trenching and heavy manuring, and our late Celery ground is now being planted with Cauliflower and the earliest Coleworts. Watered and thinned out early Turnips. Many are seeding, and I fear the crop will be a light one; but a sowing made last week will hinder the loss being of much consequence. Mowed, weeded, and cleaned up fernery. Nettles and the common Bracken are most persistent enemies to us in this garden, but we have given them such a hard time of it to-day, that they can hardly be much trouble to us again this year. Thinned fruit in late Peach house and tied down shoots to trellis. Continued Grape thinning. Potted zonal Pelargoniums that are intended for autumn and winter flowering in pots. For the present they will have the protection of a cold frame, but during the summer they will be grown on in the open air, the pots being plunged in ashes to save watering. Filled another hotbed frame with Alternanthera cuttings. The first batch are now good plants, and air is freely given and the plants well syringed when being closed up early in the afternoon. Potted single Dahlias into 5 inch pots, and a few of the best Pelargoniums that are required for vases into the same size. Potted Tomatoes also into larger pots, and others intended for planting in the open borders have been got out to harden.

MAY 11.

Dull, with slight rain; just the kind of weather suited for getting out bedding plants to harden preparatory to planting out. A couple or three days of dull weather when first the plants are put out suffice to render them impervious to sun-scorching; hence we prefer to do this kind of work in dull weather. The scorching weather of the past week or ten days has upset our calculations in the matter of Strawberry supplies, and the work of retarding ripening, as also of preserving ripe fruit in good order, has had attention to-day; a quantity of the ripest have been put into a north pit, and others not quite so advanced on to shelves in vineries, with the fruit turned northwards. Other relays of plants have been put in the Strawberry house in their place, and a quantity just set thinned of surplus fruit. Watering twice a day is now the rule, and after the fruit is thinned one of these consists of weak manure water. Did more Grape thinning and potting and staking of Chrysanthemums. Made another sowing of Primulas, Cinerarias, and Melons. Pinched out the points of such shoots of Figs as were not required for furnishing the trellis; by this means—frequent pinching—we maintain an even balance of young and fruiting wood from bottom to top of tree. Scythe mowing round trees

and banks of lakes, and clearing up the same, have taken up half the time of our outdoor hands to-day, the only other work done being the planting of a few Cauliflowers, Brussels Sprouts, and cuttings of Seakale. HANTS.

FRUITS UNDER GLASS.

PINES.

WITHIN the past week we have registered 6°, 5°, and 3° of frost on successive mornings, and with a steady breeze from the south the glass stood at 75° to-day in the shade. Brilliant weather like this coming so suddenly may not quite suit the grower of hardy fruits, as he never knows what any morning may bring forth. One thing, however, is certain: this bright, cloudless sky is a grand help to the forcing gardener, for not only can he ventilate freely, but he can also shut up with tropical heat and moisture without having occasion to disturb his closely-banked fires. To no one is this long-wished-for return of the sun more acceptable than to the Pine grower, who toiled week after week under a cold, leaden sky to get his early Queens ready for the London season, for now he can prevent the crowns from becoming drawn by airing freely through the early part of the day, he can feed at short intervals with rich diluted liquid, and he can venture to dew the plants overhead after closing without running the risk of producing fine fruit with discoloured centres. So far all is satisfactory, as early started Queens enjoy a high temperature, but it is possible that strong solar heat may produce violent fluctuations in the plunging beds. These, then, must be closely watched, and in the event of the bottom heat exceeding 90°, the pots must be carefully raised to let out the steam before it has time to scald the tender roots now working round the outsides of the balls, in the crocks, and possibly creeping through the apertures into the bed itself. These sudden starts do not often last long, but long enough, if overlooked, to cripple the plants and bring on premature ripening, when the other extreme, heating, dry and a rapid decline follow. Too much moisture is generally the cause of the first evil; too little produces the second; the latter must therefore be averted by the introduction of hot water, poured in between the pots and in sufficient quantity to penetrate to the drainage. If this does not produce the desired effect, the most objectionable practice of turning and renovating the bed is the only course open to the grower. Late autumn starters and the earliest Queens as they show signs of ripening should be lifted out bodily and placed in a dry, warm house until they are fit for use, when their places may be filled up with others which may have started in the succession pits.

The general stock of fruiting plants, including Queens, Rothschilds, and Cayennes, will now require daily attention. All must be neatly staked as soon as they are out of flower, and the first must be divested of gills and superfluous suckers before they have time to rob the fruit. One or at most two suckers are quite sufficient to leave on the Queens, and the others being extremely shy, every particle of sucker and gill is generally left until the fruit is well advanced to make stock. When all the fruits are up and out of flower, the afternoon overhead syringing may be commenced in bright weather, but caution with this instrument, at all times advisable, will be the safest course until we are fairly into the enjoyment of summer weather. Meantime, atmospheric moisture being absolutely necessary, the walls, the surface of the bed, and the tops of the pots may be moistened with warm water, occasionally with soot water, every day at closing time.

Succession pits.—Young plants shifted in March and April and plunged in a sharp bottom heat, as previously suggested, will now be making rapid growth, and having taken a firm hold of the extremities of the balls, they will continue this progress, as they are in the best possible condition for taking liberal supplies of tepid liquid manure and moisture. The growth from such plants being so broad and firm they should be made to lay on all they can before they require shifting, an operation which must be performed as soon as they show signs of having filled their pots with roots. If the plants in question are from strong autumn suckers, they should soon be fit for placing in the fruiting pots, say 10 inches to

11 inches for Queens, 12 inches to 14 inches for Cayennes. These should be clean, dry, and carefully crocked, as they will have to carry the plants through the fruiting stage to the finish. A general shift in this or any other department always offers facilities for renovating the buds, but unless they are really unsatisfactory, the less they are turned and disturbed the better. A much safer plan at this time of year, be they composed of leaves or tan, is to level and tread the old beds as soon as the plants are lifted out for potting. Water them all over if necessary, certainly round the insides of the walls, with boiling water to catch woodlice and crickets, and place the new material entirely on the surface during the process of re-plunging. The heat in summer beds so treated generally revives, and while safe from root burning the plants thoroughly enjoy the moisture given off by the newly watered and partially decayed tan or leaves.

MELONS.

Plants in all stages, although nights are cold, are evidently enjoying this fine run of brilliant weather. In many places the earliest will now be ripe or approaching that stage, and if tropical heat has any influence on flavour, Melons now finishing should be unusually good this season. Plants in pots on which the fruit is swelling will take liberal supplies of diluted liquid every day, and fresh top-dressing must be given to them as often as hungry feeders force their way to the surface. The material used for this purpose depends entirely upon taste. Some mulch with manure; others use good loam fortified with bone dust, or perhaps dispense with the latter and swell up the fruit with diluted liquid. Whatever is used, feeding should be discontinued, and pure water alone administered when the fruit begins to change for ripening. Melons, as I have often remarked, should always be grown in the full blaze of the sun, but the fruit of some varieties is apt to scald when grown in houses which advancing crops render it necessary to keep charged with atmospheric moisture. The good old Golden Perfection and Victory of Bath sometimes get caught when shut up hot and moist, and although their quality may not be impaired, their appearance is damaged, and for this reason the fruit only should be shaded with thin sheets of paper. Advancing plants should now be trained and manipulated every day; the finger and thumb will then do the work; there will be no waste of force, as useless spray and male blossoms will be conspicuous by their absence, and the use of the knife will not lay the foundation of canker. When the Vines are long enough and sufficiently strong to produce fruit-bearing laterals they must, of course, be stopped to concentrate the flow of sap where it is most needed, and the removal of male blossoms must be discontinued. Early in the season or during dull, cold weather in summer overhead syringing and copious root-watering may be diminished while the fruit is setting, but so long as the sky is bright and air can be freely admitted this precaution is now unnecessary. Where the pot system is regularly followed up fresh sowings in squares of turf or single pots should be made at short intervals, and batches of plants established in fruiting pots and brought on in succession pits should always be in readiness for filling up compartments on the day the last fruit is cut from the plants they are intended to follow. By adopting this plan, and never allowing a small pot-bound plant to stand about, attacks of spider can often be avoided, and fresh vigorous successions 2 feet or more in height can always be grown as duplicates.

Pits and frames.—Plants in these structures will thoroughly enjoy this tropical heat and make rapid progress during its continuance. Conditions so favourable may, however, be but fleeting, and for this reason the disastrous effect of checks and chills must be guarded against by unrelaxing attention to the covering and linings. Meantime give air early on bright mornings, avoid draughts, reduce early, and having performed the necessary pinching and training, shut up in time for the heat in the frames to touch 90°. The great secret of success in the management of frame Melons, as I have lately stated, consists in the maintenance of a steady top and bottom heat, in the use of good sound loam that will produce firm wiry vines and stout leathery foliage,

and daily attention to the removal of useless growths and male blossoms.

EARLY ORCHARD HOUSE.

Watering, syringing, and ventilation from this time forward must be conducted on a very liberal scale, otherwise pot trees now in full growth, and most likely completing the stoning process, will very soon suffer, if they do not cast their fruit. Morning watering is generally practised through the early stages, but when darkness is more than counter-balanced by daylight the main supply should be given to the trees either before or immediately after the house is closed for the day. I prefer watering before the trees are syringed, as there is at that time no moist surface to mislead, while the crock roots may require a thorough soaking. Moreover, night watering supplemented by sound syringing keeps the roots and foliage moist and cool, and fits them for the strain of a succeeding bright day. The first syringing should be performed with closed ventilators as soon as the morning temperature begins to rise. Backwards and forwards with some force is the proper way, as every leaf and stem should be thoroughly bathed, and the beds on which the trees stand should be well watered with diluted liquid to be exhaled throughout the day. If the houses are bright and airy and the pots are full of roots, it is a good plan to cover the borders with well worked litter from the stables, the sprinkling of which at short intervals will keep spider in check and feed the foliage. The management of the air in the orchard house is a very important matter, as fruit pale and vapid or bright and luscious can be produced by neglect or proper attention to the admission of air. Assuming then that the house is closed early in the afternoon with plenty of sun heat and moisture, a chink of night air should be given about 8 p.m. and taken off early in the morning. Day ventilation will commence when the temperature begins to rise from the morning syringing, say at 68°, and more air must be admitted, little and often, until the maximum of 76° to 80° is reached. Above this figure, even with pure air, should no house containing stone fruit trees be allowed to go, but a gradual reduction must be commenced and continued to prevent a sudden drop until the time arrives for closing. When the stoning process is complete and the fruit begins to swell, the final thinning must be made with a firm hand, all gross shoots must be pinched to increase its size, and the foliage, where practicable, turned aside to let in sun and air. The period from the completion of the stoning to the ripening being short, the top-dressing so frequently recommended must be laid on as often as the old is exhausted or washed away. If these principles, broad and general, are observed, and forcing through the day is succeeded by rest at night, fruit of good size and fine colour will reward the cultivator.

Late or general houses.—With one exception, the management of the early house through the flowering and setting stages applies in this compartment also. That one exception is the free admission of air combined with a more liberal use of the syringe. In early houses we do not think it advisable to admit currents of air, neither do we follow up heavy daily syringing. In late houses we very often open ventilators first thing in the morning, and syringe the trees every day throughout the season of growth. A house here containing trees over twenty years in bearing has been syringed twice every day throughout the flowering period, and we have thousands of fruit to thin off. In cases of this kind thinning should be commenced and closely followed up before the trees begin to feel the strain of the crop; the finest only should be retained, and if a mistake is made it should always be in favour of light cropping. Disbudding will, of course, be carried on simultaneously with thinning, and if old trees which have long since reached their full stature require shortening back to good growths, the present time is perhaps the best for pruning them into shape. Pinching must be regulated by the strength of the growths and the space at command; if limited, the first stopping may be made at the sixth leaf; if ample, I prefer giving them a great deal more latitude. Good soft water, and plenty of it, plied twice a day right and left is a very important element. Soot water may be used twice a week at least, and diluted liquid or guano water may

be given to old trees at every alternate watering. If unbeated houses have been kept back to secure a good set of fruit and speed is now the object, the ventilators may be closed early on fine afternoons with solar heat and moisture; or, in order to have the crop fit for use after ordinary hardy soft fruits are over, ventilation on the most liberal scale may now extend over the day and shortly through the night also.

CHERRIES.

Early varieties in early houses will now be well advanced if not quite ripe, and later sorts will be sufficiently forward to admit of increased and continuous ventilation, combined with a slight decrease in the supply of atmospheric moisture. It will not, of course, be wise to shut off moisture altogether, as Bigarreus will be improved by daily syringing whenever the house can be freely ventilated. When all the fruit is ripe, keep the house as cool as possible, shade from bright sun if necessary, and see that black-birds do not gain an entrance.

PLUMS.

If in pots and judiciously arranged, all the earliest varieties will be together. Midseason sorts will form the next block, and the latest, including the grand old Golden Drop, will bring up the rear. Syringing with nice soft water can then be discontinued at the earliest end when the fruit begins to change colour, and so on until finally the latest no longer require it. Like all other fruit trees confined to pots, Plums require plenty of good solid food in the form of top-dressing and copious draughts of warm diluted liquid; the first must be repeated as often as the old is washed away, and the liquid may be continued until the fruit has attained its full size, when pure water, still in plenty, as Plums always fill their pots with roots, will be essential to the health of the trees and ripening up with the highest flavour. Plums, after they are stoned, will stand temperate forcing, but they must have an abundance of air, otherwise they will never lay on perfect colour. If high feeding induces frequent flushes of soft lateral growth, these must be constantly pinched to let in light and air, and to concentrate the force of the food during the time the fruit is swelling. They are at all times subject to aphid, green and black, and so poisonous and detrimental is a slight attack that the appearance of the first curled leaf should always be the signal for fumigating. If kept dry and cool and safe from birds, early Plums can be preserved for some time after they are ripe, mid-season varieties still longer, and Golden Drop will hang until it becomes a delicious sweetmeat. The culture of Plums need not be confined to pots, as they do well planted out in sound loam and lime rubble, provided the root space is limited and they are well mulched and fed when the fruit is swelling. They can be grown as pyramids or bushes when they require annual root-pruning, or they may be trained on trellises like Peaches. Varieties, many of them inferior, being so numerous, the best only should be selected. One of these should be Transparent Gage. Kirke's and Jefferson complete a trio fit for an emperor. W. COLEMAN.

Eastnor Castle, Ledbury.

Vine insects (P. P.).—Your Vines are attacked by one of the scale insects (a species of Pulvinaria). It is rather difficult to know what to recommend at this time of the year as a means of destroying it. It is difficult to kill, and some insecticides which would have that effect might injure the young shoots. Going carefully over the Vines and dabbing every scale with methylated spirits of wine slightly diluted with water, applied with a camel's-hair brush, is a very effective, but tedious way. Painting the rods with paperhanger's paste or starch has been much recommended; either chokes the insects and prevents the young ones from coming out of the eggs. One part of paraffin oil and one part of soft soap dissolved in warm water make a good wash. As soon as the leaves are off dress the Vines with one part gas tar and four parts clay mixed with enough water to make a thick paint. Some of the loose bark should be peeled off before the dressing is applied, but not in such a way as to injure the Vines. There must be no scraping or knives used in the operation.—G. S. S.

INDOOR GARDEN.

LARGE-LEAVED ANTHURIUMS.

WITHIN the last five or six years several very handsome-leaved Anthuriums have been added to the cultivated plants of this genus, which outside botanical collections is only scantily represented if we look at the large number of species—about 200—that have been discovered. At p. 301 reference is made to the several kinds that are now widely popular as flowering plants, and we now call attention to those whose claims to favour reside only in the beauty and large dimensions of their leaves. To obtain a good idea of the variety in form and size among Anthuriums one cannot

pale green, and about 2 feet long. The blade, when young, is succulent and coloured a deep shining olive-green, which changes to a lighter and opaque colour when mature. The striking appearance of the foliage is owing to the plumose arrangement of the nerves and the puckered or very prominently waved upper surface. The flowers are not attractive, and therefore they should be removed as soon as they appear, which will cause the leaves to become larger. This fine Aroid is a native of Columbia, and was introduced by the nurserymen after whom the species is named.

A. WAROCQUEANUM ranks next in point of length and beauty of foliage. It has a short stem; leaf-stalks 2 feet long, semi-erect, smooth,

The colour of the blade is a deep grass-green. If this plant were not so difficult to keep in health, it would certainly become one of the most popular of fine foliated plants. It was introduced by Mr. Bull from Brazil in 1882.

A. CRYSTALLINUM.—This is a comparatively well-known stove plant, being often seen represented by very large specimens, as it grows freely and vigorously in an ordinary stove. The stem is short, branching, and almost hidden under numerous aerial roots; the leaf-stalk is 18 inches long, pale brown when young, green when mature; blade 2 feet long, $1\frac{1}{2}$ feet broad, heart-shaped, the lobes at the base overlapping, and the surface smooth and slightly waved. Colour a deep velvety green, with the principal nerves set in broad irregular lines of sparkling silvery grey, which in the sunlight looks like frosted silver. When young the leaves are a soft chocolate colour. There is a fine specimen of this at Kew with twelve large leaves. It is a native of Columbia.

A. MAGNIFICUM is something like the last, but has leaf-stalks 2 feet or 3 feet long, 4-angled and winged; the blade is 3 feet by 2 feet, heart-shaped, and dark olive-green, with grey-green crystallised markings along the nerves. It is a native of Columbia. Good plants of it may be seen at Kew.

A. REGALE differs perceptibly only from the last in having the leaf-stalks rounded instead of quadrangular. Both these kinds, when planted out in rich soil, form magnificent specimens, which for large stoves are of almost unparalleled value.

A. BROWNI has leaf-stalks 5 feet long, erect, smooth, green, and a blade often 3 feet in length by about $1\frac{1}{2}$ feet in width, cordate in shape, the sinus very broad; colour a shining green. It is a stately plant when grown to its full proportions.

A. HASTIFERUM and *A. ÆRANTHE* have red-brown leaf-stalks $2\frac{1}{2}$ feet long, and cordate leaves 2 feet in length, with the sinus at the base very wide and the lobes broad and spreading; their colour is a pale olive-green.

A. TRIFIDUM is distinguished by its wide blade being divided into three large lobes, Trefoil-like, and leaf-stalks 3 feet long. When young the leaves are handsomely tinted with red-brown.

A. WENDLANDI has a broad leaf-blade divided into eight long sinuated lobes, thereby resembling *A. pedato-radiatum*, the leaves of which are well described by the name.

Besides the above, we might mention numerous other kinds which are attractive either because of their gigantic foliage or variegation. Many of these are specially valuable for planting in large ferneries or stoves, under the shade of other plants, few plants thriving better in such situations than these and other strong-growing Aroids.

The species above described all require tropical treatment—a rich, open, well-drained soil, and abundance of moisture, both at the root and overhead, at all times of the year. B.

Habrothamnus carminatus ruber.—This *Habrothamnus* is a capital plant for covering the back wall of a cool house. It is much more effective than *H. elegans*, the blossoms of which are not so bright as those of *H. c. ruber*. The latter blooms more freely, too, than the kind just named. Our plant was raised from a cutting (cuttings strike readily in spring plunged in a gentle bottom heat) five years ago; it grew rapidly, and now covers a wall 12 feet high and 6 feet wide. It flowers freely for several months, and the flowers last a long time when cut and placed in water. Given plenty of water at the roots and copious syringings overhead, this plant makes rapid growth. When the allotted wall space is covered, the shoots should be closely pruned in every autumn; and when growth again commences flowers will be borne in abundance on every shoot.—E. M.

Double Violets in pots.—During the past winter want of sun was much felt, and Violets growing in frames were not always a success. Whole framefuls of plants in some cases did not yield more than a very few flowers, and they were of poor



A plant of *Anthurium Veitchii* in Baron Schroeder's garden, The Dell, Egham. It bears thirty-five leaves, fourteen of which measure over 47 inches in length by 16 inches in width; the largest leaf is 55 inches in length by 18 inches in breadth; the broadest measures 19 inches across. (From a photograph taken for THE GARDEN last autumn.)

do better than pay a visit to Kew, where in the Aroid house (No. 1) we counted the other day nearly one hundred kinds. Many of these a horticulturist would pass over as of no value for his purposes, but he would nevertheless note a considerable number that might be employed with excellent effect in planting or filling large stoves. *A. Veitchii* represented in the annexed woodcut is, perhaps, the most remarkable of the large-leaved Anthuriums, and the magnificence of such a specimen as is here shown may be imagined when we state that each of its leaves is between 3 feet and 4 feet in length and about 18 inches in width. The leaf-stalks spring from a short, thick, upright stem, and they are erect, round, smooth,

pale green; blade $2\frac{1}{2}$ feet to $3\frac{1}{2}$ feet in length by about a foot in width, lanceolate in outline, the lobes at the base rounded; its colour is a dark opaque green, with the nerves banded with pale grey-green, and crystallised. It grows rapidly and forms as grand a specimen plant as the one shown in the woodcut. There is a good plant of this kind in the collection at Kew.

A. SPLENDIDUM is a very handsome Aroid, but difficult to manage, owing to its thriving only when grown in a hot steamy atmosphere. A plant thus grown at Kew has leaves 18 inches long by about a foot in width, their form heart-shaped, and the whole surface broken into numerous blister-like projections, looking much prettier, however, than this description would suggest.

quality. In small gardens, where a frame cannot be spared wholly for Violet culture, capital flowers may be grown in pots from 4 inches to 8 inches in diameter, according to the size of the plants. They can be set on shelves close to the glass in any house having a favourable aspect. In such a position they are not so liable to damp as they are in frames. The plants should be placed in pots at the time when they are usually put in frames.—M.

IVY-LEAVED PELARGONIUMS.

THE vast improvement which has recently taken place in Ivy-leaved Pelargoniums, especially in Continental raised sorts, has placed these plants in the foremost rank amongst subjects worthy of extended cultivation for greenhouse decoration and for cut flowers. Not long since it was customary to find a few representatives of this section of Pelargoniums grown, but indifferently and chiefly with the intention of planting them to hang over vases, &c., in summer. Doubtless for this purpose some of the free-growing trailing varieties were, and still are, well adapted, but in addition to these, the newer introductions, being dwarf and compact in habit, form excellent subjects for pot culture. They are easily grown and are exceedingly floriferous even in a small state. All the varieties of this section which could be obtained were grown for trial at Chiswick in 1876, and had their respective merits reported upon. At that time nearly all which were procurable were well known; they did not represent much diversity in colour and the flowers were, with few exceptions, single; new varieties of zonals, both single and double, were appearing in quantity well nigh innumerable, but few seemed to interest themselves in improving the Ivy-leaved section. Lately, however, plants belonging to this group have been rapidly improved, especially the semi-double varieties, some of which are represented in colours as bright and distinct as those of the zonals. This statement will scarcely seem credible to many Pelargonium growers who have had no opportunity of seeing varieties, for instance, of M. Lemoine's production, but visitors to the South Kensington meetings of last year will remember the fine stands of cut flowers exhibited from Swanley. About ten years since the only semi-double kind procurable was König Albert; now there are some three dozen or more in commerce.

THE CULTURAL REQUIREMENTS of Ivy-leaved Pelargoniums are easily understood. Like all other members of the genus, they flower best if grown in comparatively small pots, and fed with artificial or liquid manure as soon as growth is active. Cuttings of young shoots strike in a short time, and a stock may thus readily be increased. Old plants may also be grown in successive years if desired, but young ones of about two seasons are best. The trailing varieties should be trained on wire trellises or sticks arranged either pyramidally or balloon-shaped; many of the newer kinds present an apparently hybrid character between the zonal and Ivy-leaved sections, and these are perhaps best tied loosely to a single stake. The habit may readily be judged by the plant's appearance even when young and by the leaves. If Pelargoniums are grown with the intention of their flowering in small pots, as recommended above, it is important that good rich soil should be provided. Rough loam and dried cow manure in the proportion of two parts of the former to one of the latter will form a good compost; a little crushed charcoal should be intermixed to keep the other ingredients open. Ivy-leaved Pelargoniums succeed well along with Fuchsias; they are equally as much benefited by syringing as are Fuchsias until they come into flower, and they require when growing plenty of water at the root. Throughout the winter they should be kept dry, or nearly so, and allowed to rest, but those not already started should be seen to at once, and started in an intermediate temperature where air can be freely admitted when requisite. All young shoots must be kept tied in, as they grow fast and soon become broken if this is neglected.

IVY-LEAVED PELARGONIUMS are most acceptable towards the latter part of summer when the numerous subjects that are available for greenhouse embellishment through the earlier part of the season are under treatment for another year. It is confidently anticipated that if any of the beautiful semi-double varieties to which attention is here more particularly directed were added to any garden where decorative plants are required, they would under the ordinary care afforded the scarlet zonals in pots add an additional feature to the greenhouse, and excite much more than a passing interest the whole time during which their numerous trusses of flowers last.

J. G. K.

WATERING WITH COLD WATER.

If the operations of successful market growers are to be taken as a guide, we may conclude that undue importance has been attached to watering tender plants under glass with water of the same temperature as that in which the plants have been grown. If, as we imagine, there is some analogy between the laws which govern the health of plants and human beings, we ought not to feel much surprise that suddenly dashing cold water on the foliage of plants growing in a warm temperature should be unproductive of evil results. If there is one point on which doctors do not disagree, it is that which relates to the benefit conferred by the use of the daily early morning "tub." Water almost cold as ice is poured over the skin which for some hours has been maintained at a uniformly, more or less, high temperature. So far from giving a chill, we are told that this braces up the system to resist the effects of a changeable climate. If such be true of the human frame, may it not be equally true of plants, which we know suffer much as we do from climatic changes? It may be that in their case the cold-water *douche* has also a stimulating effect. I am not, however, offering a decided opinion on this matter; I merely advance a theory which practical experimenters may disprove or verify. Those having warm houses will have no difficulty in forming a decided opinion as to the comparative merits of cold or more or less warm water for syringing and watering. It is an easy affair to set a few plants on one side, and give them cold-water treatment through the season, watering and syringing with water taken directly from outside.

That cold water may be employed without danger for the purposes just named I once had good proof. In a large house arranged in the natural style with tender tropical plants there was no other means of watering than with water contained in a large tank which had no protection whatever from the weather. The house was 60 feet high, and the Palms, Musas, and similar plants with which it was filled required a large amount of water. This was given with a hose, there being sufficient pressure to throw the water over the foliage. This treatment had been practised from the time when the plants were set out in a young state, thus extending over a period of some ten or more years, and when I took charge of the house they were in admirable condition as regards health and vigour. As the house was heated by steam in copper pipes running underneath iron gratings, the soil nearest the walks got dry quickly, so that a considerable amount of watering was required, even in winter when the tank outside was at times covered with ice. Nevertheless, I do not remember to have perceived any difference between the plants most frequently watered and sprinkled in this way and others less subjected to such treatment. All succeeded remarkably well; many things, indeed, such as *Musa paradisiaca* and *rosacea*, *Brownea grandiceps*, Palms, and Tree and dwarf Ferns grew quite rampantly. If cold water exercised a very injurious effect on the roots and foliage of tender plants, as it is often supposed it does if plentifully used, there would certainly be an end to Cucumber growing in many of the London market gardens, where the only water obtainable is taken cold from the tap. The Cucumbers

grown under such circumstances are, however, as good as can be desired.

If cold water remained any time on the foliage, a check would undoubtedly follow, but a few minutes suffice to bring it to the same temperature as that of the house; and although a longer period must elapse before this can take place when used for watering, it is not sufficiently long to exercise any appreciable effect on the roots. In any case it is well to know that water much colder than the ordinary temperature of the house may be used in watering, and syringing without injury to plants subjected to such treatment.

J. C. B.

ORCHIDS.

MANURING ORCHIDS.

ONE of the subjects discussed at the Orchid Conference was whether or not manure applied in the ordinary way in which it is given to other plants is beneficial to Orchids—that is, applied to the roots in either a solid or a liquid state. It has generally been admitted that when the atmosphere of the house in which Orchids are located is kept supplied with ammonia during the season of growth, that the ammonia materially assisted them. The fact of so many of the Orchid family being epiphytal in habit, with roots, unlike those of other plants, out of the soil, has led to the supposition that they subsist on air and water alone; whereas it should be borne in mind that, independent of the sustenance they get from the rich vegetable matter in which the extremities of their roots revel at the foot of the trees on which they grow, the outer bark to which they cling in its ever-decaying state affords a constant supply of nutriment. Moreover, the roots of Orchids are short-lived, and in their decay are in a condition, and also position, to afford food to the new feeding fibres that are annually produced from the base of the young bulbs, and that descend amongst those that are decayed, and in them have a store of vegetable matter constantly being renewed. These conditions under which the plants exist naturally go to prove that even the epiphytal species have much more to live on than what is afforded by the dews and rains that reach them. So much in respect to the sustenance which Orchids when in a state of nature get; and although possibly most of those who have hitherto grown them have given nothing in the shape of food except the Sphagnum and peat in which the roots are placed—not having used manure in any form—still, there are others who have long since tried manure in various ways, and have proved it to be beneficial. When I first began to grow Orchids, more than thirty years ago, I used manure regularly and freely to such kinds as *Calanthes*, *Zygopetalums*, *Lycastes*, *Anguloas*, *Cymbidiums*, *Phaiuses*, and others of the stronger-growing species, and found that I could get much stronger growth with it than without it. What I used was thoroughly decomposed stable or cow manure, liberally mixed with the ordinary potting material. Some of the most successful growers with whom I have been acquainted have constantly given manure to their plants. The marvellous growth of one collection in particular, that at Hurst House, near Liverpool, excited the wonder of all who saw it some twenty-five years ago; the mixture in which the plants contained in it were grown consisted of peat, old Mushroom manure, and charcoal in equal parts; this was used indiscriminately for all alike, including *Cattleyas*, *Lælias*, *Oncidiums*, *Dendrobiums*, *Cypripediums*, *Lycastes*, *Aerides*, *Saccolabiums*, *Vandas*, and others. Those who saw the Hurst House plants had no need to enquire what they were grown in, as the material in the pots spoke for itself, not a particle of

Sphagnum or anything that could disguise it being present. One of the best growers of *Dendrobium nobile* and other common kinds grown for the sale of cut flowers used always to put a layer of dried horse droppings over the crocks, beneath the peat and Sphagnum with which the remainder of the space in the pots was filled. Cases like these, and others which I could name where manure was used, not by way of experiment for a time and then given up, but continuously, show that its use is no new discovery.

THE MOST REMARKABLE INSTANCE of the effect of manure on Orchids that has come under my notice was that of a collection of these plants shown at an exhibition held last year at Waltham Abbey. The plants in question were shown by Mr. Gilks, gardener at Higham Hill, Walthamstow; the unusual growth that several of the specimens had made at once struck the eye, and the growth was quite equalled by the immense length of the spikes and number of the flowers which they bore. A mere inspection disclosed the fact that it was only in the growth made the previous season that there was anything remarkable, as that of former years was nothing but what might have been seen anywhere in the case of plants in fairly good health. In place of the gradual increase in the size of the growth that usually takes place in well-managed Orchids until the maximum is reached, the bulbs and leaves had made a sudden bound upwards, such as I have not previously met with, and which was commented on by those acquainted with Orchids who saw the plants exhibited. On making enquiries, I found that the manure used was fish potash. Feeling desirous to know something more of the plants in question, I recently got permission to see them. The collection is comparatively small, occupying three houses. Amongst the most remarkable may be named *Lycaste Skinneri*, of which there is a large number filling a good part of the stage on one side of one of the houses. The last year's bulbs and leaves of these are more like those of *Anguloas* in size than *Lycastes*; the bulbs of several that I measured are from 6½ inches to 7 inches long and 7½ inches round, with leaves 28 inches long by 5 inches wide; the quantity and strength of the flowers which the plants were bearing were in keeping with their condition. *Cymbidium Lowi*, which regularly breaks double, has now ten leads, several of the partially developed spikes measuring over 4 feet long. *Cattleyas* and *Laelias* equally show the effect which the manure has on them. Some eighteen imported plants of *Laelia purpurata*, bought three and a half years ago for five shillings each, have made most vigorous growth; a small plant of *L. elegans* last season broke double from a bulb with leaves 7½ inches long by 2 inches wide; the leaves on the young bulbs are 13 inches long by 3 inches wide, and the bulbs proportionately large. A *Cattleya lobata* with bulbs that did not produce flower-sheaths last season has made double breaks, both flowering this year, and quite as large again as those from which they sprang. *Odontoglossums* of various kinds increase in size amazingly since manure has been given them; the second year's growth of imported plants of *O. crispum* has attained a size such as I do not recollect to have seen equalled before in the time. *O. Uro-Skinneri* has made growth such as is rarely seen, whilst last year's bulbs of *O. pulchellum* measure 3½ inches long by 4½ inches round, and are at least three times the size of those from which they sprang. Of *Oncidiums*, *O. macranthum* seems as if it scarcely knew how large to grow. *Sophrontis grandiflora*, of which there are several hundreds, is in unusually fine condition,

the flowers being literally crowded together. *Zygopetalums*, *Cypripediums*, *Cymbidium eburneum*, *C. Mastersi*, *Angracum sesquipedale*, and numbers of others on which the manure has been tried show its effects in a way that cannot be mistaken. *Oncidium Lanceanum*, from the character of its growth, would not seem so likely to be influenced by manure as some species, yet a plant of it, consisting of one lead, to which the manure was given last summer made a leaf more than double the size of that from which it was produced. Manure was first tried on a few of the plants during the time when they were making their growth the season before last, and its effects were so apparent, that last season it was given to all. One of the evidences of the influence which it has had on the plants to which it was first given is the numbers of leads that last season made double breaks, which in almost every case reached a larger size than those that produced them. It is well within the fact to say that some of the bulbs of *Lycaste Skinneri* of last season are four times the size of those of the year before. It is scarcely necessary to point out that one of the most important matters in the cultivation of Orchids is to get sufficient strength into the plants to enable the leads to break double, as in proportion to their ability to do this in a great measure depends the rate of increase. It will be interesting to see how these manured plants will go on during the coming season. All who see them in the condition they are now in, however indisposed they may hitherto have been to admit that manure will benefit Orchids, will be likely to alter their opinion.

ANOTHER, AND A VERY IMPORTANT, MATTER relating to manures generally, and which is now being better understood than it used to be, is the powerful effect that particular manures have on particular plants, and it is evident that this fish potash has an effect upon Orchids that nothing which I have before seen tried approaches. But, like any fertiliser of a powerful nature, it needs to be used with caution. The plants under notice have had it applied in very small quantities; a 4½-inch pot of the manure is the amount that is added to three bushels of the soil in which the plants are potted, and it requires to be mixed evenly; otherwise some portions of the soil will contain more than the plants will bear, whilst other portions will have little or none. It will not do to dust it on the surface of the material in the pots in the way that light manures are often applied to some plants; when so given it kills the Sphagnum, which is sufficient indication that it would be too strong for the roots of the Orchids to come in contact with. The most likely way of mixing it would be to spread the requisite quantity of the soil, when ready for use, on the potting bench and whilst it was being turned over, to sprinkle the manure evenly amongst it. The plants in question have had the manure in a liquid form, as well as mixed with the soil, but I forgot to ask what amount was added to a given quantity of water. Still, there will be no difficulty in ascertaining this, which I look upon as even more likely to affect the growth of the plants than that which is given them in a solid form. The manure is made in Norway of the cod-fish, from which the famous cod-liver oil has been extracted. The whole, including the bones, is dried and ground up to a powder, to which is added sulphate of potash and sulphate of magnesia. It is now largely used for agricultural purposes; its being tried on Orchids was through a desire to ascertain what effect it would have on as many of the various plants in cultivation as possible. Those who intend trying this manure on their Orchids or other plants must, however, do so cautiously until experience in the matter has been gained.

T. B.

THE BEST MILTONIAS.

THIS genus of Orchids, though it contains many species of great beauty, has not been long known to cultivation. The well-known species *M. candida* was introduced in 1831, *M. candida flavescens* in 1836, and a more beautiful variety of the species, *M. candida grandiflora*, in 1837. The variety *flavescens* was figured in the *Botanical Magazine* in 1840 from a specimen flowered at Glasnevin in 1839. *M. candida* is an easily grown species, and not only handsome, but valuable, because it flowers in September or October, the variety *grandiflora* being later. *Flavescens* flowers in October, when Orchid flowers are not too plentiful. These Miltonias succeed well in the Cattleya house, and require very much the same treatment as *Cattleyas*. The Kew botanists have decided to place *Odontoglossum vexillarium* amongst the Miltonias, and this species has been named *M. vexillaria*. When imported plants of this species are received they should be potted at once in small pots, rather more than half full of drainage, and the potting material ought to be good turfy peat, Sphagnum, and potsherds. All through the spring, summer, and autumn months they will require a regular and good supply of water; in winter much less is needed, but never let the roots become over-dry. The Cattleya house is the best place for them. They ought to be near the glass, and yet on the shady side of the house. A plant may thrive best placed near the glass in a light, airy position, and yet dislike even half an hour of direct sunshine. This particular Orchid did not succeed under my care at first, although always in the same temperature, the failure being doubtless owing to the right place for it not having been found out. I was afterwards recommended by a good Orchid grower to grow it in the Cattleya house by day and in the cool house at night, and for a long period it was carried daily between the two houses, but it got worse instead of better. It is now grown in the Cattleya house all the year round, except in June, July, and August, when it is placed in the cool house. Our largest plant from one root-stock has now forty-seven flower-spikes showing and 287 flower-buds, and is perhaps the largest plant yet grown.

M. ROEZLI (*Odontoglossum Roezli*) is a grand species, rivalling the preceding in beauty. It was first exhibited in 1873, and its delicate rose scent is quite unique, the house in which it grows being full of it. This species requires 60° as a minimum temperature in winter, 65° during spring and autumn, and 70° in summer. Plants of it when in full beauty, each furnished with a hundred or more large white flowers open at one time, are strikingly effective. All the varieties have pure white sepals, but the petals of some have a reddish stain at the base; in others they are white, like the sepals. All of them have a dash of yellow near the base of the large flat labellum. This plant requires a considerable supply of water.

M. PHALENOPSIS is also a beautiful species, and most graceful in habit of growth. It is easily cultivated if let alone, but when divided into small pieces it does not succeed; that, at least, is my experience. The best plants of it ever exhibited were those shown in London some years ago by Mr. John Ward, of Leyton; they had been grown into large specimens without being interfered with; and when the late Mr. Wilkins' collection of Orchids was sold, two plants of it realised sixty guineas. They were grown in the way just recommended for *M. vexillaria*.

M. WARSCWICZI.—This, though usually grouped with *Odontoglossums*, must now also be classed with Miltonias. There is an evident mistake about this plant in the "Dictionary of Gardening." *M. Warszewiczii* is there stated to be identical with *Oncidium Weltoni*; but *Odontoglossum Warszewiczii* of the *Botanical Magazine* (t. 6163) is a totally different plant and a very beautiful one. It first flowered early in 1875. It is said to require the same treatment as *M. vexillaria*, which it resembles much in habit, and slightly in the formation of the flowers. The latter are, how-

ever, much smaller than those of *M. vexillaria*, and white with a rose-coloured centre.

JAMES DOUGLAS.

TREES AND SHRUBS.

SOME GOOD SHADE TREES.

THE SYCAMORE.—Where there is such a wide selection of trees more or less suited for planting for shade it is rather a difficult matter to decide upon the particular species which is most generally adapted to the purpose. I think, however, that it will be a difficult matter to make choice of a tree which has a better all-round claim than the Sycamore. When shade is the principal object for which a tree is planted, more must be thought of the character of its foliage and general habit than about the value of its timber. When the two qualities, however, can be found in one species, it is, of course, all the more valuable. It is pretty well known amongst planters that the wood of the

size, it is often capable of shading a very large area. One of its remarkable qualities is its fragrance when in flower, and it contrasts well with other trees.

THE BEECH.—There are, I know, some other trees which, if the foliage only was regarded, would be entitled to a place in the list before the Beech, but, looking at utility and ornament together, this is a tree which must always hold a high place. A moment's thought of the way in which the Beech has been planted generations ago will be a sufficiently convincing proof of this.

Though its leaves are smaller than those of most trees which are regarded as the best for shade, they are so abundant and closely set, that its shade is as dense as that of almost any tree.



Sycamore is now about as valuable as that of any timber tree grown in this country, and that, so far as appearances can guide us, it is likely to be so in the future. This circumstance, then, I take it, is a sufficient

reason for placing the Sycamore first on the list of shade trees, as, although there are other species of forest trees which have as great a claim in the respect of their foliage, they fall short in the worth of their timber. The Sycamore is also a tree which grows at a fairly rapid rate, and will thrive in many situations. On very high and dry sites it is not to be recommended, as its habitat is naturally more moist. In saying this, it must not, however, be assumed that any wet or marshy soil will do for the Sycamore, as, although it is averse to very high and dry positions, it is equally unfitted for boggy or undrained land. In the range of soils between these two extremes, the park or grounds attached to residences is mostly found. There are, therefore, few such places where a suitable spot for the Sycamore cannot be determined on.

THE LIME.—This is another useful shade tree, and one which will bring a return for its timber. Of the European Lime tree there appears to be several different species, but Loudon regards them as merely varieties. In whatever way this may be decided, it will not affect the question of its suitability for planting as a shade tree. Its foliage, though of a quite different character to the Sycamore, is very abundant. In many respects it is a tree which would grow well in similar soils to those in which the Sycamore thrives. It is adapted either for forming avenues or propagating as isolated specimens. Growing as it does to a large

There is, too, another point which is a recommendation to the Beech, viz., that it will grow on lighter soils and in more exposed places than the trees which have previously been mentioned generally succeed in.

THE WYCH ELM.—Looked at in the light of growing in places where many trees will not, the Wych Elm has the title to a honourable place amongst shade trees. Where the common Elm grows best many other trees which are possessed of a more dense foliage thrive well, but the Wych Elm often makes a fine spreading tree at a much greater height and on poorer soil. There are some trees which I have lately noticed of this species which are really beautiful objects, and which are developing such an abundance of leaves as to afford a most grateful shade.

THE HORSE CHESTNUT.—It will perhaps be thought that this magnificent tree has been overlooked, or that it has been relegated to too low a place amongst trees for shade. It has, however, been intentionally placed here, as although a good specimen of this species of itself forms a most

delightful retreat from the rays of the sun, its timber is of so little value, that it seriously reduces its chance of being more extensively planted. It is true that shade is not often very greatly needed early in the season, otherwise another great point in favour of the Horse Chestnut would be the date at which its foliage becomes fully developed. At the present time, the first week in May, it is in splendid condition, although it is not yet fully in flower. It is a tree which succeeds in a variety of soils, and which often reaches considerable dimensions in high and dry situations. It has also the advantage of being a rapid grower.

THE PLANE.—This tree, which is so familiar to every Londoner, and also to everyone who has occasion to visit the metropolis, must certainly be mentioned as a valuable shade tree. Its especial value, no doubt, is that it will grow where most other trees would languish, i.e., within the limits of the smoke of great cities. Those who live where so many species will thrive may well spare this tree to their less favoured brethren, as for country planting it will rank with others of its class without any especial points upon which it is to be preferred.

THE WALNUT.—Hitherto no tree has been spoken of which will both supply shade and produce an edible fruit. These two qualities are combined in the Walnut, and until late years it possessed a third important quality, viz., the value of its wood. There are some trees which afford better shade in their mature years than when younger, but, as a general rule, a comparatively young Walnut makes a good shade tree. It is a tree which will grow on a drier soil than many species of shade trees, and for the production of fruit its being planted where the subsoil is rocky is recommended.

THE COMMON PEAR.—Another tree which, when grown to good dimensions, often gives a capital shade is the common Pear. This is a step further from what is generally looked upon as purely timber trees than the Walnut. It is, nevertheless, a tree which is worthy of attention beyond the mere property it has of growing an edible fruit. The timber of the Pear, too, is useful for many purposes.

THE WILLOWS.—There are many forms of the Willow which may be regarded as shade trees, although their foliage is by no means so dense as most of those which have been enumerated. When allowed to grow in their natural habit they often assume very spreading and graceful shapes, and supply a shade which, if more slight, is not always the less agreeable.

In running through this list a few only of what may claim to be good shade trees have been touched upon, but enough has been said to show that there is room for the use of judgment in using what is adapted for shade as well as for the many other points which the planter has to keep in view. Evergreens have purposely been left out of these remarks, as deciduous trees serve every purpose for which shade can possibly be required. Shelter, of course, is a very different thing.

D. J. YEO.

Sycamore foliage and "keys."

The Balsam Poplar (*Populus balsamifera*).—From an ornamental point of view this Poplar stands in a high position, although it is worthless as a timber tree. It is a medium-growing kind, thriving best where the situation is fairly moist;

indeed in dry soils it will barely exist. In early spring the new leaves of this Poplar are of a deep yellow colour; hence it is always noticeable, and it is usually covered at the same time with long pendulous catkins. It is among the earliest of trees to unfold its leaves, and on bright days the balsamic odour of the resinous matter that covers the buds is quite perceptible at a distance from the tree. The Balsam Poplar is well worth the attention of planters for growing in moist places.—A.

Forsythia suspensa.—What a showy bed this beautiful shrub makes if, after planting, the branches are pegged down so as to cover the ground, and then the plants allowed to grow at will afterwards! In this way the slender arching shoots soon form quite a thicket, which when covered with golden blossoms is extremely effective, and at the same time most uncommon. Besides this mode of treating this Forsythia it makes one of the finest of wall plants, especially if allowed to grow at will, for then the long shoots hang from the wall in all directions and in the most graceful manner. Another recommendation is the readiness with which the Forsythia can be increased, for cuttings strike readily, besides which if the tips of the branches are brought in contact with the earth they strike root and push up shoots after the manner of Brambles. I have seen announced in a Continental catalogue a new variety (intermedia), described as the result of crossing *F. suspensa* and *viridissima*. If any reader has flowered this hybrid, their opinion of it would be useful.—H. P.

Purple-leaved Barberry.—This variety of the common Barberry has leaves of a bright, reddish purple colour during the first part of the season; they then become of a duller hue, and by the end of the summer are of a purplish green tint. It is a beautiful shrub during May and June, the leaves being deeply coloured as soon as they burst their buds, and not as some are, viz., heightened in depth by the summer's sun. It is a good plant for the shrubby border, as the dark-tinted foliage is quite a change from the other shrubs associated therewith; besides which, being in constitution as vigorous as the common Barberry, it will hold its own under anything like favourable conditions, though when young and free it is seen to the best advantage.—H. P.

Golden-leaved Mock Orange.—This is a variety of the common *Philadelphus coronarius*, having foliage of a bright golden hue, and, besides this distinctive feature, when grown as a bush it does not attain the dimensions of the type. A specimen of it here in a sunny spot is just now most attractive; while another that is to a great extent sheltered from the sun is quite dull compared with the first named, being a sort of greenish yellow tint. In planting, this fact should be borne in mind, as, to be seen to the best advantage, this *Philadelphus* must be fully exposed to the sunshine. In a general way it is brightest during the first half of the summer, as are some of the other golden-leaved shrubs, the golden-leaved *Ribes* and *Spirea opulifolia* being examples. On the other hand, there are some the colour of which deepens throughout the season, so that by the end of the summer they are richly tinted. An instance of this is *Weigela Looymansii aurea*, of which we have a specimen on a south wall fully exposed to the full glare of the sun, and though now the young foliage is a kind of yellowish green, by August it will be of an intense golden, indeed almost orange hue. These yellow-leaved shrubs are most effective when planted in proximity to more sombre-hued subjects, as the contrast serves to intensify their depth of colouring. Both the shrubs mentioned can be struck from cuttings taken during autumn and put firmly in the open ground, but such a mode is not to be depended upon for very satisfactory results. A better way, if a frame is at hand, is to take cuttings of the young shoots during the summer, put them in pots of sandy soil, and keep them close and shaded till they are rooted. The cuttings will need to be examined from time to time, so as to remove any decaying

leaves, and if too much moisture is present on the foliage a little air should be given till it is dried up. When the cuttings are watered, this course should be followed till the superfluous moisture is dissipated.—ALPHA.

SMOKE-PROOF DECIDUOUS SHRUBS.

AMONGST deciduous shrubs that will endure a smoke-laden atmosphere there is considerable choice, as, from the fact of the foliage being renewed every season, they start away with increased energy every succeeding spring. Amongst the best for the purpose must be mentioned the Lilacs. These hold their own almost anywhere, and, even if they do not flower, often serve to furnish a corner where little else will grow. The more vigorous kinds of *Philadelphus* must also be included in the list, and especially the Flowering Currant (*Ribes sanguineum*), whose drooping clusters of blossoms render it in spring such a conspicuous object. A good companion to it is the Golden Currant (*R. aureum*), the foliage of which is smoother and more glossy than that of the last, and consequently dirt does not so easily effect a lodgment on it. Besides this, the beautiful golden blossoms are produced very plentifully. The Guelder Rose is about the best of the deciduous *Viburnums* and a good town plant. Weigelas of all sorts are vigorous in constitution, and will not only grow, but often flower under very adverse circumstances; but in order to ensure a good display of bloom they need at least a fairly sunny spot. On dry sandy places, whether the atmosphere be smoke-laden or not, the best of shrubs are the *Coleuteas* or Bladder Sennas, the tender green pinnate foliage of which is most attractive in spring, and their yellow or reddish Pea-shaped flowers in summer, and curious inflated seed-pods that remain on after the fall of the leaf in autumn, make them most interesting. The bush-habited *Forsythia viridissima* and the rambling-growing *F. suspensa* are both valuable early-flowering shrubs, the last being extremely pretty on a wall. *Pyrus Malus floribunda* is another beautiful spring flowering shrub; indeed, in making a selection of a dozen of the best flowering shrubs for any position, this we should say would be entitled to a place. The different *Hypericums* (especially the common *Tutsan*) resist smoke pretty well, and being in addition shade-loving plants, they often thrive under very disadvantageous circumstances. Though the atmosphere of a town is widely different from that in the Rocky Mountain home of *Rubus deliciosus*, it flowers freely where anything like favourably situated. The Elder, too, does well almost anywhere, and in a sunny spot the golden-leaved variety is very attractive during summer. The common Barberry, even though it may not flower or fruit so freely as when in the open, will nevertheless hold its own as a town shrub, and amongst others may be mentioned the well-known *Cydonia japonica*, which in its many varieties may be utilised for town gardens. *Kerria japonica* will produce its golden rose-like blossoms nearly throughout the summer, and of *Roses* the most satisfactory is the large single-flowered Japanese species (*rugosa*), whose vigour of constitution often serves it in good stead. The bright yellow bark of *Salix vitellina* renders it conspicuous during the winter, and the red shoots of the Dogwood also afford variety. The white fruits of the Snowberry (*Symphoricarpos*) are very pretty, and the large pinnate-leaved species of *Rhus* are not only handsome from a foliage point of view, but are also good town plants. The different Thorns properly come under the head of trees, but some of them only attain the dimensions of bushes. All the free-growing varieties of May do well in towns, and other desirable sorts for this purpose are the Cockspur Thorn (*Cratægus Crus-galli*), *C. coccinea*, and *C. cordata*, with their many varieties. ALPHA.

Buddleia globosa.—This shrub, which is by no means common, succeeds well here planted in the shrubbery; its only fault when growing in such a position is, that it requires so much room, that weaker growing subjects near it stand a good chance of being smothered by it, so strong and spreading is its growth. In severe winters like the past some of the softer parts of its branches get killed by frost, but

below the points of branches so damaged it breaks out vigorously again in the following spring. Among trees in shrubberies it is very effective when laden, as it annually is, with bright orange-coloured button-like flowers, which emit a strong honey-like perfume. In a favourable position, planted singly on Grass, where its branches have ample room in which to develop themselves, it is a charming object. It strikes freely from cuttings taken off in September in a half-ripened state about 6 inches long. They should be inserted in sandy soil under a hand-light or cold frame behind a north wall; if left in such a position till the following April, they will be well rooted, and may then be transferred to wherever they may be required; they will quickly grow into large bushes.—E. MOLYNEUX, *Bishop's Waltham, Hants.*

Hardiness of Japanese Maples.—I was very much interested in the remarks in THE GARDEN (p. 123) on Japanese Maples. I possess about fourteen varieties of these beautiful little trees, and had them from year to year more exposed in winter, so that I now can positively say that they have withstood 16° Réaumur without the least damage. Nor are they too forward in spring, so that if they suffer by late frosts they share this mishap with our common trees. I can very strongly recommend them as an exquisite and novel ornament of a refined garden.—O. FORSTER, *Lehenhof.*

COB-NUTS AND FILBERTS.

It is quite a rarity to meet with really good examples of either Cob-nuts or Filberts, except in localities in which they are made a speciality, as, for instance, in the neighbourhood of Maidstone, where they are, as a rule, the most profitable crop grown. The supply never seems in excess of the demand, at least, for really fine samples, and Kent Cobs, as they are called in the market, have obtained the enviable notoriety of being the best that can be procured. Now, if we come to look into the reason of this superiority, we find that it hinges entirely on the mode of pruning adopted. A specimen Kent nut bush or tree is, after pruning, one of the most severely handled subjects belonging to the whole list of cultivated fruits. Not even the Vine shows a greater difference in its produce when pruned and unpruned than do nuts when taken in hand by professional cultivators, and grown so as to concentrate the energy of the trees in the production of nuts instead of leaves and wood. In places in which the natural system is followed, the nut trees are decidedly finer than in Kent; but the nuts for which they are grown are hardly recognisable as the same fruit compared with Kentish nuts, and that it is from no difference of soil or climate can be easily verified. In Kentish gardens and fruit farms, every conceivable kind of training can be seen in pretty close proximity. But the most popular mode of training the nut is what may be termed the cup-shaped bush, with a short clear stem of about 1 foot high, for convenience of keeping the base clear of suckers that spring up freely, but are grubbed up as soon as visible. If allowed to remain, they soon weaken the fruit-bearing wood. The plan of pruning pursued is to cut the centre right out of the young bush, leaving only shoots that spread outwardly, and by following this plan for several years a perfectly symmetrical bush is obtained. When the main limbs are formed, the pruning simply consists in breaking out all the strong shoots in summer, and in giving a severe pruning in winter, or rather very early in spring, as soon as the tiny little female blossoms are visible. These are borne on the weakest spray-like shoots, which are the only ones preserved, all growths of a gross watery nature being cut clean out; and to anyone unaccustomed to such severe pruning as is practised in these nut gardens, it would seem impossible, for the small amount of wood left, to produce anything like a crop. On visiting the same trees in summer, however, one is struck with the great size of the bunches of nuts, and when several tons of them are sent to market from a comparatively small area, and find a ready sale at good prices, one is led to wonder

why the system of culture adopted by these market growers is not more generally followed in private places; for, as before stated, there is nothing to make Kentish produce better than that of other counties, except the mode of pruning, training, and general good culture. It may be added that although one finds more nuts cultivated in Kent, under the partial shade of large standard fruit trees, than elsewhere, the produce is so much better from bushes that have full sunlight, that probably in a few years the plan of growing each kind totally apart from each other will be the rule, and not, as now, the exception.—*Field*.

ORCHIDS AT SOUTH KENSINGTON.

IN connection with the Indian and Colonial Exhibition there are a few features of horticultural interest. There are representations of the floras of the Cape, of Queensland, of New South Wales and New Zealand; and in addition to these there is a permanent exhibition of orchidaceous plants carried out by Messrs. Sander, of St. Albans. This is really a beautiful feature, and, as we saw it on Tuesday last, we thought we had never seen Orchids arranged in such a natural way or displaying their loveliness to such excellent advantage. The exhibition house, a capacious structure, built chiefly of varnished Pitch Pine wood by the Midland Joinery Company, is placed in the open space to the right of the main entrance. The interior has been so arranged that the Orchids may be planted out. Some picturesque rockwork has been formed by Mr. Pulham, and this has been supplemented by raised banks, kept in position by rustic woodwork. But you see very little of the banks, as they are densely carpeted with foliage and flowering Orchids, the arrangement being altogether charming. There is not a pot or stage to be seen; hence the natural look which the arrangement possesses. You see great masses of such splendid Orchids as *Lælia purpurata* and *elegans* and various *Cattleyas* perched on bold projecting points, as if they had always grown there. The crevices of the rocks are filled with smaller things, such as *Odontoglossums*, and in some places they are made to trickle, as it were, down the chinks as if Nature had reared the seedlings there. Then you see the more epiphytic kinds cunningly fastened to Tree Fern stems, just as the plants grow on the trees at home; in fact, it is the only way to show such plants as Orchids in all their native gracefulness. In the nooks and recesses you see an undergrowth of Ferns with Orchids peeping out from amongst them, and in one little nook is a big spreading mass of the translucent-fronded *Todea superba*, which people seem to admire as much as the flowers.

The roof of the house is seen through a crowd of baskets, containing plants of the exquisite *Odontoglossum citrosimum*, from which depend quite vertically scores of long flower-spikes, which, crowded as they are with bloom, look more like attenuated bunches of pink Grapes than anything else. In fact, these *Odontoglossums* may be said to be the chief feature of the show, and, being so different from what is usually seen, reveal quite a new phase of beauty. In nine cases out of ten you see the slender spikes, which naturally fall from the base of the plants, propped up by miniature scaffold poles, which destroy what is most admirable in the plant—its elegant growth. Some of the spikes, too, seen here are quite 2 feet in length, and in most cases branched. As may be supposed, among such a crowd of plants there are many varieties—some with pure white flowers, others of a deep rose-pink, almost a purple, while others are exquisitely spotted, and these latter go by the name of *punctatum*. The crests of the flowers vary from white to deep orange, and some almost as deep as in Mr. Bull's variety, *aurantiacum*, noticed last week. We have dwelt at length on this one Orchid, because we think it one of the loveliest of all Orchids, and because we had never seen it before in such perfection. No doubt to the majority of people who will pass through this exhibition, even what we call everyday Orchids will possess a charm, but we apprehend that the connoisseur of Orchids will, during the next six months, always find some interesting things here, for, of course, all that is good among Orchids will be brought from St. Albans. On Tuesday the experts lingered over some of the choicer varieties, among which we singled out

the following: One of the most remarkable was a superb form of *Lælia elegans alba*, with flowers as big as those of *purpurata*, the sepals being broad, snow-white, and a widely expanded lip of the deepest purple-crimson. This plant forms a mass 2 feet through, and as seen on a projecting rocky ledge was a centre of attraction. The *Lælia purpurata* likewise attracts everybody, for besides the ordinary type there is the white *alba* and the rosy-lipped forms like *Nelisi*, *rosea*, and *lilacina*. The *Cattleyas* greatly attract because of their big showy flowers; some of the flowers of *C. Mossiae* are enormous, one being over 8 inches across, as remarkable in its way as the 250-guinea *Trianae* in the Downside collection. We were disappointed at not seeing much of the new *C. Lawrenceana*, for everybody expected to see a large contingent of this Orchid from St. Albans. Mendel's *Cattleya* is in perfection, and presently there will be a host of that gorgeous group of which *C. gigas* is the type. *C. Dowiana* contributes to the show, and its gold sepals and crimson lip laced with gold have no rivals. *Odontoglossums* are plentiful enough, the Princess of Wales Orchid (*O. Alexandræ*) and *Pescatorei* being the prevailing types, and of both one may see numerous varieties. Among the hybrid *Odontoglossums* none are so chaste as a self-coloured form of *Andersonianum*, with spotless flowers of a soft lemon-yellow. The name of this is *immaculatum*. Such a form as this is said to crop up only about once in ten thousand plants. The little species, like *Rossi majus*, *Cervantesi* and its variety *decorum*, form little colonies on the ledges, where they show themselves conspicuously. More in the background the long spikes of such as *O. triumphans*, *luteo-purpureum*, and the legion of hybrids may be singled out by a keen eye. There is a long-branched spike of *O. Edwardi* rising boldly from all the rest which captivates the lady visitors more than all, because its colour is the fashion for dresses at the present time. This is a sort of plum-purple, but we doubt if the dressmaker can imitate the satiny lustre that these flowers possess, or rival the pretty effect which the golden crests of the flowers produce in their settings of purple. Another Orchid which the ordinary visitor is struck with is *Oncidium concolor*; this may be seen in glowing masses of the richest and clearest yellow, which, in contrast with the surrounding greenery, has a charming appearance. We should like to see a mass of this one Orchid, a yard or more square, rising from a carpet of Ferns. The long, pendulous spikes of *Dendrobium Devonianum* hang in profusion from the roof, as do various others, while *Dendrobies* of less elegant growth, like *D. thysiflorum*, with spikes of silver and gold, are made to show themselves amidst Ferns so as to relieve the stiff aspect of the erect stems. The stately *Cymbidiums*, such as *C. Lowianum*, are seen on bold ledges; and perched on a high mound is a grand specimen of the ivory-flowered *C. eburneum*. *Cattleya citrina*, which everyone who knows not its eccentric habit of growth, thinks it is turned upside down, perfumes the house with its fragrance, and this is mingled with a hundred other perfumes of various degrees of pleasantness, one of the sweetest being that of *Epidendrum aromaticum*, which is fastened to a Tree Fern, so that its long drooping spikes should lose none of their gracefulness. The crowds of tiny flowers of a pale green are not showy, but their scent attracts one. If we might offer a suggestion, we should like to see the raised-pie-looking affair removed from the centre. It hides the rocky cavern, and is an impediment to the free movement of the continuous throng of people passing through the house.

The Bougainvilleas.—A good deal depends on knowing fully how any tree bears or flowers, and "T.B.'s" account of the habit of *B. spectabilis* and *glabra* was very confusing. He said the first produced its flowers on the ripened wood, and the latter on the current year's shoots. If that did not mean that one flowered on the last and the other on the present year's shoots, it had no meaning at all. He now states, however, that *B. glabra* flowers on the current year's shoots, and *B. spectabilis* "on the growths made from the preceding year's shoots," which are, of course, the current year's shoots also. Nor is it correct to say that

glabra flowers only on the strong shoots, as "T.B." implies, as it flowers on nearly all its shoots, as any well-flowered specimen will show.—J. S. W.

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 11.

THE conservatory on this occasion presented the same bright appearance as it has in former seasons during the time the great exhibition is open in the grounds. On Tuesday there were large groups of *Rhododendrons* and brilliantly coloured *Azaleas* from Berkhamstead; a host of *Roses* from Waltham Cross, which filled the place with their fragrance; hardy flowers from Tottenham and Tooting, which, like other groups, contained a crowd of interesting plants. There were not many Orchids or new plants shown, and only three certificates were awarded, which were given to the following plants:—

PHŒNIX HYBRIDA.—A new Palm somewhat resembling *P. rupicola*. It is an extremely graceful plant, having slender recurving leaves with long narrow pinnae. In a small state it will be useful for room decoration. Shown by Messrs. Veitch, Chelsea.

PEONIA MOUTAN REINE ELIZABETH.—A splendid new variety of the Tree Peony; the flowers are very large and full, and the satiny petals are of a deep salmon-pink. It is one of the finest of all Tree Peonies yet raised. Shown by Mr. T. S. Ware, Tottenham.

ADONIS PYRENAICA.—A handsome hardy perennial in the way of the commoner *A. vernalis*, but different and much superior. The foliage is finely cut, but not so feathery as that of *vernalis*, and the flowers are larger, the sepals broader, and the colour a deeper and richer yellow. From Mr. Ware.

ORCHIDS.—A grand specimen of *Dendrobium speciosum*, carrying twelve long flower-spikes densely wreathed with flowers of a much deeper yellow than usual, was shown by Mr. Howes from Mrs. Bennett's garden, Tulse Hill House, and the committee were unanimous in voting a cultural commendation to the exhibitor. A superb group of *Odontoglossums* won for Mr. Pollett, of Fernside, Bickley, a bronze Bankers' medal. Every plant in the group was choice, but two or three were of exceptional merit. One of these was a plant of *O. Wilckeanum pallens*, bearing two dense spikes, each bearing about a dozen flowers. These are creamy white, heavily blotched with chestnut-brown. Another remarkable plant was a variety of *O. crispum* with large finely-shaped blooms, and blotched with rose pink instead of reddish brown. This we thought an extremely chaste variety and deserving of a name. There were also in the group *O. sceptrum*, *O. Andersonianum*, and *O. crispum Bonnyanum*, a very distinct variety having large flowers with broad white, spotless petals and heavily blotched sepals. Mr. Pollett likewise had a specimen of a gigantic-flowered *O. citrosimum roseum* named *grandiflorum*. The flowers were a third above the ordinary size, of a deep rose-pink, and minutely spotted. A grand specimen of *Lælia purpurata alba* bearing six spikes was shown by Mr. Bradshaw from Baron Rothschild's garden at Waddesdon. The plant was one entire mass, and was an exhibition in itself. Mr. Bonny, Downs Park Road, Hackney, showed several plants of that exquisite little Orchid, *Phalænopsis Parishii*, so rarely seen in bloom. It looks very unlike a *Phalænopsis*, as the plants are so small, and bear tiny flowers on short spikes, their colour being white, with plum-purple lips. Mr. Voss, of Streatham, sent a remarkable variety of *Odontoglossum Pescatorei*, having white and spotless sepals and petals and a lip densely spotted and blotched with rose-purple. It is a most distinct form, and one that would not crop up probably in ten thousand imported plants. Mr. Charlesworth, of Bradford, sent a flowering specimen of *Cattleya Gaskelliana*, which is very early for this variety, as it habitually flowers in late summer. Mr. Bridger showed from the garden at Peshurst a superb variety of *Dendrobium thysiflorum* having long and broad spikes, and with flowers 2 inches across, with white sepals and petals and a golden yellow lip.

Other plants of interest shown included the following: Mr. G. F. Wilson showed a plant of a beautiful Himalayan *Potentilla* with silvery leaves and large golden cup-shaped flowers. Its name is *P. argyrophylla*, and it will doubtless make a beautiful rock or border hardy perennial. Messrs. Cannell showed a large bunch of that beautiful yellow *Carnation*, *Pride of Penhurst*, which is perhaps the finest of all yellow varieties. We have never seen it so large or fine before, and the stalks were cut long, and with buds as well as flowers it was very beautiful. Another attractive exhibit was some huge and densely flowered plants of *Erica Cavendishi*, from Messrs. Wills and Segar. Messrs. Pearson, of Chilwell, sent a few new seedling zonal *Pelargoniums* they have raised. All had perfect shaped flowers and of different shades of scarlet. Their names were *W. Bealby*, *C. Mason*, *C. H. Swinstead*, and *International*. Mr. Orchard, of Coombe Leigh, Kingston, showed a pretty new double *Cineraria*, having perfectly globular flowers, magenta and white.

Messrs. Paul, of Cheshunt, took a bronze Banksian medal for a beautiful group of their large-flowered greenhouse *Rhododendrons*, each bush being covered with bloom. There were large plants of the lovely new Lady Mary Fitzwilliam, *R. Edgeworthi*, and *R. Fortunei*, with large shallow pale pink flowers; the same group also contained several plants of the new American Tea Rose *Sunset*, which captivates all who see it, and the New *Pride of Reigate*, a sport of *Comtesse d'Oxford*, with the flowers flaked and streaked with white. Among a group of bog plants, from Messrs. Paul, were some flowering specimens of *Sarracenia purpurea*, grown in the open air at their Epping Forest Nursery, and the rare and pretty little *Ranunculus parnassifolius*, having white cup-shaped flowers.

A silver-gilt Banksian medal was awarded to Messrs. W. Paul, of Waltham Cross, for a magnificent group of pot Roses and cut blooms, which added greatly to the importance of the exhibition. There were about fifty pot Roses and a dozen boxes of cut blooms, all of which, though forced, would compare favourably with July blooms. Among the most noteworthy sorts were *Etoile de Lyon*, a lovely Tea variety; *Mme. Cusin*, of a delicate pink; *Mons. Furtado*, yellow Tea; *Mme. Joseph Schwartz*, Crown Prince, *Mme. Montet*, and a new Moss Rose called *Hybrid Gem*. This latter has medium-sized flowers plentifully produced on pot plants. There were also densely flowered plants of the white Banksian Rose, a charming variety and so valuable for cutting.

Messrs. Lane, of Berkhamstead, took a silver-gilt Banksian medal for an extensive group of *Rhododendrons* and *Azalea mollis*. These occupied a large space of the conservatory and made quite a show in themselves. The great variety of colours which now exists among the *Azaleas* renders them extremely attractive, and in this group there was every shade of tint from orange-scarlet to very pale yellow. The great bushes of *Rhododendrons* which rose from the mass of *Azaleas* showed how finely they are grown at Berkhamstead, notwithstanding the fact that there is not a particle of peat about the nursery. Mr. Rumsey, of Waltham Cross, took a bronze medal for a group of pot and cut Roses, the chief feature of which was the tall standard plants of Tea varieties, which had a fine effect.

HARDY FLOWERS were again plentifully shown by Mr. Ware, of Tottenham, and Messrs. Barr, of Covent Garden, to both of whom silver-gilt Banksian medals were awarded. The Tottenham collection was chiefly remarkable for the fine groups of Tree *Pæonies* and *Primula Sieboldi* which it contained; indeed, we do not remember having ever seen such a display of Tree *Pæonies* at a show before. These included many varieties, most of them of Continental origin. A selection of the sorts shown includes *Reine Elizabeth* (certificated); *Osiris* and *La France*, both deep crimson; *Lactea*, white; Lord Macartney, flesh-pink; *Blanche de Noisette*, white and flushed pink; *Athlete*, rosy pink; *Carolina*, very pale salmon; *Zenobia*, purple-crimson; *Louise Mouchelet*, flesh-pink (one of the finest); *Fragrans maxima*, blush-pink; and *Mme. Lafay*, deep rose. Such displays of this noble *Pæony* will no doubt tend to popularise it, for it is yet too little known. The *Primula Sieboldi*

made a grand group, and it is a pity that such a display could not have been made at the *Primula Conference*. The collection of sorts shown on this occasion was numerous, and included, besides the best of the old sorts, several new seedlings, that named *Nelly Ware* being one of the best. A host of other hardy flowers were shown by Mr. Ware, and among them were such bright and interesting things as *Adonis vernalis*, *Trillium grandiflorum*, *Orobanchia varia*, *Gentiana verna*, *Androsace sarmentosa*, and the brilliant *Disa grandiflora* from the Cape.

Messrs. Barr's group was noteworthy principally on account of the large number of hardy bulbs it contained; for, besides a crowd of late *Daffodils*, there were numbers of *Tulips* and other bulbs not often seen. These were the green *Tulip* (*T. viridiflora*), *T. cornuta*, *retroflexa elegans*, *Gesneriana major*, besides numbers of *Fritillaries*, *Irises*, and pretty terrestrial *Orchids*, amongst the latter being *Serapias papilionacea*, *Ophrys lutea*, and *Orchis Stabiana*.

Fruit.—The chief exhibits placed before the committee comprised some remarkable examples of colonial fruits, chiefly Apples and dried fruits from South Australia and Canada. A large collection of Apples was shown by the South Australian commissioners on behalf of various fruit growers. The fruits were all very fine, very large, plump, and highly coloured. The principal sorts were those commonly grown here, such as *Dumelow's Seedling*, *Northern Spy*, *Reinette du Canada*, *London Pippin*, *Scarlet Nonpareil*, *Worcester Pearmain*, *Gravenstein*, *Rymer*, *Sturmer Pippin*, and *Lane's Prince Albert*. All these sorts were represented admirably, and quite as fine as any of our best growers can exhibit. The chief exhibitors were Mr. Harcourt and Mr. Lang, of South Australia and Victoria, and silver Knightian medals were voted by the committee for presentation to the commissioners for their kindness in submitting to the society such good examples of colonial fruit growing. A silver Knightian medal was also awarded to the Canadian commissioners. Besides Apples there were Quinces, Almonds, and dried fruits, such as Prunes, Raisins, Sultanas, Currants, Apples, Pears, all from South Australia. Mr. Divers showed from Wierton, Maidstone, a collection of late Apples and Pears, and this was the chief of the home exhibits.

THE VEITCH MEMORIAL MEDAL AND PRIZE were offered for competition on this occasion for the best collection of forced salad plants, consisting of not fewer than ten kinds. There was no competition, only one collection having been shown, and that not remarkable. Mr. Bolas, gardener at Hopton Hall, Wirksworth, showed the collection, which was made up of the following: Brussels Whitloof, Celery, Dandelion, Chicory in four sorts, crimson flaked, Brunswick, Silesian, and Long Magdeburg, Chervil, Trunagon, green Onions, Cucumbers, Rampion, Radishes, Mustard and Cress, Sorrel, and Watercress.

Scientific committee.—*Beetroot*.—Mr. Ridley examined the specimen brought to the last meeting, and believed that a seed had originally fallen into a hole in the stone; it had then grown through it; but that a stone had subsequently been pressed into it from above and so cut off the leaves.

Curious Pansies.—Dr. Masters showed two *Pansy* blossoms, one of a dark purple, the other smaller and white, with a central purple spot, both being from the same plants. The latter appeared to be a reversion to some earlier form of *Heartsease*.

Laburnum and frost.—Mr. G. W. Smith remarked upon a specimen in which a terminal shoot had been injured by frost, in consequence of which a lateral branch had become hypertrophied. A large number of trees were similarly affected.

Cocoa-nut fibre and fungus.—Mr. Smith exhibited a specimen of *Cocoa-nut* fibre matted together by a remarkable form of fungus. The *Rhizomorpha* consisted of silk-like threads of a dark brown colour and of an almost metallic lustre. It was found to damage the commodity very materially.

Ivies and frost.—Prof. Church remarked that of six varieties of *Ivy* growing on a north wall only one (*azorica*) was at all injured during the late severe weather.

Deutzia gracilis.—Dr. Lowe exhibited two specimens from the same plant, one with ordinary flowers, the other with small greenish or so-called "blind" flowers.

Polyanthus and lime.—Mr. Henslow exhibited a pale-flowered variety and a truss from a similar plant that had been treated with lime, the effect being to convert it to a crimson.

Juniper fungus.—A long communication on this subject from Mr. Plowright was read, and Mr. Michael presented a lengthy report concerning a diseased *Passiflora*.

Plants exhibited.—Mr. R. I. Lynch exhibited the following plants from the Botanic Gardens, Cambridge—*Crybe roses*, *Iris Eulefeldi*, from Turkestan; *I. Turtulla*, *Heterotropa asaroides*, with a remarkable Box-like flower and *Cyclamen*-like leaves from Japan; *Mackaya bella*, *Kamperferia ovalifolia*, *Tulbachia Ludwigiana*, named after Ludwig, a snuff merchant of the Cape, who originated the Botanic Garden there and was the first botanist to import large *Cycads* to England. Mr. Lynch also brought several varieties of *Tulips*.

NATIONAL AURICULA SOCIETY.

THE northern show of this society was held at the New Town Hall, Manchester, on April 27, in conjunction with a spring show of the Royal Botanic Society. As a whole, the Auriculas were not in such perfection as in former years; they were not in full bloom, and very few had their pips smooth and fully expanded. Here and there some well-grown flowers were seen, but throughout the quality and quantity of a good year's average were absent, owing to the wretched season the Auricula has had against it since January. The flowers exhibited by Mr. A. Potts, of Hoole Hall, Chester, were the most remarkable for brightness, and consequently took the chief honours, and Miss Woodhead's plants were good, with younger flowers, though probably even they were not all at their best. The following is the list of the awards:—

In the collection of six, Mr. A. Potts, Hoole Hall, Chester, was 1st, with a well-grown *Rev. F. D. Horner*, a fine *Richard Headley*, *Acme* (very good), *Lancashire Hero*, *Alexander Meiklejohn*, and *Mrs. Douglas*; Miss Woodhead, Halifax, was 2nd with *G. Rudd*, *Acme*, *Geo. Lightbody*, *Black Boss*, *Prince of Greens*, and *Mrs. Dodwell*; Mr. Brockbank, Didsbury, was 3rd, with *Alexander Meiklejohn*, *Reliance* (very poor), *Rev. F. D. Horner*, *Negro*, *Richard Headley*, and *Acme*; Mr. E. Pohlman, Halifax, was 4th, with *Sapphire*, *Prince of Greens*, *J. Crossley*, *Acme*, *Geo. Lightbody*, and a seedling self; Mr. W. Bolton, Warrington, was 5th, with *Mrs. Douglas*, *Prince of Greens*, *Reliance*, *Acme*, a seedling grey edge, and a seedling self; Mr. S. Barlow, Stakehill, was 6th, with a seedling self, *Complete*, seedling green, *Violet Ruby* (a self of great purity), a new green, and *Trail's Beauty*; Mr. J. Buckley, Stalybridge, was 7th, with *Pizarro*, *Geo. Lightbody*, *Mrs. Douglas*, *Lovely Ann*, *Acme*, and *Alexander Meiklejohn*.

In the class for four, Mr. Potts was again 1st, with *Acme* (fine), *Mrs. Douglas*, *A. Meiklejohn*, and *Rev. F. D. Horner*; Mr. B. Lord, Todmorden, 2nd, with *Blackbird*, *Acme*, *Geo. Lightbody*, and *Richard Gorton* (a very promising green edge); Miss Woodhead 3rd, with *Smiling Beauty*, *Black Boss*, *G. Rudd*, and *Prince of Greens*.

In the class for pairs, Mr. Wm. Taylor, Middleton, was 1st, with *Trail's Beauty* and *Prince of Greens*; Mr. R. Gorton, Eccles, 2nd, with *Rev. F. D. Horner* and *Frank Simonite*; Mr. C. Roys, Rochdale, 3rd, with *Conservative* and *Prince of Greens*; Mr. G. Gordon 4th, with *Trail's Beauty* and a new green. In pairs for maiden growers Mr. G. Gordon was 1st, Mr. J. Hilton 2nd, and Mr. H. W. Nixon 3rd.

The premier Auricula was *John Simonite*, with five good pips, exhibited by Mr. Potts, Hoole Hall, near Chester.

SINGLE SPECIMENS.—*Green edges*.—Premium, Mr. Wm. Brockbank, with *Rev. F. D. Horner*; 1st, Mr. W. Taylor, with *Lovely Ann*; 2nd, Miss Woodhead, with *Prince of Greens*; 3rd, Mr. R. Gorton, with *Lancashire Hero*; 4th, Mr. Brockbank, with a seedling; 5th, Mr. R. Gorton, with *Rev. F. D. Horner*; 6th, Mr. Potts, with *Talisman*; 7th, Mr. Barlow, with a new green; 8th, Mr. W. Bolton, with *Trail's Anna*.

Grey edges.—Premium, Mr. Potts, with *G. Lightbody*; 1st, Mr. R. Gorton, with *Geo. Lightbody*; 2nd and 3rd, Miss Woodhead, with *Rachel* and *G. Rudd*; 4th and 5th, Mr. R. Gorton, with *A. Meiklejohn* and *Lancashire Hero*; 6th, Mr. W. Taylor, with *Trail's Beauty*; 7th and 8th, Mr. Brockbank, with seedlings.

White edges.—Premium, Mr. W. Taylor, with *Acme*; 1st, Mr. Potts, with *John Simonite*; 2nd, Mr. E. Pohlman, with *Acme*; 3rd, Mr. Potts, with *Conservative*; 4th, Miss Woodhead, with *Smiling Beauty*; 5th, Mr. E. Shaw, with *Bright Venus*; 6th, Mr. W. Bolton, with *Snowdrift*; 7th, Mr. C. Roys, with *Silvia*; 8th, Mr. W. Bolton, with *Frank Simonite*.

Sells.—Premium, Mr. W. Bolton, with Sapphire; 1st, Mr. Barlow, with Carbuncle; 2nd and 3rd, Mr. W. Taylor, with Pizarro and Ellen Lancaster; 4th, Mr. W. Bolton, with Sapphire; 5th, Mr. Brockbank, with Lord of Lorne; 6th, Mr. W. Bolton, with Black Bess; 7th, Mr. Brockbank, with Cymbeline; 8th, Mr. E. Pohlman, with Topsy.

ALPINE AURICULAS.—In the class for four Mr. R. Gorton was 1st, with Victoria, Miss Taplin, John Leech, and Elcho; Mr. Barlow was 2nd, with Diadem, Llewellyn, Dazzle and Unique; Mr. E. Pohlman was 3rd, with four seedlings; Mr. Brockbank was 4th, with Diadem, Mr. Thompson, Beatrice and Conspicua; Mr. R. Heys was 5th, with Diadem, Llewellyn, and two seedlings.

Single Alpines, shaded, yellow centres.—Premium, Mr. J. Buckley, with Diadem; 1st, Mr. E. Shaw, with Diadem; 2nd and 3rd, Mr. Barlow, with Mrs. Meiklejohn and Llewellyn; 4th, Mr. G. Geggie, with Unique; 5th, Mr. E. Pohlman, with a seedling.

Shaded, white centres.—Premium, Mr. R. Gorton, with Victoria; 1st, Mr. E. Pohlman, with a seedling; 2nd, Mr. R. Gorton, with Goliath; 3rd, 4th, and 5th, Mr. E. Pohlman, with seedlings.

POLYANTHUSES.—Three dissimilar, black grounds.—1st, Mr. J. Hilton, with Lancashire Hero, Cheshire Favourite, and Exile; 2nd, Mr. W. Taylor, with Lancashire Hero, Cheshire Favourite, and Exile; 3rd, Mr. Brockbank, with Blackbird, Exile, and Cheshire Favourite; 4th, Mr. Walkden, Sale, with Cheshire Favourite, Exile, and a seedling. Three dissimilar, red grounds.—1st, Mr. J. Hilton, with Lancer, Cox's Regent, and George IV.; 2nd, Mr. W. Taylor, and 3rd, Mr. Brockbank, with the same varieties.

SINGLE POLYANTHUSES (red grounds).—Premium, Mr. J. Hilton, with George IV.; 1st and 2nd, Mr. Brockbank, with George IV. and Lord Derby; 3rd, Mr. J. Hilton, with Cox's Regent; 4th, Mr. W. Taylor, with Lancer; 5th, Mr. J. Hilton, with Sydney Smith. Black grounds.—Premium, 1st, Mr. Walkden, with Cheshire Favourite; 2nd, Mr. J. Hilton, with Exile; 3rd and 4th, Mr. Brockbank, with Beauty of England and Lancashire Hero; 5th, Mr. R. Heys, with King.

FANCY AURICULAS.—There were two fine collections staged. The 1st prize was awarded to Mr. Barlow; the 2nd to Mr. W. Bolton.

TWELVE FANCY POLYANTHUSES.—Only one pan of these was staged. The first prize went to Mr. Barlow.

TWELVE PRIMROSES.—1st, Mr. Barlow; 2nd, Mr. W. Walkden, with a promising lot.

Mr. Jos. Broome, of Didsbury, had a large and beautiful collection of miscellaneous plants.

NOTES OF THE WEEK.

Sale of Orchids.—The following are a few of the highest prices which established Orchids have fetched at Stevens' rooms during the week: *Cymbidium Lowianum*, 13 leading growths, 5 spikes, 95 flowers, 36 guineas; *Odontoglossum vexillarium*, fine dark variety, 21 guineas; a grand variety of the same, 24 guineas; *Cattleya Mossie*, small plant, fine variety, 12 guineas; *Dendrobium Falconeri*, large mass, 15 guineas.

The Liverpool show promises to be an important affair. A good deal of interest seems to be taken in it among horticulturists about London. Let us hope that it will be a success, and that it will be a credit to the Royal Horticultural Society. It will open on June 29 and last till July 5. About £1200 will be offered as prize-money.

The Birmingham Orchid show which was held on Wednesday and Thursday last proved a successful experiment. Birmingham may be called the centre of Orchid growing in the midlands, and it was thought that a show consisting entirely of Orchids would be a "new departure." The Birmingham Botanic and Horticultural Society therefore offered about £140 in prize money to be distributed in eleven classes. The exhibitors were chiefly local, and the show was well arranged by Mr. Latham, the curator of the Botanic Gardens at Edgbaston, where the show was held. Details will be given next week.

Anemone nemorosa rosea.—Mr. Grey sends from the garden at Normanston, Stamford, a pretty form of the Wood Anemone, which grows in the woods there along with the common white and the double or bracteate variety; the rose-coloured form is different from the variety *Robinsoniana*, the colour being of a deep rose, while that of *Robinsoniana* is pale mauve. Moreover, the latter differs in the form of the flower and also in growth.

New hybrid Megasea.—I send you a specimen of my hybrid Megasea, which I call *M. hybrida splendens*, obtained by crossing *M. cordifolia* with *M. purpurascens*. The cross produced many forms, of which this one is about the best, being fine in colour and otherwise distinct, inasmuch as it not only produces a strong central stem, but, in addition, several

secondary ones. In short, it is altogether by far the finest Megasea known to me. The vigour and hardness of *M. cordifolia* is retained in the progeny, while the full rich, if not fuller and richer, tint of *purpurascens* is reproduced.—T. SMITH, *Newry*.

* * Mr. Smith's seedling is really a grand plant; it combines the noble foliage of the largest forms of *M. cordifolia* with the rich purple colour of the true *M. purpurascens*, which is so rare and difficult to manage well. We agree with Mr. Smith that it is the finest Megasea yet raised, and is a valuable addition to hardy perennials.—Ed.

The Australian Apples which have just arrived in such fine condition seem to have invested the subject of importing Apples and Pears from the antipodes with fresh interest. But the fruiterers in Covent Garden say that such fruit, to be of much value here, should arrive in March and April, for after the spring-forced fruits come in such things as Apples and Pears are only wanted to make a full show on the dessert table. Such fine fruits, however, as we have seen from the colonies lately have a further use, for our cooks would be glad to get them in order to vary the monotony of the prevalent spring dish—Rhubarb. Let us hope, therefore, that Australia may be enabled to send us such fine examples of its produce in quantity.

Veitch memorial prizes.—We imagine that the dignity of these prizes will be lowered if such a miserable display occurs as that which took place at Kensington on Tuesday, when there should have been a competition for them. A scratch lot of salading, which a Covent Garden salesman would not look at, took the medal and £5! The exhibitor could not, of course, be blamed. He did his best, no doubt, and perhaps was not a little surprised himself that he so easily won the coveted medal. Surely the famous memorial medal and prize is worthier of a nobler purpose than a salad competition. Why not a *bond-fide* specimen Orchid such as the late Mr. James Veitch would himself have been delighted to see?

Kew Gardens.—The signs of new life in the direction of the Royal Gardens at Kew are apparent every day, and at last it seems that the public are to be studied not less than botanical science. Two indications of resuscitation have lately reached us. One is a capital lithographed plan of the whole gardens on quite a new system prepared by the office of works. The plan is marked with squares, which are numbered and lettered, so that with the help of the index printed on the back of the plan any desired point in the garden can be easily found. The plan is sufficiently large to show the paths, and even the principal trees, and instead of being numbered and lettered in the usual confused way, the names of the genera are printed in full. With this plan in hand a stranger may traverse the whole grounds and see the most interesting objects without the help of anybody. The total area of the botanic garden is about 70 acres, that of the arboretum 178 acres. The other contribution is a capital guide to the timber museum, about which we shall have something to say shortly. Smokers will rejoice to hear that the rule prohibiting smoking in the botanic gardens enclosure has been rescinded—another concession to the public.

Bougainvillea speciosa.—As the question about Bougainvilleas has once more come to the front, and as there seems to be a difference of opinion as to the different varieties, I send you cut specimens of the true *B. speciosa*, as determined by Lindley. It was bloomed for the first time by me in May, 1861, and was exhibited at the Royal Botanic Gardens in the Regent's Park, and also at South Kensington. From the first-named society I received a silver medal, and from the Royal Horticultural a certificate of merit of the first class. This is now twenty-five years ago, and the plant has never ceased to bloom in the greatest profusion ever since under the treatment at that time recommended by me. I never cut back, but only thin out the shoots after blooming, and frequently cut out the strong growths. I never water in the winter. Thus managed, the plant will often drop most of its leaves, but when watered in the month of March it breaks out into leaf and bloom, which continues in perfection for three or four months. I

should say that it would not produce bloom on the current year's growth; I have never observed it to do so. I have found Clay's fertiliser of great service in improving the colour of both foliage and bloom. There appears to be a difference of opinion as to which is the correct name, *speciosa* or *spectabilis*. I have bloomed the latter, but consider it not worth growing. It is brick-red in colour, and a very much shyer bloomer than *speciosa*. I may add that I have bloomed five varieties of Bougainvillea, of which I will give you full particulars shortly.—J. DANIELLS, *Swyncombe, Hoxley-on-Thames*.

* * With this note came some glorious specimens of Bougainvillea *speciosa*. They are finer than we ever remember to have seen them, the branches being densely wreathed with bloom and the bracts larger than usual. During the week we received some dried flowers of two Bougainvilleas from Egypt. One is *B. speciosa*, the bracts of which measure 2½ inches long, by 1½ inches wide. The other, the brick-red-coloured species, either *spectabilis* or *lateritia*, the bracts are small and roundish and of a dull red.—Ed.

OBITUARY.

MRS. NEWTON.

WE regret to have to announce the death of Mrs. NEWTON, of Newark, at Soissons. Mrs. Newton was an old and valued correspondent of THE GARDEN. She was a woman of refined and cultivated taste, and, like her husband, Lieut.-Colonel Newton, of Hillside, Newark, a good and enthusiastic gardener. It would be out of place in these pages to say more, and we will conclude with a few words from allusions made to the event in the parish church of Newark, on Sunday evening, by the vicar, the Rev. M. Wild. "The poor of the whole town, and especially the poor of our old parish church, have lost a devoted friend, always active in devising schemes for their welfare, ready and liberal in giving material help to the sick and needy, never grudging any amount of personal labour to further or carry out her ceaseless plans of kindness and works of charity. Many a one also, who might have appeared to need no material assistance, but who was known to her to have to struggle with straightened means, has had experience of her kind, thoughtful, helping hand, and the benefit of her sympathetic counsel."

LATE NOTES.

Cattleya Mossie (*J. Cross*).—A large flower representing a very fine variety, the pale mauve colour being not so common as the deeper tinted forms.

Peach leaves (*J. G. C.*).—Your Peach leaves are attacked by thrips, but not very badly, as far as I can judge, for I could only find a few specimens, not enough to account for the injury you mention, but possibly some may have left the leaves before they reached me. Is the tree that is losing its leaves in a more draughty or colder situation than the others? Eight oz soft soap, 1 oz. tobacco, and 3 tablespoonfuls of turpentine, well stirred into 1 gallon of rain water and left for twenty-four hours and then strained; or, soft soap half a pound, 1 pint of tobacco water, and 1 gallon of water, are good remedies for thrips. Flowers of sulphur, Scotch snuff, or Gishurst compound dusted over the leaves when they are wet are also very effective.—G. S. S.

Names of plants.—*G. W. R.*—2, *Begonia fuchsoides*; 3, *Begonia metallica*; 7, *Rose Niphetos*; 5, *Deutzia scabra* fl. pl. —*A. Jenkins*.—Apparently *Epidendrum odoratum*, *Cymbidium aloefolium*.—*J. W.*—*Veronica repens*.—*Kent*.—1, *Adiantum ethiopicum*; 2, *Lycaste Deppel*; 3, *Polystichum capense*.—*J. W.*—Megasea, looks like *cordifolia* maxima; others next week. —*A. G. B.*—*Campanula* (*Symphandra*) *Wanneri*, *Cyclobothra alba*, *Cypripedium acule*. —*H. R.*—This shrub looks like some species of *Cydonia*, but we cannot be certain without seeing flowers; why not root-pine so as to induce it to bloom? —*S. W. C.*—*Sedum Sieboldi*; apparently *Antennaria dioica*; the red flower is *Tritonia crocata*. —*W. R.*—1, *Iris pumila* variety; 2, *Iris biflora*; 3, *Heuchera americana*; 4, *Corydalis nobilis*. —*G. Y.*—*Embothrimum coccineum*. —*Rev. J. H.*—*Fyrus salicifolia* (white-leaved); other shrub appears to be *Symphoricarpos racemosus*. —*Justitia*.—1, *Pteris serrulata*; 2, *Adiantum formosum*; 3, *Pteris umbrosa*; 4, *Nephrodium molle* *corymbiferum*. The Primrose is a deep-coloured sort, but as we have no means of comparison we cannot say how far it differs from others. —*Bol.*—*Chamaerops humilis*. —*G. G.*—3, *Fritillaria latifolia*; 3, *involucrata*; 4, *pyrenaica*; 5, *Melagris var.*; 5 (2), *lustranica*; 7, *pallidiflora*; 8, *tenella*; 12, *dasyphylla*; 15, *Melagris*; 17, *parviflora*; 20, *armena* var.; 21, *pyrenaica* var.; 22, 16, 13, flowers had fallen, but apparently forms of *lustranica*; 98, *Romulea Bulbocodium*; 99, *Hutchinsia alpina*. Please remember our rule is to name but four plants at a time.

WOODS & FORESTS.

WOODS AND FORESTS LITERATURE.

THE demise of your contemporary *Forestry*, for lack of encouragement, as recorded in *THE GARDEN* a week or two back, does not say much for the craft in this country, nor yet for landowners, planters, and others interested in the subject. If woodmen cannot be got to read papers on forestry, their employers might be persuaded, one would think. We hear much of scientific forestry in Scotland, of essays on the subject there, of exhibitions and expeditions, and yet that country cannot support a cheap monthly periodical devoted to the subject. One does not, however, wonder at it who knows much about foresters and forestry. There are numbers of exceptions, of course, but as a rule woodmen are densely ignorant of everything not pertaining to their daily duties. We are in the habit of meeting head woodmen and agents from large estates almost every week who are so ignorant of the botany and physiology of their profession, of trees and shrubs, and the rationale of their business generally, that one has no interest or pleasure in talking to them. Such men may know how to value timber, how to fell, and do work about woods—what they could not help learning in the course of their duties—but on all other topics they are as ignorant as the common labourer. It is surprising how noblemen and gentlemen are deceived by men of this stamp. I rode the other day with a wood agent holding a lucrative situation on one of the finest estates in the north of England who told me he had been engaged in planting for forty years. He was well up in valuing and selling, but did not appear even to have read a line on the subject of forestry. I was not therefore surprised at him not knowing a tree called the *Pinus sylvestris*, and at his not recognising it by the orthodox description which I gave him as the Scotch Fir he had been planting all his life; but when I found he had never heard of such a tree as the Corsican Fir and others now quite familiar to intelligent foresters, and that he knew nothing about forestry as a science, I thought somebody had been in the wrong place sadly too long. Not long since I met another party who performed the duties of general bailiff and wood agent on the estate of a nobleman in the midlands, and, judging by his conversation, he belonged to the same stamp as the other. I was led to enquire into his antecedents, finding that he was a large farmer's second son who had never had a lesson in forestry in his life until he was appointed to his present situation a few years ago, and his present knowledge, such as it is, must have been acquired at his employer's expense. I can vouch for the facts of the case, and it is an example of many that could be recorded. Such men, being wholly ignorant on the subject of trees and their culture, are totally unfit to advise those who employ them, and who are themselves too ignorant in such matters to know whether a man understands his duties or not. On mostly all estates, arboricultural as well as horticultural knowledge appears to be confined to the garden and the gardener, the woodman, as a rule, being a native of the place, with no other claims to the office than long residence and familiarity with the place. Where the responsibility of the woods devolves upon the resident agent or bailiff, a man of this sort usually undertakes the active duties, and as his knowledge of the business is usually limited exclusively to the doubtful experience he has gained on the spot, not to mention prejudices, it may be guessed what the general management is likely to be should the agent know as little of practical or scientific forestry as he often does.

There are, of course, not a few proprietors and trained agents who understand both agricultural and arboricultural matters, but they are the exception, and frequently have too many duties to attend to permit any active and frequent superintendence of either the woods or the farm.

Another thing which I have often thought was to be much regretted is the practice of toying

with exotic trees in the garden, as has been the case in the past. Except in here and there a few instances, nothing better seems to have suggested itself to lovers of new trees than cultivating them as ornamental specimens in the garden, where no correct idea of their habit or utility could be gained, without so much as planting one in the woods, far less groups, to prove their value as timber trees. We have lost much by this frivolous practice, which sufficiently explains why we are all still in doubt and darkness regarding the value of many trees that have been in the country long enough to have been thoroughly tested on many estates.

WOOD AGENT.

VALUE OF THE SPRUCE.

UNLESS your correspondent, who writes at p. 413, can furnish other arguments in favour of planting this tree than he does, it is not likely to extend in favour. The reason of its unpopularity as a timber tree is that it never has fetched a sufficiently remunerative price in the market, and that it is never likely to do so while Fir planks, battens, and poles are shipped so cheaply from abroad. You cannot persuade timber merchants to buy home-grown Spruce, except for a few purposes and at a low price, and such arguments as Mr. Yeo urges would just be thrown away upon them. There is no place like the market for testing the value of commodities. It is clear from your correspondent's remarks that he realises this as clearly as anyone, and the question is, is it worth while to advocate the planting of a tree that is not marketable when other species far better and surer may be had?

With regard to the Red-wood of commerce—the red deal, I suppose, Mr. Yeo means—I was not aware that foreign Spruce was sold under that name, as Mr. Yeo implies. They are totally different trees—the red deal being the timber of *Pinus sylvestris* (Scotch Fir)—and are not confounded, so far as I ever heard, either by planters or timber dealers. Of the two, I would prefer the Scotch Fir for planting, as timber of good size can be disposed of when Spruce cannot. As to the comparative merits of home-grown and foreign Spruce, probably the two do not differ much (except that the home-grown is undoubtedly the most knotty by a long way, thanks to our scientific forestry which thins the trees so freely); but the home-grown cannot compete in price with the foreign, and that is where the shoe pinches. So far as I am aware, Mr. Yeo himself is the only one who has suggested the inferiority of the home-grown Spruce. These are the facts would-be advocates of Spruce planting need to realise. Was it not stated last year that the portable saw-mills started in those districts where so much wind-fallen Spruce lay had ceased to ply, because they could not compete with the foreign supply, although they got the timber for little more than the removal of it from the ground?—YORKSHIREMAN.

—I note a recent long article from someone who wishes to write at great length in praise of Spruce timber. I respectfully submit that a few notes from any observers of trees in our pleasure grounds and woodlands in the southern and midland counties as to how the Spruce generally grows would be more useful than any number of such articles. My own experience is that it is a perfectly worthless tree over a large area of our country. If I see any tree in a dead, or dying, or miserable state, I am sure to find, on getting near, that it is a Spruce. I have cut down every Spruce that I can get near. If I had a thousand acres for every hundred that I have I would not have a Spruce on the place. When mature and good trees that are grown on good moist ground are cut down they bring so little, that they are not worth growing, even if they grow with the greatest perfection. One man I know says that the Spruce is good for nothing but fire-wood. It is, however, the worst of all fire-woods, for it spits and splutters in one's face. The worst of our hard woods is twice the value of the Spruce for burning.

Whether from an ornamental or from a forest point of view, I know no tree so worthless, and this notwithstanding the fact that in certain moist bottoms in some places it may seem to grow well. I am speaking of the districts I know best—the home counties—mainly the southern home counties.—R.

USES OF THE ASH.

LOUDON's remarks concerning the merits of Ash timber are well worth quoting here as a supplement to the interesting account given last week. He says the value of the Ash timber is increased by the rapidity of its growth; and, as in the case of the Sweet Chestnut, the wood of young trees is more esteemed than that of old ones. The texture of the wood is alternately compact and porous; and, where the growth has been vigorous, the compact part of the annual layers bears a greater proportion to the porous, and the timber is comparatively tough, elastic, and durable. In durability, however, and also in rigidity, it is inferior to the Oak: but it is superior to that wood, and to every other, in toughness and elasticity; and hence its universal employment in all those parts of machinery which have to sustain sudden shocks; such as the circumference, teeth, and spokes of wheels, beams of ploughs, &c. The timber of the Ash is very elastic; so much so, that a joist of this timber will bear more before it breaks than one of that of any other tree indigenous to Europe. It weighs, per cubic foot, 64 lb. 9 oz. when green, and 49 lb. 8 oz. when dry. Since the use of iron became so general in the manufacture of instruments and machines, the value of the Ash is somewhat diminished, at least in Britain; it still, however, ranks next in value to that of the Oak, and is held even to surpass it for some purposes. It is much in use by the coachmaker, the wheelwright, and the manufacturer of agricultural implements. It is highly valued for kitchen tables, as it may be scoured better than any other wood, and is not so liable to run splinters into the scourer's fingers. For the same reason, it was formerly much used in staircases; and in old houses, for example, at Wroxton Abbey, near Banbury, the seat of the Earl of Guildford, the staircase is entirely formed of this wood. Milkpails, in many parts of England, are made of thin boards, sawed lengthwise out of the tree, each rolled into a hollow cylinder, with a bottom affixed to it. The roots, and the knotty parts of the trunk, are in demand by cabinet-makers, for the curious dark figures formed by their veins, which make a singular appearance when polished. Evelyn says that "Some Ash is so curiously cambled and veined, that skilful cabinet-makers prize it equally with Ebony, and call it green Ebony." It makes excellent fuel, burning, even when newly cut, with very little smoke; and it is said to be the best of all woods for smoke-drying herrings. It makes excellent oars, and also blocks and pulleys.

Few other trees become useful so soon, it being fit for walking-sticks at four or five years' growth, and for handles for spades and other implements at nine or ten years' growth. An Ash pole, Nicol observes, 3 inches in diameter, is as valuable and durable, for any purpose to which it can be applied, as the timber of the largest tree. It is particularly valuable for Hop poles, hoops, crates, handles to baskets, rods for training plants, forming bowers, for light hurdles, and for wattling fences; and also for walking-sticks. In Staffordshire, in the neighbourhood of the potteries, the Ash is cultivated to a great extent, and cut every five or six years for crate-wood, which is in great demand for forming crates to pack up the articles manufactured in the potteries. In Kent, and in various places in the neighbourhood of London, the most profitable application of the young Ash is for walking-sticks, plant rods, hoops, and Hop poles. For the latter purpose, coppice woods are cut over every twelve or fourteen years, according to the nature of the soil; and, for the former purposes, every five or seven years. The ashes of the branches and shoots of this tree afford a very good potash; the bark is used for tanning nets and calf-skins; the leaves, in some places, for feeding cattle in autumn, and in others in spring, and for adulterating tea. The leaves and shoots, eaten by cows, are said to give the milk and butter a rank taste; but this does not appear to have been

considered a great evil by the Romans, as they recommended the leaves of the Ash, next to the leaves of the Elm, for fodder. In moist pastures, interspersed with, or surrounded by, numerous trees in hedgerows, the leaves, after dropping in the autumn, communicate a bitter taste to the water both in the ditches and ponds, and possibly, also, to the milk of cows; but this does not hold good more with respect to the Ash than to other trees: indeed, the most objectionable is the Oak, the leaves of which, in autumn, give a decidedly bitter taste both to water and milk.

ASH IN PLANTATIONS has been objected to on account of the injury which it does to everything that grows in its shade; but, though we admit that this, and its love of shelter, constitute a decided reason why it should not be planted in hedgerows, or where it is expected to make profit from plants growing under its shade, yet it affords no argument against planting it in masses, where the object is the production of timber or coppice wood. As the tree, when standing singly, forms a most ornamental object on a lawn, and, though it may impede the growth of the Grass, yet does not destroy it, there is no reason why the Ash should not be admitted into pleasure-grounds, as well as the Cedar, or any other dense Evergreen, under which Grass will not thrive. It has been observed that female and hermaphrodite trees, from the quantity of seeds which they produce, never exhibit such a handsome clothing of foliage as the male trees; and hence, in some situations, where an ornamental Ash tree is wanted, it may be desirable to make sure of a male by grafting.

Sowing tree seeds.—Nurserymen sow the different sorts of forest trees on long flat beds like those prepared for Onions, &c., and in the planting of acorns for Oaks the nuts are dibbled in at 2 inches apart. The method has been tried to grow Oaks at once in the place they are to occupy permanently by planting the acorns on the spot, but they have generally been failures; the mice and other little creatures grub them up; whereas in a nursery, although a proportion may succeed, still a great many do not, and it is no uncommon sight to see many beds where seeds have been sown almost failures, with only here and there a little seedling showing. Some advocate drilling tree seeds, but this would not be applicable, as trees forming a plantation are generally put in on a certain method—so many Oak at such a distance, so many Beech, and Ash, and other woods, which are then planted round with Fir trees and Pines to act as nurses, and which are gradually weeded out as the hardwoods grow up. Then also, if sown in drills there would be a vast amount of labour required to keep down the weeds which would soon grow up and choke the little seedlings, as most of them would grow but a few inches the first year of sowing.

Privet as covert.—There is quite a conflict of opinion on the value of this plant for covert purposes where rabbits abound, some asserting that they eat it as readily as anything else, while others declare with equal confidence that they do not hurt it to any serious extent. Both sides are, so far, correct. I know estates where the Privet grows breast-high and flourishes amazingly in spite of swarms of rabbits; and again, I know other estates where it has been eaten off as fast as it was planted. The fact is, rabbits do eat Privet as they do Hollies and other things the first season, but they do not harm it much afterwards; consequently, the best way of starting a good growth of Privet is either to plant it in sufficient quantity at the outset to make allowance for the rabbits, or to keep the rabbits down for a year or two till the plants, if fewer, get a start. Considering how freely the Privet grows and is propagated, there should be little difficulty in getting up extensive breadths of it in a short time.—Y.

Thick and thin planting.—It is impossible to specify any limit for the distance of planting standards which shall be applicable to all trees; much must depend upon soil and climate. Where the production of timber alone is the principal consideration, the preservation of an unbroken leaf canopy will insure the tallest trees and the cleanest timber; but where it is deemed desirable to cultivate a considerable proportion of strong and healthy underwood, the standard

trees should not occupy more than from one-third to one-half of the entire wooded area. Even in close plantations trees should never be allowed to overhang or whip each other. Firs and Pines may stand much thicker than deciduous trees, and during the earlier years of their growth they require much less thinning; indeed, it is seldom necessary to thin a plantation of Scotch Pine until it is nine or ten years old. In situations where the deciduous trees require to be thinned out at intervals of from 25 feet to 30 feet at the age of forty years, resinous kinds may stand at little more than half that distance—say, from 15 feet to 18 feet. In order to obtain sound timber no branches should be allowed to die back close to the bole.—B.

PLANTING AND WHAT TO PLANT.

THE careful selection of trees suitable for various soils and situations is a matter of the highest importance to those who contemplate tree planting for profit. I need scarcely add that the neglect of this consideration is in nine cases out of ten the cause of failure. On light, poor, hilly lands, and moderately exposed, the Larch is the most profitable tree to plant for a main crop; when the altitude or exposure is too great for the Larch, a shelter-screen should be planted with Austrian, Corsican, and Scotch Pines, planting the Austrians on the outside or exposed sites, as they are of a more bushy habit than the others, and the best Pines grown for shelter. The Scotch and Corsican Pines thrive well and make excellent timber on exposed poor plains, where the Larch has been found to be a failure. On the other hand, the Larch generally is more vigorous and less liable to disease when grown on the declivities of hills with a south-west, west, or north-west aspect than in any other situations, the reason being that the sun's rays do not reach these aspects so early in the day, and thus the trees do not suffer from late spring frosts so much as when planted on east or south-east aspects.

If shelter for game be required, or ornamental effect in the landscape scenery be desired, masses, clumps, or groups (according to the size of the plantation) of the Silver and Spruce Firs should be planted in judiciously chosen positions to give the most pleasing and natural effects without stiffness and formality. The Douglas and Menzies Spruce, Nordmann's Silver Fir, and the Wellingtonia, which are now more plentiful than they have been, and may be bought at moderate prices, might also be introduced in smaller groups in the lower sites, where the soil is tolerably deep and the situation somewhat sheltered; they are all hardy, fast growing, and beautiful Conifers, being very effective when planted in groups amongst deciduous trees.

FORESTER.

Timber carriage.—I can quite believe that Mr. Webster (p. 413) could get men in Ireland to carry timber on their backs for 2d. per foot per mile if the ordinary rate of labourers' wages there are in proportion to the salary given to head woodmen. I had lately an application for a head woodman to superintend the woods on a nobleman's estate in Ireland, but the wages offered being less than ordinary foremen get about here, and hardly exceeding labourers' wages, I could not offer the place to anyone worthy of the name, and I believe the place is still vacant. What I said about prices of leading here is correct. When I said 2d. for one mile, I did not mean 2d. per mile. One penny per mile for over one mile is about the lowest rate on all estates for miles around. Two years ago it was more. I do not believe in steam-power for removing timber under ordinary circumstances, as horses would still be needed to drag the timber to the engine, and that is the most laborious portion of the work, and work which an engine could not perform. Mr. J. B. Webster's calculation savours

a good deal of the theoretical; has he tried it? The prices of felling and carriage, &c., in Ireland recorded by Mr. Webster are low. For example, 1s. per ton is given as the cost of "felling and preparing the wood;" whereas in this neighbourhood the lowest price is 2s. 9d. Purchasers of hedgerow Oak and Ash are at present paying from 3s. to 3s. 4d. per ton, felling at their own cost. As to carriage, teamsters who work by contract would fetch the timber out to the hard road in half loads, in the way Mr. Webster describes, but they would charge proportionately more for it, thus bringing it to the same thing in the end.—YORKSHIREMAN.

AGE FOR FELLING OAK TIMBER.

THE age at which Oak timber ought to be felled, with a view to profit, must depend on the soil and climate in which the tree is grown, as well as on other circumstances. Whenever the tree has arrived at that period of its growth that the annual increase does not amount in value to the marketable interest of the money which, at the time, the tree would produce if cut down, then it would appear more profitable to cut it down than to let it stand. Perhaps it would not be difficult to construct a table to show the proportion between the annual increase of the trunk at a certain distance from the ground and the annual amount of timber added to the tree, and, the price of timber and bark being known, a calculation might thus readily be made of the total value of the tree and the total value of the annual increase. We are not aware, however, that any such table has been calculated, but the idea of it may be useful to proprietors of trees with a view to felling them. The Oak, like all other trees, varies exceedingly in its growth, according to soil and situation, &c. No one fixed period can be given for cutting it down applicable to all, or even to the generality of cases. A practised eye will be able readily to decide when a tree is ripe for the axe. There will no longer be any vigorous shoots in the extremities of the branches, but instead of this a curling or crinkling of the spray, with scarcely any perceptible growth; dead branches or small ones will occasionally be seen towards the top; and, above all, the bark will cease to expand, and, of course, will no longer exhibit those light red or yellow perpendicular streaks in its crevices which are a certain proof of its expansion, and of the consequent growth of the wood beneath. As to the question at what age Oaks should be cut down so as to make the best return in point of profit, this will depend mainly on the demand for Oak timber of this or that particular size and quality in each neighbourhood. F.

Timber for coal mines.—We have heard it suggested that the coal-pits of Great Britain were likely to be practically exhausted in the course of about a century, and should such assertion be well founded, it might to a certain extent be the means of retarding the planting of waste land in some districts of the country, under the supposition that the demand for timber would be lessened to such an extent that it would be rather risky to spend money in extensive tree planting. When the mines of this country are wrought out, there will, of course, be no more timber wanted for mining purposes; yet we anticipate that vast quantities of timber will always be wanted and used in this country, and on broadly glancing at the subject in all its aspects and bearings, we think it would be but short-sighted policy on the part of owners of waste land were they to curtail planting operations on this account. In addition to mining timber, it has been roughly estimated that it would require about 8000 acres of timber to be felled annually to keep the railways in this country in a proper state of repair; and should such a statement be anything like an approximate estimate of the stuff required, it ought to stimulate owners of waste land to increased action in the way of planting.—J. B. WEBSTER.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

ROSE PROSPECTS.

ROSES generally seem deficient in vigour this year. Will they be able to regain their normal state before the harvest-time of bloom towards the end of June? This is more than doubtful, though it is astonishing how rapidly vigour is developed at times after growth has fairly set in. Liquid manure or dry stimulants moistened into, rather than washed out of, the soil are most useful aids to vigour if applied in time and husbanded in the root-runs. It is too late now to discuss the former point, and it is doubtful whether the first growth or bloom will be greatly benefited by solid dressings applied towards the end of May. But then there is less and less quality in the Rose season as the number of Tea and other true perpetual Roses increase and multiply, and the dressing that may be too late for the first crop of wood or harvest of bloom may prove most timely and potent for the second or succeeding ones, and these latter are, as a rule, really the most useful. Roses in June and July are so much a matter of course, that they are often less appreciated than the steady succession that runs through the season and enables us to pluck the last Rose of summer from the rhyme white stocks of winter. But it is very important at all seasons to husband the strength of our top dressings against and among our roots instead of flooding them away into the subsoil, or rushing them into the nearest drain, as is often done. In cases where Roses need heavy waterings, these should be given before the application of manures, liquid or solid. The mission of the water should be looked upon as preparatory, a sort of fore-runner to waken up the roots for something more substantial and strengthening to follow, as well as to open myriads of channels to the roots. In a few days, or a week at the most, after these preliminary arrangements, the manure should be applied, and only sufficient moisture given at the same time, so as to carry the food to the roots thus well prepared to receive and promptly to devour, and transform it into Rose wood, buds, foliage, and flowers. To feed Rose shoots for fat buds for budding seems a great leap down from the ecstasies of cutting show dozens, twenty-fours, thirty-sixes, and seventy-twos. But it is really one of the surest means of sweeping the boards at the great shows. For as surely as the great Oak is in the acorn, so is the future show blooms in the buds; and as are the buds we insert in our Briers, so assuredly will the vigour and beauty of our future Roses be. For though vigorous stems have something to do with it, vigorous buds have more, for they not only summon to their assistance all the available resources of root and stem, but to a large extent they create and quicken new and more powerful vital forces and food supplies. But this is a plunge into the future; seasonable advice now is the prompt destruction of Rose maggots and timely thinning of buds. Someone has been recommending the slaying of Rose weevils with needles, but where is the benefit of such tedious modes of torture. The embryo flower is already ruined; therefore remove it bodily at once. Collect all punctured buds in a box, and burn buds and insects. This is at once the most prompt, and hence

most merciful, death, and has the great merit of leaving no larvæ behind.

Bud thinning should be attended to early, or fully half its benefit is lost. "J. C. C." lays down excellent rules for thinning according to the strength of the trees, &c. Could more time be devoted to this matter, it is hardly too much to affirm that it might double the size and vastly improve the form and substance of most of our best blooms. A good deal may also be done to extend the Rose season by an early and careful selection of the buds left. For example, the majority of Roses bloom in triplets, and each bud mostly differs in earliness as well as in size. The earliest bud is mostly the largest; but I know one very successful exhibitor who contends that it is seldom, on the whole, the finest formed or the richest coloured. He mostly grows and cuts to win the middle bud. What say our greatest trade exhibitors—our Pauls, Cants, Bennetts, Turners, &c.—to this middle and mostly medium-sized-bud theory of perfection? Assuredly few Rose judges who know their business attribute any excessive importance to size. Of course, it goes, too, without saying that if the first bud is removed sufficiently early, the middle, or even the smallest and the latest, may almost come up to the earliest in point of size; while possibly, through their lateness and having fewer climatal hardships to battle with, their form is mostly superior to the first and earliest opened buds. The loss of time in Rose blooming is also often of great importance in the culture of Roses for showing, as well as useful in prolonging the season of Roses for home enjoyment, and this may often be extended a fortnight or three weeks by selecting the latest buds for blooming on a portion of the stock. The removal of all weakly buds or trusses and shoots is also an excellent method of concentrating the vigour of the plants and developing it, and is also the simplest means of averting or subjugating insect pests, as the motto of most of these seems to be to the weakest first, and from these to the entire rosery. D. T. F.

ROSES ON THEIR OWN ROOTS.

THESE are always better than either budded or grafted plants, both under glass and also in the open ground. Of this I was convinced in the winter of 1860 and 1861, when in England almost all the worked plants were killed, except such as were protected. We had probably over ninety per cent. killed; but, strange to say, Gloire de Dijon on Briers several feet high escaped. Souvenir de la Malmaison on its own roots was only killed down to the snow line, and that is also our experience here with Hybrid Perpetuals; if there is a fair amount of snow the severest frost does not kill below the snow line. I have thousands of Hybrid Perpetuals now in full growth, and those on their own roots are much the best. I have imported worked plants when I could not obtain plants from cuttings, but they were always a failure. I have seen quantities of worked La France imported here, but never saw a good plant amongst them. I have the same variety from cuttings two years old with shoots 6 feet long and as large as those of the strongest Brier; but although these show vigour, and there are probably from twelve to twenty buds on every shoot, we nevertheless get the best blooms from shoots with a single bud.

AS REGARDS PROPAGATING, it is easy to cut the plants over after the first flowering; every eye will make a plant if put into an almost exhausted hotbed which has been used for spring work. I did this in England, but it is too hot at that time to do so here. We can, however, propagate all through the winter and spring, and

as a rule, about 99 per cent. strike root. The only Rose not propagated by cuttings in this country has been Her Majesty; in this case some cultivators grafted it on the old wood. The pegging-down system is excellent, but not in the way of making plants; the late Mr. John Standish pointed this out to me, and if he was alive, he would like to see such Roses as Jacqueminot, Magna Charta, Baroness Rothschild, Paul Neyron, and various other good sorts with one mass of buds all through the beds. In this country we cannot peg down plants outside, but that is the way we treat them under glass. I have several varieties from cuttings put in last spring at least equal to worked plants, and I saw plants of Baroness Rothschild from cuttings put in the first week of April last year, quite as large as worked plants, although not so free as some others I could mention. Spring cuttings of such varieties as General Jacqueminot and Paul Neyron will yield plants by autumn, with shoots 4 feet long. I have a number now which I flowered in pots for Easter.

Persian Yellow and Harrison's Rose, as stated in THE GARDEN (p. 381), should not be pruned. I had a bed of these varieties unpruned years ago, and every shoot flowered. I saw a number of imported plants once in this country which had been pruned on the same system as other Roses, but they did not show a single bloom.

Maywood, New Jersey.

JAS. TAPLIN.

Scented-leaved Roses.—Allow me to assure "T. W. G." that, so far as I am concerned, I have said nothing against exhibition Roses for exhibition purposes further than that which I now repeat, which is, that amongst them there are many varieties that are weak, poor growers, and too much like others that are better in that respect and freer bloomers, and that for ordinary garden purposes they are not equal to others which produce flowers that do not come up to the exhibition standard. In his remarks that technical terms when used should be clearly defined, "T. W. G." appears to have got somewhat confused. I did not use any technical terms; nor did he in his first communication allude to anything of the kind. —T. B.

ONOSMA TAURICUM.

To grow this pretty plant with success it is necessary to propagate it afresh every year. The plants increase in size and in beauty until the second year, after which one can never rely on their passing even a moderate winter unscathed. Dampness, I believe, is more fatal than actual severity of frost. Plants elevated on a few stones survive when those on the ground level die off, and even a handful of dry sand around the collar of the plant often means all the difference between success and failure. No doubt it is a touchy or miffy subject in ordinary gardens, but it is so distinct and beautiful that no pains are too great if anything approaching success is likely to be the reward. Our plan is to cut down the old flower-spikes just as the latest flowers develop themselves about the end of June. By August young shoots will have appeared, and these are stripped or slipped off and put in as cuttings. They are never touched with a knife; we find the old-fashioned plan of slipping much more successful. The slips are dibbled into a sunny border covered with an inch or so of coarse sand or grit, and a handlight is placed over them. They get a good watering to settle them in the ground, then on goes the glass, and a Rhubarb leaf or two is spread over the latter as shading. So treated, we always have plenty of healthy young plants which bloom the spring following after they are planted out, but better still the second year. My experience of this plant is that: 1, it likes full sunshine if its roots are cool and moist, deep in clefts of rock or under stones; 2, it is most readily increased from slips (not cuttings);

3, that no reliance must be placed on plants over two years old, although now and then a mass will live for five or six years and produce a golden fleece a yard or more across when in flower. I notice that the longest lived plants here with us in a climate very damp and mild are those on rockwork or stones above the ground line, but as the plant is easily increased and is rarely more beautiful than during its second year, longevity is not so much to be desired. Does this plant ever seed in gardens? Here it fails to do so, but I hope to fertilise it this season in the hopes of getting variety and, perhaps, added vigour from seedling plants. F. W. B.

INDOOR GARDEN.

FINE-FOLIAGED PLANTS IN HOUSES.

THESE plants have a boldness and distinctiveness of character that renders them indispensable for furnishing greenhouses and conservatories, where, among flowering plants, they produce a most pleasing and striking effect as they stand out conspicuously and relieve the glare of masses of bloom. Among the best of these fine-foliaged subjects few, if any, are more deserving of cultivation than the *Aralia Sieboldi variegata*, which has large massive leaves, divided like those of the Fig, the texture being very stout, and the surface of a bright polished appearance. This renders the plants dust-proof; dust cannot lodge on them, or, if it does, it is easily washed off by giving them a syringing or drawing the sponge over them, and they are therefore of great value for rooms or halls, where they will stand for a long time without taking harm. There is also a green form of this *Aralia*, which comes readily from seed; but the variegated kinds can only be propagated by cuttings made from shoots that push after plants have been headed down. To get these to strike they must be taken off with a heel, or portion of the old wood and bark attached, and then potted singly in small pots in sharp sandy soil, and stood in a warm house or pit, where they can be kept close and moist. These *Aralias* look best when grown with single stems, and to keep these straight and erect, it is necessary to turn the plants round occasionally, as they are sure to draw to the light, and if not moved become one-sided and only fit for a stage. *Aspidistra lurida variegata* is another first-class plant for house or room decoration; it is not only exceedingly ornamental in its richly marked foliage, but it will live and flourish where few other plants will exist, as it stands the impure atmosphere the result of burning gas, which seems to have but little effect on its leaves. These are broad, long, and leathery, having bands or streaks of creamy white running along them, which renders them very showy, and gives them a bright, cheerful appearance. The only way to increase such plants is by division, which may be carried out almost at any season, the best time being the spring, just as the new growth commences, when they may be cut through with safety. The soil best suited to pot the *Aspidistra* in is loam and sand, but the less root room it has, the better, as a rule, for the variegation as the tendency of plants that are well fed is to run green and grow very strong.

DRACÆNAS cannot be over-praised, but, unfortunately, most of them are too tender to live in an ordinary greenhouse except through the summer—a time when they will stand without taking harm. One of the finest is *D. terminalis*, and another equally deserving is *D. Cooperi*, the first-named having erect leaves, brilliantly coloured, while those of *D. Cooperi* are drooping and gracefully arching, a habit which renders it of great value as a dinner-table plant. Another that is almost equally meritorious for the same purpose

is *D. nigra rubra*, the foliage of which is long and narrow, the older leaves being very dark and the young ones red, which gives the plants a striking appearance. One of the boldest of the *Dracænas*, and a variety that is specially adapted for conservatory decoration, is *D. amabilis*, which is a strong grower, having leaves 2 feet long and 3 inches to 4 inches wide, the colour being a light green, with bands of creamy white tinged with red when the foliage gets old. Many of the *Yuccas* are exceedingly ornamental, and associate well with *Dracænas*, several of them being variegated; the most noteworthy of these are *Y. quadricolor*, *Y. Stokesi*, and *Y. filamentosa variegata*. The best of the green forms is *Y. recurva*, the leaves of which arch over, and render the plants highly ornamental and well suited for vases, as in elevated positions of that kind they show themselves off to advantage. *Yuccas* are so tenacious of life that they will grow almost anywhere, and require but little soil, and, if kept well watered, will remain healthy in the same pots for years.

THE NEW ZEALAND FLAX (*Phormium tenax*) is also a capital plant, and there are now several variegated kinds of it, the three best being *P. tenax variegatum*, *P. tenax Colensoi*, and *P. tenax Veitchi*, all of which are striped with white or creamy white, the first-named being marked most distinctly. The green form comes readily from seed, but the variegated sorts can only be increased by division, which may be effected any time during the spring, just before the plants start into growth, when they may be separated by pulling them apart, so as to secure a portion of roots with each stem. Being moisture-loving subjects, these *Phormiums* require plenty of water and, if well attended to in that way, they may be kept in small pots for years. *Hydrangea argentea variegata* and *H. aurea variegata* are both exceedingly handsome plants, having richly marked foliage, the colouring being very delicate and distinct when they are forced, as heat brings it out and makes the leaves look charming while they are young. Another thing to recommend these *Hydrangeas* is that they are very free-flowering; each shoot bears a large panicle-shaped head of bloom, and this, which is of a pinkish hue, sometimes changing to blue, contrasts well with the white or gold of the foliage. The way to propagate and increase *Hydrangeas* is to strike them from cuttings, which should be taken off when the shoots are half ripe, as they soon will be, and, if inserted singly in small pots and stood under a hand-light in any cold frame, where they can be kept shaded, they will soon root and be ready for shifting on in spring.

EURYA LATIFOLIA VARIEGATA is a highly ornamental shrub that is almost hardy, and may be trained either as a standard or pyramid, and be used for greenhouse or conservatory decoration, or the embellishment of rooms, for either of which purposes it is well adapted, and it remains in good condition the whole year through. Although so hardy and enduring, the *Eurya latifolia variegata* is rather difficult to increase; but if cuttings be taken early in the autumn and inserted under bell-glasses, and kept in a pit or frame during the winter, they will callus, when by giving them a little heat in spring they will emit roots, after which they should be potted singly and again placed in a warm house till they get a fresh start. *Abutilon Thompsoni* and *A. vexillarium variegatum* are both worth growing, as they have richly spotted leaves and bell-shaped blooms, which they produce freely, and these show up well when the plants are trained or run up as standards, as then the blossoms are seen to advantage. The readiest way to strike *Abutilon* cuttings is to put them in bottles filled with water, when, if

stood in heat, the cuttings root very quickly in the spring, and they may also be propagated readily in the ordinary way. E.

BOUGAINVILLEA SPECTABILIS.

WHEN I first wrote about this *Bougainvillea* (p. 347), I said, "The shoots will not extend much before the bloom is apparent, as this species, unlike *B. glabra*, which blooms from the strongest shoots of the current season's growth after they have reached a considerable length, flowers from the ripened wood." "As a matter of fact," "J. S. W." says, "the two varieties differ only in the one being stronger than the other, no more difference existing between them than there is between two sorts of Apples or Pears." Those who have had anything to do with the two plants in question will know how to estimate the accuracy of this statement. This is the time when *B. spectabilis* blooms, and I challenge "J. S. W." to produce an example of it flowering from the present season's shoots in the way that *B. glabra* does. The latter differs so far from *B. spectabilis*, that when it receives the right treatment it will bloom two or three times a year. I have frequently exhibited it in May, and again in August or September, with another set of shoots laden with flowers so densely, that they half hid the leaves. If, as "J. S. W." says, there is no difference between the two plants in question in their habit of flowering, allow me to ask him to name a place where *B. spectabilis* has bloomed a second time in one season in the way in which *B. glabra* does.—T. B.

As there seems just now a little discussion as to the names of several varieties of this gorgeous climber, I write to offer my quota of observation. In the south of Europe, where it is so much grown, I have seen three shades of colour, all, botanically speaking, from the same plant, *B. spectabilis*. One that we will call the type, another of a rather brighter and redder shade, which is, I fancy, *speciosa*, and another deeper and richer in colour than any, and which is sold under the name of *Warzewiczii*. These three differ somewhat in hairiness and length of growth, and *Warzewiczii*, perhaps from being the latest novelty, is considered the finest and most satisfactory of all the varieties of *B. spectabilis*. *Bougainvillea glabra* we all know is quite a different thing, and blooms in autumn on its summer growths without the winter's rest required by *B. spectabilis* and its garden varieties; but there is yet another variety which seems to me so distinct in growth, and colour, and tenderness as to deserve the rank of species. This is *B. lateritia*, which is slightly hairy, and as slender in growth as *B. glabra*. It flowers midway between the autumn-flowering *B. glabra* and the spring *B. spectabilis* in Algiers and Egypt, where it was specially beautiful some years ago near Alexandria, but it is so tender, as well as more truly winter-flowering, that I have never seen it thriving in the Riviera. Perhaps some one more favoured may have seen it there, and can say that it is to be found in Europe. The origin of its name, *lateritia*, is also a mystery to me, for it flowers from the ends of its shoots like *B. glabra*, and not, as far as I remember, from side shoots. Its colour is called brick-dust by its detractors; but to me, who specially admires its *Nasturtium*-coloured bracts, it seems it should rather be called flame-coloured, as now and then some bracts attain that pitch of intensity in colour under very favourable conditions.—E. H. W.

SHORT NOTES.—INDOOR.

Mrs. Sinkins Pink.—I find this Pink does well in pots. Good strong plants of it, lifted in autumn, potted in 6-inch pots, and placed on a shelf near the glass in a cold house, will be in full bloom by the beginning of May, and for a fragrant pot plant for the drawing-room, or for cut flowers for general decoration, I know nothing more acceptable.—J. H.

Plumbago capensis.—This is such a good old plant as a roof-climber, that one is pleased to note how freely it flowers in quite a small state, and what a pretty effect its very distinct shade of blue has when mixed with ordinary greenhouse plants. We have some plants of it at present flowering freely in 3-inch pots, and I feel certain that they would be prized by all who require small flowering plants in quantity for conservatory decoration.—HANTS.

AZALEAS AFTER BLOOMING.

THE first thing to do is to pick off all seed-vessels which form abundantly on the Azalea, and which, if allowed to remain, diminish to some extent the growing powers of the plants. Then you have to determine whether repotting is needful. Plants in pots between 4½ inches and 8 inches in diameter should be repotted if the soil is filled with healthy fibres, but if larger it is left to the option of the grower whether they get fresh soil or not, as a good share of vigour can be infused into them by other means. Before repotting, give the old ball of soil a good soaking, and let the compost be in a moist condition. This should be the best fibrous peat with all the dust sifted out, replacing this with silver sand. These are very important details in Azalea culture. In potting, ram the compost in so as to make it as hard as the old ball and quite firm at top. Water moderately, and afterwards only when the soil has become nearly dry. Shade from hot sun, syringe daily in hot weather, and you will get a good growth on the plants, which will ripen well and will produce prominent hard buds by autumn. As soon as the new wood begins to harden, place them in the open till end of September, in a fairly sunny, sheltered place, looking well to watering. When plants have come in 8-inch or larger pots there is often a reluctance to repot, as they are perhaps quite as large as they are desired to be. This is the time when they are liable to go back; but they need not do so, for, though the growth made will not be quite so vigorous, it may have strength enough infused into it to allow of the formation of good flower-buds. An important point in the culture of old Azaleas is to feed moderately during the flowering time, which helps to ward off debility caused by bloom production, and furnishes the larder in readiness for the new growths to draw upon as soon as they begin to push out. Very weak guano water will do, or a top-dressing of some concentrated manure, as soon as the buds begin to burst; then give plenty of water and keep up a nice, genial, growing atmosphere, and satisfactory growth will be made. Azaleas have two great enemies—thrips and red spider, and to them casting the foliage is mainly due. They will not be troublesome, however, if the syringe is well worked on the underside of the foliage where these destroyers lurk. The cool nights, washing rains, and heavy dews of early autumn also prove a source of discomfort to them.

J. C. B.

White Calceolaria Madame Lemaitre.

The coloured plate of this in the *Revue Horticole* represents a charming variety and one which is likely to become popular. M. Carrière calls it a "hybrid of the second generation," one of the parents being the variety named *Souvenir d'Arcueil*, which is itself a hybrid between the shrubby and herbaceous sections. The habit is dwarf and compact, the foliage most resembling that of the herbaceous kinds, whilst it ramifies and flowers perpetually. It

can therefore be propagated from cuttings. The flowers are produced in a dense head and are of a fine clear white. This is probably the forerunner of a new race of *Calceolarias*.—J. C. B.

THE GARDEN OF THE VILLA MONT-BORON.

WE publish herewith two more engravings in illustration of the Princess Kotschoubey's charming garden at Nice, to which we alluded last week. The growth of the succulent plants in the open is superb, and the grace of the nobler subtropical plants is such as one cannot see under



View in the Princess Kotschoubey's garden at Nice. Banana, Dragon's Blood tree (*Dracena Draco*), Fan Palm (*Latania*) *Aralia*, *Magnolia grandiflora*, and Cedar in background. (Engraved for THE GARDEN.)

glass. One is struck at once with the beauty of the Palms and such fine-leaved trees in the open air. Other illustrations of the same garden, all carefully engraved for us from photographs supplied by the Princess Kotschoubey, will appear in future issues.

Polypodium Picoti.—This belongs to the entire-leaved section of Polypods, of which crassifolium and muscfolium may be cited as examples. It is a bold-looking robust-habited Fern, and is apparently one which may be grown to large dimensions in comparatively small pots. The leaves attain a length of more than a yard, are undulated at the edges, arching gracefully from

the crown, so as in a great measure to hide the pot. M. Carrière says that it will remain almost indefinitely in good health in apartments.—B.

GARDEN IN THE HOUSE.

OUR CUT FLOWER SUPPLY.

WHERE large quantities of cut flowers are in request the whole year round, planting out in the open ground in summer possesses many advantages, not the least of which is the great saving of labour in watering thus effected. I find, too, that since we adopted the planting-out system we get finer plants and more bloom, and that at a much reduced cost, as when plants

are once established it must be very dry indeed if much artificial watering is needed.

Those that delight in an extra supply of moisture at the root we plant in trenches, and with a little mulching one good soaking of water will last them ten times as long as it does when they are in pots. We may mention *Arum* Lilies and *Spiraea japonica* as amongst those grown in quantity that require an unlimited supply of water at the root. These are indispensable plants for furnishing cut flowers, which, by having successional plants, may be had from Christmas to June, and in their case not only may pots be dispensed with for half the year, at least, but if grown solely for the production of cut flowers, they are not required at all, as when grown in good-sized boxes, with several plants in a box, the large quantity of soil employed saves the watering-pot being so constantly in request; and everyone who has had to attend to large quantities of these semi-aquatic plants in hot weather, or where much fire heat is used, will agree that on the watering being properly performed depends the amount of success that attends their culture. *Eupatoriums* are capital plants for supplying cut flowers of feathery lightness, and, above all, of a constantly required colour, pure white. Our plan is to plant them out in lines 2 feet apart in the end of May, lift them again in the end of September, and by paying a little attention to having successional plants in various temperatures, we get a supply of bloom all through the autumn and winter months.

Then they are cut down close, like *Pelargoniums*, and by the time for planting out they will have made good heads of young shoots. *Chrysanthemums*, which seem to increase in demand every year, are grown largely in the same way, only that when lifted they are replanted on the floors of the houses or pits in which they are placed, and, being hardier than many things, may be planted out in April. In this way all colours may be had; but we grow quite ten times as many whites as we do of any other colour. *Schizostylis coccinea*, which produces brilliant scarlet flowers, is indispensable for supplying cut bloom. We lifted a large bed of it, and replanted it in the inside border of a cool vinery, and under this treatment spikes kept coming up

in succession during the whole winter. They are planted out along with the *Chrysanthemums* in clumps. *Deutzia gracilis* is too well known to need any commendation. We lift it in autumn, and, after potting, plunge it in leaves out of doors, or set it in a cold house. As plants of it cease flowering, the old worn-out wood is cut out, and strong shoots from the base encouraged to grow freely in a warm house; then we gradually harden them off and plant them out in June. Small-flowered Lilacs, such as the Persian and Siberian, bloom beautifully even in the form of small bushes; and if carefully hardened off before being planted out, and only lifted every alternate year, the same plants will last a long time. *Dielytra spectabilis*, with its long arching spikes of coral-like flowers, is a good plant for this kind of work. It naturally starts into growth early, and a very little warmth brings it out to perfection, when, either as a pot plant or for cutting, it is very effective. Violets are such universal favourites, that they are welcome in any way in which they may be grown. We plant them out in April in a shaded position, 1 foot apart, and lift them in September; pot them, or place them in frames. For bouquets their blooms are most welcome. The new Comte Brazza, with its long footstalks and large white flowers, is especially well suited for this purpose; but Marie Louise and Neapolitan are the ones most largely grown. Christmas Roses are coming to the front rapidly, for lifting and placing under glass, for supplying white cut flowers during the dark days of winter. They should be in good-sized clumps, and lifted with a mass of roots and soil. They open so fresh and fair under glass, that anyone giving them a trial is sure to repeat it. J. GROOM.

Floral crosses and wreaths.—What frightful "works of art" these are now-a-days when made by professionals. An artist's conception of a wreath of flowers, for either the living or the dead, is an elegant, fragile, graceful-looking thing, with a few sweet flowers and leaves just clinging to it, as it were—such as the Greeks of old used to carve on their statues, and such as artists even now love to portray in their paintings; but the floral artist has a far more substantial idea of the artistic, and if you order a wreath from him he sends you a ponderous framework wrapped in cotton wadding till it is about as thick as one's leg, on which are stuck thinly the usual floral decorations, the whole making up one of the clumsiest devices that ever was conceived for such a purpose. At the funeral of a much respected and popular man the other day we noticed several of the mourners step out and place tiny neat crosses and wreaths of simple flowers on the coffin, and we thought they contrasted favourably with the clumsy cart-rim looking devices brought to the church in boxes and carried to the grave with a care and ostentation that indicated far more consideration for such emblems on the part of the donors than sympathy or respect for the departed.

Phil.

NOTES.

SCIENCE AND GARDENING.—I would advise young gardeners not to be led away into considering the scientific as a thing different from the practical portion of their profession. There is a story of an American, who looked askance at a bill of fare, and at last said to the waiter, "Pardon me; I don't read French, but I like first principles in feeding; so please bring me bacon and beans." So, also, science is too often a mere question of names rather than of real things; and, after all, our Darwins and Huxleys are mere gropers after truth with enough intelligence to ask themselves if their interpretation of Nature is right or wrong. These are the first principles of thought known to every savage, and represent the "beans and bacon" of intelligence for us all. I have been all my life engaged in gardening pursuits, and every day find out more and more how little I

definitely know of the whole thing. Were I to advertise to-morrow, I am sure I could not honestly say that I was fully acquainted with, or had a thorough knowledge of gardening in all its branches, as so many do. The plain fact is, every good gardener is a learner in Nature's school until the last, and the most we can do is to observe and record accurately; but above all must we strive to be right. Be our operations little or great, we must strive to understand them, always asking of ourselves especially (of others also, if you like) that fateful question: Is it true or false? is it right or is it wrong? All argument, all science, comes to that, and no more. It is the root of all our philosophy in the garden.

ON A BREEZY HILL.—The Naturalists' Field Club of Dublin made their first excursion to the Hill of Howth on Saturday last, and spent a most enjoyable day. It affords the richest field for botanical studies within an easy distance of that city. There is an old cromlech, an ancient abbey, and the castle has been in the hands of the St. Lawrences for eight centuries or more. Many a hazy tradition lingers around the cliffs of this rocky promontory, which is just now beautiful with Gorse and Hawthorn; while in a little glen under the tallest part of the hill a plantation of Rhododendrons among the rocks is now most lovely. Here and there in the short sward, nipped close by black-faced sheep, one may find the pale blue *Scilla verna*; the shady ravines are full of Primroses pale, and the rocks by the shore are in places fairly draped with *Silene maritima*, or cushioned with Sea Thrift and glaucous *Sedum*. Lord Howth threw open his grounds to the members of the club, as did also Mr. Edward Lawrenson, so that visitors had an excellent opportunity of seeing "St. Brigid's" Anemones at home in all their luxuriant beauty. One could only liken the beds to gorgeously-coloured eastern carpets spread out in the sunshine—a poor compliment to pay to living blossoms dancing in the breezes of a delicious sunny morning in May. The Bluebells luxuriant beside the drive, and the golden Gorse on the crest of a ridge which elevates it against the blue sky, were features not entirely lost on the visitors who swarmed like bees among the blossoms of "St. Brigid's" garden.

RUBUS DELICIOSUS.—A friend of mine once went to see a painter's garden, and was therein shown many beautiful things, amongst them a few well blossomed Dandelions which he had cultivated carefully, and at parting he presented a branch of this white-Rose-yielding Raspberry, saying that it was perhaps "the most beautiful thing one human being could ever give to another." I think he was quite right, for as seen at its best *Rubus deliciosus* is most delicious as regards beauty. So fresh and beautiful is this hardy shrub, that the wonder is that it is so rarely seen. It is by no means difficult to increase from slips taken off now, and inserted in sand under a handlight or cap glass on a shady border; or, if you cut up bits of the thick roots of this shrub and plant them, they often throw up shoots and so form young plants. As planted out near a partially shaded wall, we find this Bramble to succeed perfectly, its great white flowers enduring fresh and fair for days; whereas its crumpled satin-like petals fall too quickly if the plant is fully exposed to sunshine. When originally discovered its fruits were so good as to be thought delicious in flavour, which they may be in its native habitat, but in our gardens a common Blackberry is infinitely preferable: but as a flowering shrub, pure and simple, it well deserves all care and attention. It has been figured three or four times in THE GARDEN, and that fact is no mean index of its beauty, but no artist can ever hope to show the snowy whiteness

and glistening beauty of so lovely a hardy flower as seen at its freshest and best under cultivation.

CHOICE ANEMONES.—We have now come to look on seedling Anemones of the *A. coronaria* section as quite the thing to have in quantity for cut flowers in every garden where they will exist, and the same holds good of *A. fulgens*, which rarely fails if planted in the Grass or in good deep soil. But among the Windflowers are some fine things rarely seen. Why is *A. blanda* so rare? Often confounded with *A. apennina*, it is quite different in root and seed, and in blossom is far larger and deeper in colour. The true plant has tuberous underground stems, not cylindrical ones. The blue wood Anemone is another rare plant, dear to purchase, although some of our friends try to make us believe their woods are full of it. *A. palmata* (yellow) and its white variety are also rare, and one may say as much for *A. alpina* and its sulphur-coloured form. Even the common Pasque flower is by no means an abundant garden plant, although easily grown if chalk or lime rubbish is added to the soil. I do not know why it is, but *A. sylvestris* is finer this season than ever I saw it before, tall and luxuriant, reminding one of *A. japonica alba* in port and in purity of blossom. *A. palmata alba* is a most lovely plant when seen bestudded with its silvery stars on a sunny day. It is now in bloom, and a great mass of *A. Pulsatilla* bearing a hundred flowers and buds promises to be a picture for some time to come. Of all Anemones we find this last to be one of the easiest to rear from home-saved seeds.

FLOWER ROBBERS.—The people who go about stealing flowers ought to be scotched at once. I was down in Sussex a few weeks ago and saw an estate full of Primroses and Lady's Smocks, with here and there delicious little groups of Oxlips, all in full flower. At considerable trouble the proprietor had added colonies of Narcissi and of Daffodils. A little glade of Primroses had been enriched with mixed Peerless Narcissi, planted in bold groups, and some of the varieties were large and fine, so fine as to be well worthy of the admiration of those who know the most beautiful kinds of the whole family. In a single night every flower was swept away, and the only consolation was that the roots had been undisturbed. The nuisance of flower-stealers and plant-hunters is becoming unbearable. Even at Kew the pleasure grounds have to be protected by notice-boards informing the visitors that what might be supposed to be wild flowers have been brought there and planted at considerable cost and trouble. Since Daffodils and Primroses have become so popular, it is difficult to prevent their being torn away wholesale from fields or plantations even quite near to the house. The law really affords but slight protection in the matter, even supposing that the robbers are caught red-handed, which is but seldom the case. The earliest resources of civilisation, a savage dog or a horse-whip, are most efficient as preventives after all, but it is not everyone who can use these rough-and-ready methods in the interest of their flowers. As it is, many who would gladly naturalise choice flowers about their estates hesitate to do so owing to the ruthless manner in which plants and flowers are torn up and carried away.

PEONIA CORALLINA.—This noble-habited plant is now in flower, being one of the earliest and most beautiful of all the single-blossomed kinds. Of course, it cannot for a moment be compared with the snow-white *P. edulis*, which produces its Water Lily-like blossoms a few weeks later on in the year, yet it has a boldness of foliage unrivalled by that of any other Pæony, and when it bears its crimson and black berries late in autumn the plant again becomes quite an

attraction in the garden. These single *Pæonies* are now becoming quite popular, and so the quest for them is nearly as energetic as is that after rare *Daffodils*. *Pæonia corallina* is more readily propagated than most others by means of seeds sown in shallow drills as soon as ripe in the open air. They germinate during the following spring and soon make strong plants, or a big clump or two may be divided, but it must be just as the young growth appears in March or April. Apart altogether from its showy character as a good hardy flower, it is interesting as being a rare native plant. Its only British habitat is on the Steep-Holme Island, in the Bristol Channel, where it grows in company with the parent of our cultivated Leek (*Allium Scorodoprasum*). Mr. T. H. Thomas, of Cardiff, kindly sent me an account of these two plants some time ago and a sketch of them as growing up on a rocky ledge above the little inn on the island, and he informs me that a careful watch is kept to prevent its extermination.

PRUNUS TRILOBA.—As a wall shrub there are but few more lovely during April or May than this pink-blossomed Plum tree from China. It is sometimes known as *Amygdalopsis Lindleyana*, and is, I believe, one of Robert Fortune's introductions. The Kew plant on a wall has been a sight for over twenty years, as I remember, and yet it is not a common plant in gardens generally. As seen at its best each shoot is a perfect wreath of pink or blush rosettes, the blossoms appearing a little in advance of the young leaves. As grafted it is not always a success, and plants on their own roots are difficult to procure, but no trouble is too much to undertake in the culture of this plant if by so doing success can be ensured. I hope to graft its shoots on to the roots of some other *Prunus*, and so obtain dwarf plants for walls. All the forms of double Peaches and of Plums from China and Japan are very valuable thus early in the year, and if only the difficulty of propagation could be overcome, they would produce beautiful effects in our gardens early in the season, bridging over the gap which follows the blossoming of the Almond until the flush of Hawthorn, Lilac, Wistaria, and Laburnum appears later on in May.

THE PALE MAIDEN.—This is the name generally given in the Falkland Islands for *Sisyrinchium filifolium*, a very pretty little plant for a rockery or the open border, seeing that it is perfectly hardy in our climate, and blooms after *S. grandiflorum* and its varieties have gone out of flower. Like the last, it is of Rush-like habit, a foot or more in height, each little tuft throwing up half a dozen or more flower-scapes, which in contour remind one of those of the Esparto Grass, only instead of grassy scales, each stem bears three or four elegantly cup-shaped white flowers on slender pedicels. The perianth segments are of a shining whiteness, each faintly pencilled with purplish lines in the most delicate way. The plant has been figured in the *Botanical Magazine* from a plant which first flowered in the College Gardens, Dublin, to which establishment living plants and seeds were sent by Mrs. Brandon a year or two ago. The plant, now that it has become established, promises much better things than was at first expected, and as it is readily increased by division or from seeds, it should soon become popular in all good collections. Although at home this plant exists in one of the wettest and most windy climates in the world, it requires shelter or support to prevent its flower-stems from being damaged during rough weather. Those who may already possess the plant should carefully harvest its seeds, as they grow freely if sown as soon as ripe and bloom during the succeeding summer, or in

about a year from their ripening time. A strong tuft has been very pretty on a rockery in Dr. E. P. Wright's garden, Raglan Road, Dublin, for some weeks past, and near it *Arnebia echioides* shone like a golden fleece.

LATE PRIMROSES.—The great rich flush of the Primrose season is past and gone for a year, but some of the stragglers in the rear of a splendid army are worth a word of praise. In shady places *P. japonica* is now rich and fine in colour, and associated with it several good forms of *P. Sieboldi* also do well. In order to have the Japan Primrose (*P. japonica*) at its best, seed should be sown as soon as ever it ripens every summer. So treated, it grows up like Mustard or Cress the spring following, and the seedlings are at their best the first and second year. One of the most distinctly beautiful of all Primroses is, as I think, the soft yellow Sikkim Cowslip (*P. sikkimensis*), just now throwing up its slender stalks, topped by dangling bell-shaped blossoms of a sulphur tint. This is also easily reared from seeds, a rule which gardeners would do well to bear in mind in connection with all the species of Primrose grown in gardens. *P. farinosa* and several other kinds are also in flower, but for effect nothing just now approaches *P. japonica* in broad patches or groups under tree shade. Raised annually from seed, and grown on in deep moist earth, enriched with leaf-mould, but few Primroses are really more noble in leafage and flower than is this wildling of Japan.

ROGERSIA PODOPHYLLA.—Amongst big bronzy foliage I know of none so fine or so early as this, as seen now beneath the sun of May. In deep rich soil and in a partially sheltered position this plant grows rampantly, forming leaves 2 feet or more across, and of a glistening reddish or bronzy tint, whence comes the popular name of the Bronze Leaf, as applied to this native of Japan. Planted out in peaty soil, or in one enriched with leaf-mould, it grows very luxuriantly and forms an object of beauty not easily surpassed by any other foliage plant known to me. It is easily increased by dividing the crowns, each of which attains its utmost luxuriance and beauty the second year. Rough winds and full sunshine at the hottest period of the year destroy its leaves, so that partial shade and considerable shelter are requisite in order to secure the best results. I saw a fine colony of this plant, the other day in great clumps along the sheltered margin of a stream. In or near the water *Caltha palustris* was aglow with flowers, and higher up the banks, among the *Rogersia*, were great clumps of *Trollius napellifolius*, *T. altissimus*, *T. europæus*, *T. Fortunei*, and other kinds. The effect of the great bronzy leaves beside and beneath these great Globe Flowers seemed to me at the time perfectly indescribable.

KING CUPS.—I think it is in the "Eagle's Nest" that Ruskin acknowledges that he never knew the meaning of the words "purple and gold" until he saw *Caltha palustris* in flower beside a rivulet which ran through a Clover field. Perhaps for pure richness of yellow no garden flower can surpass in brilliancy this stream-haunting wildling. In Normandy the other day I saw it growing by the acre in sunny river meadows, and it is also as brilliant beside the Dutch canals as it is near our English brooks; and in the wet spinnies of the Shakespeare country, wherever a streamlet runs through the garden, this plant should be largely planted, along with *Iris Pseudacorus* and its variegated form, *Lythrum variegatum*, great-leaved Water Dock, *Ranunculus flammula*, *Spiræa palmata*, Kæmpfer's *Iris*, and other waterside vegetation. One should ever speak well of the dead, but, after all, the gold of the *Daffodils*, now faded, is like

an Australian sovereign compared with the rich old guinea gold of this queen of the watery meadows. As seen with the sun streaming through its petals, it really reminds one of a crucible full of glistening molten ore as it is poured out into the matrix—a glowing sight which is not often to be seen. Of course, the colour of a coin is dead and poor compared with the brilliancy of liquid metal, and, moreover, even molten gold is poor in colour when compared with a petal of this golden Buttercup as illuminated by the summer's sun. In leafage bold as in brilliant blossom, the Marsh *Caltha* is so fine, that one cannot well make too much of such a noble Shakespearean flower.

THE TRUMPET HONEYSUCKLE.—One of the very finest of all climbing plants for a cool greenhouse or conservatory is *Caprifolium* (*Lonicera*) *sempervirens* major, from Carolina and elsewhere in North America. Of course, it is a hardy plant in some localities, but is seen to better advantage as grown and sheltered indoors. If planted out in a rich loamy border it grows luxuriantly and blooms in a very profuse way. As a rafter plant I think it unrivalled, its orange-red trumpets contrasting so well with the soft glaucous leaves which it bears. The Honeysuckles generally are far too often neglected in gardens. The common Woodbine is perfect in its way, and were it less common would be much more largely grown. In some few places it is kept pruned closely into bush shape, and is then most valuable for forcing into flower during February and March. The Dutch and several other forms may be employed in the same way, or they may be grown as standards or pyramids here and there on the lawn. I was in a wood yesterday where the common Woodbine was twining up Fir tree stems and dangling amongst the branches of Hawthorn bushes in a very pretty way—so graceful, indeed, did it appear, that I wished our lawn trees could be draped so handsomely with such a fragrant climber.

THE POET'S NARCISSUS.—The Poet's Narcissus of to-day is what we call *N. poeticus* *verus*, a tall growing plant bearing small and shapely flowers, not much over an inch in diameter, and a native of Greece. The *N. poeticus* of Redouté's "Liliacæ" is what we now call *N. ornatus*. We have the following varieties here, and this season they have bloomed in the order named, the extreme limits of their season being March 21 (*N. angustifolius*) and May 24 (*N. patellaris* fl.-pl.). It must be understood that all the following are mere forms or variations of *N. poeticus*. 1, *N. angustifolius*; 2, *N. ornatus*; 3, *N. tripodalis*; 4, *N. poetarum*; 5, *N. grandiflorus*; 6, *N. recurvus*; 7, *N. poeticus* *verus*; 8, *N. majalis*; 9, *N. patellaris*; 10, *N. spatulatus*; 11, *N. Marvel*; 12, *N. stellaris*; 13, *N. verbanus*; 14, *N. patellaris* fl.-pl. All the above are quite distinct and easily recognisable as garden varieties, but there are doubtless others which further researches will bring to light. *N. patellaris* is very fine, with its great flat crown as big as a silver threepenny-bit. It came from Mr. Barr under the name it bears. I had roots of a large double-flowered Scotch *N. poeticus* from another source which has this year produced single flowers, although there is an extra bit of white petal in among the anthers, and within the flattened crown of one or two of the flowers. This would seem to prove that double *poeticus* reverts to *N. patellaris* as the plant from which it originally sprang into existence. We had hundreds of collected roots from variable native habitats, but all the forms are referable to one or other of the above. *N. verbanus*, so lovely when first introduced, grows coarser in cultivation and bears two flowers on a scape some-

times. *N. ornatus* also bears from one to four flowers on a scape in an accidental way.

VERONICA.

FRUIT GARDEN.

APPLE RAISING.

WE have, it may be said, no lack of good Apples, and from time to time others, not without merit, are being put into commerce, whilst in the cider districts seedlings are constantly being raised in bulk, though perhaps possessing but little special merit. But the admirable features which so excellent a season as the present one presents should not have been lost upon Apple growers, and all who have their own special opinions as to what are the peculiar needs in the Apple family should have tried their hands at cross-fertilising, with a view to obtain the special properties for which they look. Apple crossing need not take long, although busy men and professional gardeners have a good right to plead that the period of Apple blooming is one that finds them busily engaged every day in other matters. But there are plenty of people who grow Apples besides professional gardeners—people of leisure and yet of horticultural tastes—who have their own opinions as to the merits of fruits, and may well try their prentice hands in a direction in which if no great results are obtained no harm will be done, and much that is interesting may be learned. Except where more than usual attention is given to the raising of seedling Apples, and those places seem to be few, we have little opportunity of ascertaining how far Apple bloom becomes naturally cross-fertilised, whether through atmospheric or insect agency. We can but assume that such fertilisation must take place, because in the blooming season insects visit the trees and operate upon the bloom largely. But the products of such fertilisation are necessarily of a haphazard kind, one seedling out of a hundred may be meritorious, but perhaps not even that proportion may reward one's efforts. On the other hand, experience has shown the natural tendency of the Apple to retrograde, and pips saved from fine kinds often produce indifferent results. There is, however, good reason to believe that earnest, careful, and well directed hybridisation should be productive of better things, and lead to obtaining really improved kinds. No doubt the raising of seedling Apples is not a taking affair, seeing that some ten or perhaps twelve years may elapse ere the results of our labours in that direction can be ascertained. Still, when once seedlings are obtained, they do not need much attention until either naturally or through grafting the produce can be seen and appreciated.

As to the direction in which hybridists should work, that is a matter for opinion, just as those interested may have special preferences in Apples. We have plenty of fine showy and productive early kinds. It seems difficult to beat our early soft-fleshed sorts, and men may well ask, in regard to these, in what direction can we work to improve them? Well, that is a matter necessarily open to personal judgment, and cannot easily be directed; but we may, in accepting, for instance, Lord Suffield as one of the earliest, finest, and most serviceable of kitchen kinds, see how far it may be possible to engraft upon that greater endurance, more robust growth, and somewhat more solid and firm flesh. What, for instance, might be looked for in a cross between Blenheim Pippin and Lord Suffield? If the undoubted fine qualities of these two Apples could be combined, we should have a grand variety. Then there is King of the Pippins; though so often

denounced for its lack of high quality in flavour, without doubt it is popular as a market dessert Apple, because it is prolific, makes a handsome sample, and sells readily. If anyone could engraft upon the King some of the delicate flavour of Cox's Orange Pippin without detracting from other properties, a great gain would be the result. But it is evident that in this country we have great need for finer, handsomer, and more prolific late-keeping Apples, although it is to be feared that even a golden Apple of that section would never become popular with market growers of the present school, because these prefer to ease their trees early and get their crops turned into cash as quickly as possible. Of course there is much in the plea that trees can produce only one crop in the year, and 5s. obtained in autumn is better than 7s. 6d. per bushel got for fruits held over till late in the winter. But the practice of growing so large a quantity of early kinds only simply tends to flood the markets at one season, bringing down the price ruinously at that period, whilst the holder of stocks of really good kinds may almost name his own price after Christmas.

Here, however, we are met by the objection that American and Canadian, and now possibly Australian, Apples of the finest form and colour flood the English markets at that time, and that home produce has no chance. Well, there is much in this objection; but it must be remembered that foreign fruits as a rule excel ours only in size and colour, but not in flavour, and herein lies the moral of this paper, that if we are to hold our own we should set about raising fine late-keeping kinds, handsome, rich in colour, and of fine flavour that will enable home growers to hold their own in the struggle. Difficult times are before us, and we can only hope to win by means of intelligence and earnest enterprise.

A. D.

THINNING GRAPES.

IN gardens in which there are numerous vineries, and some of them early ones, Grape-thinning is an operation not confined to any particular period, but where there are only one or two vineries, and the Vines in these allowed to come into growth in a natural way, as is often the case, a great deal of thinning will have to be done during the latter part of May and early in June. Berries, too, set more plentifully late than earlier, especially in the case of such kinds as Black Alicante. This, as a rule, occurs to such an extent, that where there is a large number of bunches to thin and the hands to accomplish it are few, much injury is often done before thinning can be effected. In all cases it should begin as soon as the berries are the size of small Peas, and where there are many to thin they should be worked at from daylight to dark. Labour is economised by reducing the bunches to the number needed for a crop before thinning begins. A bunch or two may have to be cut off by-and-by, but to thin the berries first and the bunches afterwards should never be followed as a system. On the same Vine some bunches take the lead of others, and as each one becomes ready for thinning it ought to have attention, whether its neighbour is ready or not. Some bunches near the top of the house may be ready for thinning before those at the bottom. When early sorts and late ones are mixed the early ones are ready for thinning some weeks before the late ones, and in that case there is plenty of time to do them all. Muscat berries and those of some others do not all set firmly. Many of them are quite loose in the foot-stalk, and when that is so, a good syringing will cause them to drop off freely; for this reason all Grapes should be forcibly syringed before thinning begins. This will remove many of the small fruit which would otherwise be clipped off, and the syringing does such work much quicker than the scissors. The bunches should be quite

dry when thinned; if wet, the friction of the scissors often injures them. Anyone who has watched the development of Grapes is soon able to tell which of the berries will swell to a large size, and which will fail to do so. In Muscats especially it is well to watch this, as many of the small berries are stoneless, and when this is the case, they fail to gain anything like proper size. One of the first objects in thinning should be to remove all faulty berries and only allow those to remain that seem likely to become perfectly developed. When small berries are more numerous than good ones, it is generally considered that the bunches have set badly, but, with the exception of Cannon Hall Muscat, all Grapes, as a rule, set freely at this season, and, therefore, in addition to small berries, there are generally many large ones to clip out. In many bunches three are taken for every one left; it is, indeed, better to rather over than under-thin all late Grapes. The middle of the bunch should be well thinned, and the berries at the extremities should all be allowed to remain. Long, narrow Grape scissors only should be used for thinning, and great care must be taken that the points do not run into any of the berries which are to remain. There is also danger of bruising some between the handles of the scissors, and although a gentle squeeze may not be noticed at the time, the berry becomes brown in a few days and has to be removed. A short stick with a fork at one end is useful in thinning; it can be employed to lift up the shoulders of the bunches without having to handle them. Where the bunches are large and well shouldered these should be tied up before thinning is begun. This obviates a great deal of crowding, and when tied up in this way the necessity of thinning is lessened. Grape-thinning, though thought to be tedious work by some, is one of the most interesting occupations connected with Vine culture.

CAMBIAN.

Apples as ornamental trees.—For this purpose I can strongly commend two varieties that stand out boldly in Kentish orchards by reason of their fine vigorous habit and their strong arching shoots, which every year at this season are perfect garlands of bloom. One is the Goff Apple, a sort that bears hard, sour fruits, but, borne in great quantities, and having crimson cheeks turning brightly to the sun, they look well in autumn. They are excellent cooking Apples, sell readily to fruit preservers, and even at a low price pay well, as a good-sized tree will yield from twenty to thirty bushels. The second is Hambleton Deux Ans, or Pile Russet, a kind that grows into very large trees, single specimens on Grass acquiring the dimensions of forest trees; its fruits are large and keep well. Apples as ornamental trees have hitherto been more the result of accident than design. Near here an old Apple tree is just now truly lovely. It is nearly smothered with Ivy, and forms a pretty picture, its long shoots being covered with pink blooms, which, against the dark Ivy, are set off to advantage. I have frequently met with most prolific Apple trees in shrubberies and woodlands that were in all probability self-sown seedlings. Such trees seldom fail to mature good crops, even in seasons when cultivated trees in exposed orchards carried scarcely any fruit.—J. GROOM, Gosport.

SHORT NOTES.—FRUIT.

Extension training.—"T. B." writes (p. 470), "Let me assure 'W. W. H.' that I was well acquainted with extension training long before it appeared under its new name, and also with the results that inevitably follow in the case of trees so managed in their early years." One, therefore, naturally wants to know where these reputed failures happened. If the system failed, as asserted, let us know where, in order that we may be enabled to investigate the matter.—J. S. W.

Victoria Nectarine at Lambton.—No amount of ingenuity in the manipulation of figures will ever disguise the facts disclosed by the condition of this Nectarine tree when I saw it; and I have no doubt that it still continues to show that the knife had been used, so far as was necessary, to induce the required even condition as regards the strength of the branches, the absence of which is the weak point in extension training.—T. B.

CORDON-TRAINED FRUIT TREES.

THE cordon form of training fruit trees is gradually extending in the west of England, and I think very properly so, for, although it may not excel other modes of training, there are circumstances connected with it which render it peculiarly well adapted for certain purposes, particularly Pears on walls. In this case its advantages are manifest; the trees not only come into bearing quicker than when fan-trained, but one is able to grow a tolerably large collection of varieties in a limited space—a particularly valuable feature belonging to this mode of training, for in but few places is a large bulk of any particular variety required. Five or six dozen fruits of such large sorts as Doyenné du Comice will suffice for the majority of people. The old adage, "Those who plant Pears, plant for their heirs," is no longer applicable to this improved form of fruit culture. In saying this, I do not mean that cordon-trained trees are more certain bearers than any others, because they are not. Our climate is such that no form of trained tree escapes its influence.

Therefore, as regards securing regular crops, one form of training is about as good as another; but the fact that the trees come into bearing the third and fourth year after planting, and that the cordon plan admits of a wider choice of sorts, is sufficient to stamp its merits. Even away from walls, cordon-trained trees are much better than pyramids, and why they should be so is not difficult to explain. One word, in fact, clears the matter up, viz., shelter. I maintain that a cordon-trained tree, whose branches are not more than 18 inches from the ground, gets a great deal more shelter from surrounding walls and other objects than a pyramid from 6 feet to 10 feet high; and this difference as regards shelter is sufficient to explain, as I have said, why cordon Pear trees bear more regularly than pyramids, and the same remark is equally applicable to Apple trees trained in the same way.

This is no imaginary matter, but facts that have been proved many times at Sherborne Castle, where three lines of cordon-trained trees inclose two large quarters of the kitchen garden. These trees have borne heavy crops when failures have been the rule in gardens and orchards in the same district; and it is possible, if we were to make comparisons in the case of cordon Pears grown against walls, that they would have the best of the argument. Any way, those who saw the cordon Pear wall at Holme Lacy several years ago will not be likely to soon forget it. The success of cordons in that particular instance is sufficient to convince anyone of their merits. But whether it be Apples or Pears that are to be grown, whether against walls or in the open, the cordon form has many valuable features. With this form of tree, growers can readily test the question of stocks for any particular sort. They can prove old or new varieties, and cultivate a large number of sorts, and test their merits in a very few years;

and, what is more, they can discard useless or undesirable kinds without making serious openings on the walls or lines in which they occur. In two or three years they can fill up the space again with suitable trees.

In the matter of stocks for Pears, the character of the soil must influence the decision. In a strong soil, fairly retentive of moisture, the Quince is no doubt the best stock, as it promotes early fruit-bearing; but in other kinds of soils the Pear stock is more reliable where a judicious system of root-pruning or lifting is practised. Many prefer the Quince as a stock where the soil suits it, and when they have come to understand how to treat it in particular cases, on account of its reducing the vigour of the branches; but we have proved in our own practice that, when judiciously handled, the Pear stock can be made to produce a fruitful tree nearly as soon as the Quince. The direction in which the branches are to be trained is a point on which there is some difference of opinion, some preferring the oblique, and others vertical training. The oblique

Doyenné du Comice have left nothing more to be desired, either as respects size or appearance.

In regard to pruning this form of tree, I do not agree with persistent pinching, so strongly advocated twenty years ago. I am satisfied that that system does not increase fruitfulness. In our own practice we go over the trees twice during the summer with pruning nippers. Early in July the leading shoots are nailed in, and all the others are shortened back, so as to leave about 1 foot in length of the young wood. In the case of vigorous trees they soon rush into growth again, and send out two or three young shoots from the points of the young wood that was headed back. By doing this, we preserve the buds close home, so to speak, intact, and at the same time make the appearance of the trees presentable. About the end of August we go again over them. This time we cut the shoots that before were topped back to a spur. If after this there is any disposition in the tree to form any flower buds on the spur, there is time enough for it to do so; but we do not prune with the idea that we can always

place a fruit bud where it is wanted. A good deal has been written about pruning to promote fruitfulness, but I have no faith that it will do so to any great extent. As a matter of fact, if a tree is managed in a rational manner, that is to say, if the roots are fairly well nourished, and any excess of vigour checked by judicious root-pruning, it will always produce more fruit buds than it can mature fruit. What concerns us most is the preservation of the flowers from harm which the trees do form.

With respect to the management of the roots of cordon trees, if they are Pear trees on the Quince and form a single cordon, we may be sure that the soil will soon get full of roots, and that what goodness it contains will soon be exhausted. It will, therefore, be necessary to keep up fertility by rich dressings of rotten manure spread on the surface. This is best laid on now, so that the rain may wash

what nutriment it contains down to the roots, and unless the soil is naturally holding in its character, trees growing on the Quince stock will want assistance in dry weather in the way of watering.

J. C. C.



Succulent plants in the Villa Montboron, at Nice. Agave Salmiana and other species with Yuccas, Fan Palms, and Dasyliroids. (Engraved for THE GARDEN.) (See p. 491.)

form has, however, a better appearance than the vertical when the trees are trained against walls, and, I may also add, when grown on a border set apart for them, as they are in a garden near Exeter. In this case, not only is a south wall devoted to cordon Pears, but also the border which runs parallel with it. The trees on the wall, as well as those on the border, are trained diagonally, and certainly they are more attractive than if they had been vertical. This particular border, which is exceedingly well furnished with single cordons trained on wires 15 inches from the ground and 10 feet in length, was, when I saw it last year, most interesting. The trees were skilfully managed, and carrying a fine crop. As regards our own practice, we have every reason to be satisfied with cordons. Of trees planted five years ago, some are triple cordons, others have four and five branches, all of which are trained in a vertical direction against a wall; and certainly the fruits produced by such varieties as the Vicar of Winkfield, Chaumontel, and

Setting Grapes.—I have to thank Mr. Coleman for his reply to my query as to the syringing of Grapes when in flower. Mr. Coleman has inferred from my note that by the usual orthodox time I meant closing time, but I referred to the time for setting, i.e., about midday, and being rather dubious as to the result of syringing at that time on a hot, sunny day, I deemed it prudent to learn more about it. I must say that I was rather astonished to see Mr. Coleman advocating the syringe, as in a series of articles which he contributed to a recently published work on gardening he appeared to place little confidence in it. It must be gratifying to Mr. Simpson, of Wortley, who, as far as I am aware, was the first to practise syringing, and who recommended it many years ago in the *Gardener*, to find such an able

gardener as Mr. Coleman sailing, so to speak in the same boat with him.—A PERTSHIRE READER.

MILDEW ON VINES.

VINES, as a rule, are attacked with mildew just before the berries commence to stone, and although it is a disagreeable pest with which to deal, no one need feel much alarmed at its appearance provided suitable remedies are applied as soon as it shows itself. Any serious mischief can be prevented by a judicious application of sulphur from a proper dredger to every berry on the bunches and to every leaf and leaf-stem, and in bad cases we even have painted the young stems of the Vines as well as the leaf-stems with a weak solution of Gishurst compound. Indeed, unless the sulphur is used freely in the case of a bad attack little good will be effected. Not only should the Vines be covered with the sulphur, but also every available space on the stages or shelves, especially where the sun can reach it, for then the fumes which arise from it are very destructive to the germs of the mildew. In the case of a bad attack the sulphur should remain on the leaves for ten or twelve days, but where it is not serious a week will generally suffice to destroy the fungus. In every case the sulphur should be washed off before the berries begin to colour, and the best way by which to get it off is syringing with clean water. I have never known a thorough application of sulphur to fail, but should there be a few spots left after the sulphur has been washed off a second application must be given. In giving my experience as to how I have destroyed this pest it is only right to say that I have had to deal with it in Vines in well-drained borders and in an elevated situation; at the same time I am aware that there are some vineries in which mildew is of periodical occurrence owing to the low situation of the garden greatly favouring its development and therefore more difficult to contend with. Whenever I have been troubled with it, in order to prevent its spreading, my practice has been to light the fire so as to warm the pipes in dull weather, and at night to allow a circulation of air without lowering the temperature more than was required; at the same time the internal air should be kept as dry as possible; in damp weather not a drop of water should be spilt on the floor or stages, and air must be left on both at top and bottom night and day. Not much will be needed at night, especially in damp weather, but a constant movement of the atmosphere is desirable, and which can only be obtained by means of judicious ventilation. The night temperature for such sorts as Black Hamburgh and Foster's Seedling should be 60°, and the day temperature 70° by means of fire heat. In bright weather there will, of course, be the usual rise, but to get rid of mildew quickly it will never do to keep the house closed for the purpose of keeping up the temperature. A close atmosphere favours the spread of mildew. The roots should also receive attention; a dry border favours the spread of mildew as much as anything with which I am acquainted. If the roots are suffering from want of moisture, the Vines are less capable of resisting any unfavourable influences than if in perfect health. Painting the hot-water pipes with sulphur for the purpose of diffusing its fumes throughout the house is sometimes recommended, and I don't say that they may not be useful in destroying the germs of the mildew; but the plan is hardly safe in the hands of inexperienced people. If the pipes should get over-heated, the berries not unfrequently become rusted when very young, but after stoning the skin gets harder, and they then escape injury. J. C. C.

Disbudding open-air Vines.—All surplus shoots should be rubbed off open-air Vines when young. The impulse the roots receive from a larger breadth of foliage is dearly purchased if the permanent leaves are injured by overcrowding. One good, well built-up leaf is better than two weakly ones; and therefore, in the long run, it is

better from the beginning to so arrange our plans that there shall be an ample leaf surface, but no crowding. As regards open-air Vines, one leaf beyond the bunch is usually better than more, and stopping should take place as soon as the first leaf beyond the bunch is fairly in view. Mulching with manure will be beneficial now. Warm, sunny corners are the best places for open-air Grapes, and in such positions fairly good Grapes, taking the average of seasons, should be grown. There are two palpable evils usually attending open-air Grape culture in England. The first is neglect of dis-budding and delay in stopping the young wood; and the second is the fact that the average cultivator leaves on the Vines too many bunches.—E. HOBDAV.

VIGOUR V. FERTILITY IN STRAW-BERRIES.

"J. S. W.'s" idea that age and improper treatment were the cause of barrenness in my Straw berries is easily controverted. When the plants were put out they were already three years old, having previously borne two good crops. The first year of planting they bore very well, but the following year they made good, fair-sized, but not over large, crowns, and produced the crop to which I have previously alluded. The fruits from these plants averaged twelve to the half-pound basket. Next year, having become thoroughly established in the good soil which had been carefully prepared for them, they made stronger growth than ever. "J. S. W." says that these plants proved too much. Their vigour certainly proved that neither age nor improper treatment had affected their health, and that "J. S. W.'s" notion that Straw-berries must perforce decrease in vigour after the first year is a mistaken one. If any Strawberry can be said to be more unreliable than another, it is British Queen; but the late Dr. Roden had plants of it upwards of ten years old, and which it is stated bore individually nearly 2 lbs. of fruit. The ground was, however, trenched 4 feet deep. This shows what the true character of the Strawberry is, and that its perennial vigour is too frequently driven out of it by artificial and unnatural conditions. The Strawberry, above all fruits, loves an abundance of sweet, fresh air. In the confined precincts of a garden this often fails; the atmosphere in the full summer time becomes too rarified in such places, and the plants fail after fruiting. My experience is that a stout, moderately strong growth more highly conduces to fruitfulness than the rank luxuriance begotten of richly manured soil. Under pot culture over-luxuriance is not so likely to occur, because the soil soon becomes filled with roots. I should have little fear of getting plants too strong in pots, although I have reason for supposing that this may occur. A market grower told me that he had a fine lot of Sir J. Paxton in 6-inch pots, and although they were the strongest lot he ever had, they were mostly barren. He said: "I don't know what I should have done if I had not had a lot of plants in 3-inch pots, and they, although small, all threw up well." J. CORNHILL.

STONES OVER FRUIT-TREE ROOTS.

IN a recent number of THE GARDEN attention was called to the plan of putting stones under the roots of fruit trees for drainage, and also to the possibility of the practice doing harm in some cases. My object now is not, however, to discuss that matter, but to direct attention to the practice of a successful fruit grower of my acquaintance, who, as soon as he plants a young tree against a wall in his garden, covers the surface with stones, some of them as large as one's foot. The first year he lays them in a half-circle, about 2 feet from the stem, and as the roots extend he widens the circle. Having a rather dry soil to deal with and a long distance to carry water, he adopted this plan for the purpose of confining the moisture near the roots, and the condition of his trees shows that his treatment suits them, for the wood is always so well ripened that he secures very regular crops of fruit from Peaches, Nectarines, Plums, and Cherries. It is

my opinion that the stones do more than keep moisture in the soil. Doubtless they absorb a good deal of sun heat and conduct it to the roots, and to this must be mainly attributed the hard, well-ripened wood which he secures. But the placing of stones on the surface over the roots of fruit trees is not confined to this garden only. In a few other instances I have seen them used in gardens that were much exposed and close to the sea. In these instances they were used for fixing the roots of newly-planted trees in the soil. In one garden in particular I remember seeing a long line of boulders lying on the surface over the roots of a newly-planted hedge of Tamarix. This garden was so much exposed to rough winds from the sea, that the proprietor assured me if he did not adopt the plan of surfacing with stones the plants would be blown out of the ground before the roots had time to get hold of the soil. The stones, he said, effectually prevented such an occurrence. Young Conifers and other shrubs newly planted were also subjected to this treatment. J. C. C.

FAILURE OF TREES IN POTS.

I HAVE seen a good deal of orchard house culture, and my experience has led me on several occasions to condemn the present system of treatment as regards Apples, Pears, Plums, and Peaches. Orchard houses are useful under circumstances hereafter to be named; but I feel sure that I do not go too far when I characterise the present system as a failure, and those who have spoken out on the subject say the same. A few reputed good examples of culture under skilful gardeners, and with the aid of appliances never contemplated in the original orchard house, are not at all cases in point. The difficulties which amateurs have to encounter in attempting the culture of pot trees under glass are these: First, want of general experience in fruit culture, often aggravated by the ignorance of assistants, who know less than their employers about such things; and, secondly, the troubles incidental to the use of the flower-pot for such purposes. No one can hope to succeed in fruit culture under glass in any case with subjects artificially grown and trained from beginning to end without considerable experience, for books alone will never teach anyone. The whole thing is a question of coddling and care, the hardy nature of the trees grown in such structures having been apparently forgotten. Had the trees only to be grown for ornament—for their flowers and foliage—pots might answer well enough; for nothing is easier than to get all kinds of fruit trees to grow and flower luxuriantly, but getting them to set and swell their fruit successfully is another matter, and nine out of every ten orchard house cultivators will own to this. The crop prospects disappear with the shedding of the blossom, although the object of orchard houses originally was to save the bloom. This loss of the crop at a critical stage may always be traced to irregularities connected with potting, watering, and temperature, and other things incidental to pot culture. Nurserymen who have large collections of trees in pots outdoors as often as otherwise bring the trees into the house after the crops are fairly set and safe, and ripen them there. The destruction of the bloom, from some cause or other, on pot trees in orchard houses is appalling. Nothing like it happens out of doors, except from severe frosts, from which orchard houses are safe. Let those who possess large orchard houses, or who contemplate their erection, reflect on the matter in this way, and it will bring the subject home to them.

An orchard house has now, it is found, to be as large and lofty and as well finished as a Peach house or vinery, or other fruit house, and is consequently just as expensive. It is known that Cherries, Plums, Peaches, and Figs do far better, and are easier to manage, when planted out as standards or as trained trees in the usual way than in pots; and orchard houses would answer for that purpose in numbers of cases, being large and roomy. Where crops of fruit are the object, therefore, the cultivator has only to choose be-

tween the two systems, viz., planted out trees of good size having their roots in a natural border, and their tops where they can extend and bear good crops; or a large number of small trees in pots, and every one wanting special and daily attention to secure but occasional success. It is the same with Apples, none of which are, however, so well flavoured under glass as out of doors, unless the house is constantly and freely ventilated. Apples and Pears do not, however, need to be grown under glass except in unfavourable situations; they are hardly excusable subjects under glass in a good climate, because they can be had out of doors generally where the trees are cared for as well as orchard house growers care for their pot trees. With the Apple and Pear it is almost solely a question of the protection of the blossom in spring, and the orchard house was to effect that protection, but as managed it fails to do anything of the kind. To sum up, I advise growers to abandon the pot system, to reduce the number of trees, plant out such varieties as have been found useful, and either train them as standards or on trellises near the roof, reserving the space vacated on the floor for other purposes. The fruits that afford by far the greatest satisfaction under glass are Peaches and Nectarines, Cherries, Plums, and Figs. Apples and Pears are fine looking, but inferior to outdoor fruits in flavour, and they are the most difficult to secure crops from. The others named all bear freely, if rightly trained; but small pot trees of Cherries and Plums are most precarious. Being grafted on the natural stock, they can only be kept within bounds and fertile by constant checks at the root and pinching, and cultivated in that way they are not fertile. Allowed to expand, the long shoots bear just like the Gooseberry in abundance, and the crops of Plums which I have seen on regular standard or trained trees of good size in orchard houses have been the best and most abundant I have ever witnessed. J. S.

FRUIT PROSPECTS.

In East Anglia these, on the whole, are remarkably promising. Peaches, Nectarines, and Apricots on walls are healthy and vigorous, and very fully set with fruit. Notwithstanding the cold weather, no curl has appeared on the leaves, and aphides are conspicuous by their absence. Plums have also bloomed profusely, and, though hit several times by 10° or more of frost, promise well for a crop. Cherries are white with bloom, which looks vigorous and likely to set, and the foliage is clean and free from curl and aphides. Pears are not quite so full of bloom as usual, nor is the blossom so strong and vigorous. Apples are a most promising crop, and doubtless recent rains will assist in setting them, though the temperature is dangerously low for the sure setting alike of Apples and Pears. I also note the peculiarity specified by Mr. Coleman in regard to the midland counties, viz., that the foliage is more abreast or in advance of the bloom than usual, and I greatly doubt whether that will prove conducive to a good set of fruit.

The different tints of Apple blossoms furnish quite a study in pink and white which no artist should miss. Some, notably the Calville Blanche and Worcester Pearmain, have pure white blooms, the former of great size, resembling at a distance those of single Briers. As usual, too, the Reinette du Canada is still in wintry dormancy of wood and flower-bud in the middle of May, while almost all the trees near it are hurrying out of bloom. I often marvel why decorators and even bouquetists do not make a larger use of Apple blossoms. They have very considerable staying properties; while in the bud or half-open state hardly any flowers can excel them in beauty of tint or form. Quantities might be thinned off for decorative purposes, or wilding Crabs or seedlings, many of which are distinguished by abnormally fine flowers, might be grown especially for the purpose. Bush fruits and Raspberries, with the exception of Black Currants, which are not up to their normal state, promise abundant crops, and are at present free from insect pests.

Delicate varieties of Strawberries, such as British

Queen, have suffered severely through the general low temperature which has already run half way through May; but such hardy varieties as the President, Keen's Seedling, and Frogmore Pine have stood well and promise abundant crops. The heavy, albeit cold, rains have done much to foster and strengthen the flower-scapes, which still hug the earth closely. These have washed in a surface dressing of soot and lime, which it may be hoped will not only feed the roots, but also pickle off not a few slugs and snails that are beginning to move about among the fat crowns, seeking thus early for what they may devour. We used to mulch our Strawberries early, but found it to favour insect pests, and now seldom surface the soil with a clean bed for the fruit until most of the slugs are pickled off, just on the eve of the flower-stems opening their blossoms. Altogether the fruit prospects in the open in East Anglia are cheering, and unless December weather dodge the dewy footsteps of May to the bitter or biting end, we shall probably have a well-filled fruit basket throughout the summer and autumn of 1886.

D. T. F.

Effects of frost on growing Vines.—I had once a case exactly like that of Mr. Crump (p. 391), but with fatal results, viz., the loss of an entire crop of Grapes. Like Mr. Crump, I found on going into the viney every leaf flagged and hanging down. On examination outside, I found that about a quarter of an inch of each stem next the soil had been fully exposed to a severe night's frost. I had the frozen parts covered up and the house densely shaded and syringed. The leaves gradually recovered, though they had a cupped or crumpled appearance all the season, but not a solitary bunch of Grapes was produced that year. —THOS. SPELMAN, *Rosedale Nurseries, Preston.*

KITCHEN GARDEN.

SALADING.

It would appear to be the correct thing to place a very low estimate upon all that we English gardeners can produce in the way of salading, and I readily admit that we are to some extent out-distanced in this matter by our French neighbours, though not so much as some would have us believe. According to "A. D." (p. 471), in hot weather, when salading is most needed, Lettuces are hard and tough, Cucumbers are avoided, Beet and Celery are not in use, Endive is in the seed-beds, and, in fact, "good salading seems unattainable." Radishes, Mustard and Cress, and Celery we will omit, if he likes, but surely he is wide off the mark with regard to the other items. Contrary to him, I maintain that we are a salad-eating nation, and, further, that the majority of private places are well provided with suitable materials nearly or quite all the year round. Not only do many highly estimate good salads, but they have them daily throughout the winter, as well as in summer. The poorer classes cannot have a mixed salad daily, but Watercresses, Beet, and Celery sell readily, and are eaten daily by the middle classes, and as often as they can get them by the lower classes, even throughout the winter. Then, when Radishes, Cucumbers, Lettuces, and last, but not least, Tomatoes are plentiful, these find innumerable purchasers, and are the most profitable crops which market gardeners can grow. We are told that "Lettuces are hard," but not if they receive ordinarily fair treatment—that is to say, are given fairly good ground and an open position. No one possessing a garden need be without fine crisp Lettuces during the hottest of weather if the precaution is taken to sow a little seed often, or at fortnightly intervals, in preference to fewer and larger sowings. The seed should be sown in drills from 10 inches to 12 inches apart, and thinly so as to necessitate but little thinning out, and no transplanting,

beyond filling up any gaps there may be, should be attempted. When the seed is sown during very dry weather, the drills ought to first receive a good soaking of water, and this enclosed with the dry soil does not evaporate quickly, and the seedlings germinate surely. Under this treatment we never fail to have good Lettuces, and that, too, principally on the exposed ridges between Celery trenches. Cabbage varieties are suitable for early and late sowings, but, if we except the kind called Perfect Gem, they are poor and flabby in hot weather. The Black-seeded Bath Cos is the very best for summer crops, and this, if assisted with a light tie, is invariably beautifully white, crisp, and sweet; nor does it run to seed so quickly as the White and Green Cos sorts. We make larger sowings late in July and early in August, and from one of these sufficient strong plants are obtained to fill several frames, where with but little protection besides the glass they are available nearly up to the time when Early Paris Market Cabbage Lettuces are fit to cut. Endive is also grown extensively, but Lettuce is invariably preferred to it.

Cucumbers are avoided, continues "A. D."; but why should they be? We are frequently told that they are most injurious and indigestible; but let me ask, How many will refuse to eat a Cucumber? Not one in fifty. No doubt the old-fashioned seedy Cucumber was indigestible, but a moderate serving of a medium sized quickly grown Telegraph, Cardiff Castle, Model, or other good sort will hurt but few. It is oftener the salmon than the Cucumber that is to blame for any inconvenience that may arise. A Cucumber should be sent to the table uncut; it is a mistake to cut away the rind. Sliced up exactly as grown and eaten with pepper, salt, and vinegar, or otherwise, according to taste, it rarely injuriously affects anyone. The supply of Cucumbers fails before the demand—at least, such is my experience. A few healthy young plants grown in frames recently occupied with Potatoes or crops that needed a hotbed will yield abundance of good Cucumbers long after the majority of house-grown plants are overrun with red spider.

Tomatoes are simply the rage. Even in a country town the wholesale price at the present time is 1s. 3d. per lb., and numerous are the enquiries as to when they will be within the reach of those who can afford to pay about 9d. per lb. Tomatoes are good either in a mixed salad or alone, with or without oil, vinegar, and pepper. Plenty of people eat them just as gathered from the plant with as much relish as others would an Apple. A good mixed salad, good as far as fresh materials are concerned, may easily be spoilt in the making, and it is in this direction that a little ventilating is needed. Gardeners can grow plenty of good salading, but it is the butlers and cooks who put the finishing stroke either for good or ill, and I strongly advise readers of this paper who are not satisfied with their present "messes" to give orders for a fresh method of preparation to be adopted. I hold that it is wrong to add any dressing in the first instance, and I would even go further and have everything served up separately. Let each salad-eater select his own ingredients—that is to say, those in the shape of Lettuces, Endive, Chicory, Onions, Radishes, Tomatoes, and all besides that are available. To me there is a peculiar enjoyment in slicing up the ingredients of a salad, especially when there is a simple yet good dressing at hand for pouring over it. At the same time I am perfectly content with a little cream, vinegar, salt, and pepper, and this, with Lettuces and Tomatoes, I would not exchange for the best cooked vegetables available. Served up separately, the materials must

be quite fresh), they are found to be far more pleasing to a connoisseur than the flabby mixtures too often served at table. In some instances this plan of serving separately may be somewhat inconvenient; the next best thing to do therefore is to avoid chopping up the materials finely; the more simple the mixture the better. Good Lettuces and a small quantity each of Chervil and Tarragon is ample. The Lettuces should not be cut at all, but after being separated and selected and cleaned the leaves should be simply snapped in two and loosely thrown into the bowl and the dressing added. If not made too long before it is used the Lettuces remain fresh and crisp, and can be cut up on the plates as finely as may be thought desirable. About a dozen or more sorts of salading may be added at will, but the majority of salad eaters much prefer a simple mixture.

W. I. M.

THINNING YOUNG VEGETABLES.

THERE is no more important work than this, the success or failure of crops often depending on it. As a rule, all vegetable seeds are sown much too thickly. For one plant that is required, from twenty to thirty have to be drawn up and thrown away. Before the young plants are many inches high they become crowded in the rows or beds, and, as a rule, thinning should begin as soon as the plants can be handled. When allowed to go on and attain a height of several inches, the one draws up the other until the stems get quite blanched, spindly and weak; then when thinned the heads fall over, the stems become twisted, and all chances of a first-rate head or bulb being formed are at an end. On the other hand, when thinning has timely attention and the surplus plants are drawn out before they have had time to injure the permanent ones, substantial growth is secured from the first. This applies to Turnips, Carrots, Parsnips, Beetroot, Spinach, and, in short, all crops. When Celery is sown thickly and thinning is neglected, the plants get quickly ruined, as do also Cabbages and Cauliflowers and many other vegetables. In the case of main crops of Turnips they should be grown 1 foot apart, Parsnips a little more, and other things according to the tops which they are likely to develop. Few might be inclined to thin to these distances apart at once, and I would not advise them to do so; on the contrary, at the first thinning they should be left about 2 inches apart, then double that width, and finally to the distance at which the crop will be matured. Crops recently put in are growing rapidly, and require almost daily attention in the way of thinning.

THE FIRST PEAS can never be ready too soon, and any practice which will hasten their development is sure to meet with favour. There is one simple way of making the pods fill quickly which every one may practise. It is this: As soon as they are well in bloom, pinch the points out of every one of the shoots. This stops their further progress upwards, and all the pods underneath will fill up much quicker than if growth had not been checked. Indeed, this will make at least ten days' difference as to the time when the crop will be ready.

Few vegetable crops pay better for watering than Peas. As soon as they show flower, and on until the pods are ready for gathering, they may be watered once or twice weekly with liquid manure. The drainings from a manure heap are excellent for this purpose, and, failing these, a small handful of guano, dissolved in a 3-gallon or 4-gallon watering-pot, will make the pods fill up satisfactorily. Few would think of watering Peas in wet weather, but I have frequently practised it when they were not suffering from drought, and the advantage was soon visible. Peas well fed at the root are always more juicy and sweet than those which suffer from want of abundance of nourishment or moisture. It also makes a great difference to the length of time during which they can be gathered. Starved rows are soon over, but those

which are well supplied with liquid manure will go on blooming and bearing for a surprising length of time. Mulching Peas, by putting a quantity of manure along each side of the rows, is a good plan in summer, but it is not equal to the free application of liquid manure. Where Cabbages, Cauliflowers, and Brussels Sprouts were sown some time ago, and are now healthy plants crowded in the seed-beds, all the largest of them should be drawn up and be dibbled in elsewhere. If the ground in which they are to grow is ready for them, plant them there at once; but if this is occupied and will not be cleared for several weeks, the plants should be put in temporarily in some odd corner. If put in 3 inches apart or so they will soon assume a sturdy, compact habit, and will be in every way superior to those in the seed-bed. Many late autumn crops cannot be planted out until Potatoes and other things are lifted, and in all such cases the plan of transplanting to give the plants more room will be found to be profitable in the extreme. Broccoli, Savoys, Kale, Leeks, and Lettuces are benefited by this treatment.

TURNIPS are a long time in becoming fit for use this season; our first plantation of Early Milan is just ready, but had the fore part of April been more favourable and the latter part of that month less dry, they would have been ready for use two or three weeks ago. As it is, they are very acceptable, and of all varieties which we have tried this is the earliest. The fly has been troublesome this spring. At first it was not bad, but some time ago it perforated many of the small leaves; these we dusted with lime when the pest was first noticed, as well as several times since, and now they are quite free from it. Lime, soot, or a little guano sprinkled over the plants is a sure remedy which all who have to deal with this pest should employ. Turnips sown now will be ready for use by the end of July, and as that is a period when hot weather is liable to affect them, they should be sown in a rich, deep soil and cool part of the garden. A small sowing made once a fortnight until the middle of July will result in a constant supply of tender sweet bulbs; then a large breadth may be sown for general autumn use. Turnips are a very important crop; no good cook will go on a day without them, and it will give general satisfaction to have them good.

FRENCH BEANS.—Ne Plus Ultra has been our best forcing variety this spring. It is free in growth, compact, and very prolific. Its pods are a good length, and in flavour excellent. Osborn's was our favourite for a long time, but Ne Plus Ultra has taken its place, and at present I do not know of any one to equal it. Dwarf Beans now coming up through the soil or only up a few inches will have rather a yellow appearance should the weather be cold, and as the only desire will be to have them ready as soon as possible, a sprinkling of guano should be put along each side of the rows, and then a little earth should be drawn up to their stems with a hoe. As soon as runner Beans come in they are preferred, as a rule, to the produce of the dwarfs, and wherever this is the case, no more dwarfs need be sown after this time, as they will not pod until the end of July, and then the runners will be ready. It is, however, a good plan where much Bean-forcing is done to sow a quantity of seed of such a kind as Ne Plus Ultra in order to save seed from it. When sown in time for the pods to be full-sized by the beginning of August, they have a good season before them in which to open, and we generally find that home-grown seed is equally good, and very often better, than any which we can buy.

Margam, South Wales.

J. MITT.

Forking among Potatoes.—In most soils the fork beats the hoe; it loosens up the soil and lets in air and sunshine, thus hastening the growth of the plant, and at the same time imparting a harder, firmer habit to the stem and greater substance to the foliage, treatment which lays the foundation of a vigorous plant that will by-and-by offer a successful resistance to the Potato fungus should the weather be suitable for its develop-

ment. The more the soil is stirred between the rows of Potatoes as soon as the plants can be seen the better. In spite of what has been said and written upon the subject, very many Potatoes are planted too thickly. There is nothing gained in planting the rows nearer together than 3 feet, except in the case of an early small-topped kind.

E. HOBDAY.

GARDEN FLORA.

PLATE 546.

ANNUAL SPECIES OF COREOPSIS.*

THE large family of Composites, although comparatively rich in showy summer and autumn-flowering annuals, contains many of such a tender



Coreopsis cardaminefolia.

character, as to necessitate their being raised in heat, a circumstance which places them practically outside the pale of the small grower with limited accommodation. The annexed plate is a good representation of what are as yet known in gardens as Calliopsis, but which Dr. Asa Gray in his "Flora of North America" has placed as a section of Coreopsis, a genus to which only perennial kinds formerly belonged. These Calliopses have many advantages over the general run of Composites, both on account of their hardy nature, and also on account of the striking beauty of their variously-coloured flowers. No garden, however small, should be without its own par-



Coreopsis Drummondii.

ticular strain of these plants, for, as in the case of *C. tinctoria*, the kind cultivated to the greatest extent in gardens, they are extremely variable in

* Drawn by Mr. Moon in a London garden, August, 1885.



CALLIOPSIS DRUMMONDII AND ATKINSONII.

colour and marking. One other advantage, and one of great importance to the small grower, is that they may be sown in the open air along with other annuals without any fear of harm being the result. Those sown in autumn bloom early in spring, and the produce of successional



Coreopsis coronata.

sowings from March until the end of April flowers until destroyed by frost. To succeed well they require a rich soil, and if moist rather than dry, especially in the case of those sown early in spring, all the better; seeds of them ripen freely enough, and they may either be sown as soon as gathered or kept until spring, the former plan being, however, best. The following are some of the best, viz.:-

C. ATKINSONI, represented on the right-hand side of the plate, is perhaps the most graceful species belonging to this large genus of useful garden plants. It does uncommonly well in the ordinary flower border, and seems specially well adapted for small beds, or even mixed with summer bedding plants, as it lasts a considerable time in full beauty, and supplies a bright colour not too plentiful amongst that class of plants. Successions may be had by sowing at different times, the first and second to be made in pans and placed in a heated house. The young plants should be pricked out when ready to handle and gradually hardened off until fit for planting in the open border. It generally grows from 2 feet or 3 feet to 4 feet in height, and has a fine graceful habit; the lobes of the leaves are linear, or nearly so, pointed, and sometimes very long. The flowers are rarely less than $\frac{1}{2}$ inches in diameter, set off charmingly by means of a dark purple blotch, which exists at the base of the ray florets. It is found on river banks in Oregon, Washington, &c., and was first collected by Douglas.

C. CARDAMINEFOLIA.—This species is much



Coreopsis bicolor nana.

dwarfer in growth than *C. Atkinsoni*, although the general appearance of both somewhat corresponds. It grows from a span to $\frac{1}{2}$ feet in height; the lobes of the lower or radical leaves are oval or lance-shaped, the upper ones being always

narrow linear. The flowers, which are from 1 inch to 2 inches in diameter, are of a soft yellow hue, and are extremely handsome in the dusk. It is an excellent plant for cutting from, and as it is easily raised from seed, large quantities may be readily grown for that purpose. It may also be used, in the case of *Atkinsoni*, for bedding purposes, as it has a neat, compact habit. It comes from the low grounds in West Louisiana and Texas, and flowers with us in autumn.

C. ARISTOSA.—This is also an annual. It produces large golden yellow flowers, and although, next to the above, one of the most desirable garden plants in the genus, it has been comparatively rare in gardens during the last few years. This and other nearly allied species are said to hybridise with *Bidens frondosa*, and are not uncommon, we believe, in a wild state. The stems, which grow from 1 foot to 3 feet in height, carry a large, flattish paniced head of clear golden yellow flowers 2 inches or more in diameter. The flowers, which are set on longish stalks, are surrounded by an involucre of eight or ten bracts. The divisions of the leaves are narrow, lanceolate and pointed. It flowers in September and October, and is plentiful in swamps in Michigan, Iowa, Missouri, &c. It may be sown with the others early in spring in the open border.

C. DRUMMONDI.—This species is very distinct, both in flowers and leaves, from all its associates. It is best adapted for pot culture, and makes an excellent plant for the greenhouse, as it flowers with the greatest profusion all through the autumn months. It rarely exceeds 2 feet in height; the radical and lower stem-leaves vary from roundish oval to oblong, or lance-shaped, those on the upper part of the stem being invariably linear. The flowers, which are borne in pairs or singly on long slender stems, are over 2 inches in diameter, and of a very rich golden yellow. It is found on sandy soil in Texas, &c. The habit and manner of flowering are well shown in the annexed illustration.

C. CORONATA, as shown in the accompanying woodcut, is a dwarf species common in gardens, where it is generally very effective, especially when placed near the front of mixed borders. It is very floriferous, and continues a considerable time in perfection. It grows from 1 foot to 2 feet in height; is sometimes quite hairy, and at others free from hairs, the stems being shiny; the lower leaves are three to five-parted, obovate or oblong; the upper ones narrow, and generally entire. The flowers, which are bright yellow, measure from 2 inches to 3 inches in diameter, the outer edge of the rays being prettily notched, and with brown or purple lines or spots towards the base. It flowers late in summer and autumn, and is a native of E. Texas.

C. TINCTORIA.—This is perhaps the most variable of all the Tickseeds, having given rise to various named garden forms, amongst which *C. bicolor* and *C. bicolor nana*, that represented in the annexed cut, are well deserving of special attention. The latter is very dwarf, and could, no doubt, be utilised in many ways as a decorative plant. *C. tinctoria* grows from 2 feet to 3 feet in height; its radical leaves are twice divided into narrow divisions, and the upper ones into from three to seven divisions. The flowers are rarely less than 2 inches in diameter, purple or varied, and very

showy; they are produced in summer. This species comes from low ground in Texas and Arizona. D. K.

TOBACCO CULTURE.

It may be interesting to know that about the year 1800 an attempt was made to cultivate Tobacco in Scotland, and it is recorded in the statistical account of Roxburghshire that "In one season a tenant farmer in the parish of Crailing (about six miles west of Kelso) realised £115 for Tobacco plants, and afterwards grew a crop of between twelve and thirteen acres, which he sold on the ground for £320; but an Act of Parliament intervening, the purchaser was unable to fulfil his bargain, and the farmer was compelled to dispose of his Tobacco to Government at only 4d. per lb., at which rate it brought him only £104." It is also further remarked that,



Coreopsis aristosa.

from trials made at that time, it is clear that Tobacco would thrive well in the southern parts of Scotland. It was likewise grown largely in fields a little to the east of this town (Kelso), part of which is now a cemetery. A road at the west end of the cemetery is still called "Drying-house" Lane, from the fact that the house where the Tobacco was dried stood there. Mr. Brotherton, a local botanist, informs us that between twenty and thirty years ago he used to grow regularly in his garden at Ednam (about two miles north-east of Kelso) as much as he could annually smoke; at the present time sufficient is grown in a neighbouring garden to supply material for fumigating purposes, the sort generally grown being the Virginian, a variety of *Nicotiana Tabacum*; many other sorts are, however, in cultivation, one being *Nicotiana rustica*,

the common or green flowering variety, a much hardier kind than virginica, and the first we believe to be cultivated in this country, though the Virginian was introduced fully 130 years earlier. We may add that for this country the young plants require to be raised in a hotbed, and planted out about the end of May in deeply trenched soil, heavily manured. The greatest enemy with which the young plants have to contend (but only in their young state) is the slug. We have no doubt whatever that Tobacco could, in most seasons, be profitably grown in this country, provided Government will permit it to be grown. If we mistake not, the Parliamentary Act just referred to was passed almost solely for the benefit of encouraging its growth in the colonies; surely, therefore, our colonial friends have had a monopoly in respect to it long enough, and it is to be hoped that our Government will now allow us at home permission to grow it on reasonable and encouraging terms.

Kelso.

LAING & MATHER.

WORK DONE IN WEEK ENDING MAY 26.

MAY 19.

FINE day, but it is raining heavily this evening, and already upwards of 2 in. has fallen within the last six days. It was much wanted by all recently transplanted shrubs, trees, and vegetable crops; the latter grow most rapidly, and keep us on the move weeding and thinning out the plants; part of our Onions and all the Parsnips have been thinned to-day to from 6 inches to 9 inches from plant to plant, Onions from 4 inches to 6 inches from each other, and the rows are 12 inches apart and the Parsnips 15 inches. Our ground is all occupied, else we would like to plant out more Cauliflower, a few early Savoys, and Snow's Broccoli, and make the main sowing of Turnips. Radish, Lettuce, and Endive we have sown between the fruit bushes—Gooseberries and Currants. In a few days' time will come the end of the supply of Sprouts we have had for many weeks from plots of the old Scotch Borecole and Cottager's Kale, then the ground will be got in readiness for sowings of dwarf French Beans and late Peas. Completed the marking out of beds for summer bedders. A goodly number of hardy plants are already planted, and now, whilst the ground is in a moist condition, small seedling plants will be got out first. Pelargoniums, Fuchsias, and such like plants that are usually potted separately will not feel the move, however sunny and dry, and to that kind of weather we defer planting them. We have just now so much Grape thinning that other work in the houses is apt to get neglected, but time was made to-day to put in another batch of Alternanthera cuttings, and to pot into their flowering pots a few Chrysanthemums that were getting pot-bound. The boisterous wind that has prevailed for some days past has caused us to keep them standing quite close together, and to fix a canvas shelter on the windward side to prevent damage to foliage.

MAY 20.

Splendid growing weather; occasional light showers, but not sufficient to hinder our outside work in the least. Planted out Pyrethrum Gold Feather, variegated Mesembryanthemums, Violas, Kleinias, and Ageratums. As to arrangements, designs, and colours, ours are of the simplest description; white, pink, blue, grey, cerise, and violet, are our favourite colours; yellow, scarlet, and reds generally we use just as little as it is possible to use, and yet have variety, and this little we take pains to distribute over every part of the garden—that in fact, is a part of our plan of arrangement, namely, that every colour used shall be so dispersed over the entire series of beds, that no colour shall appear excessive or preponderate over another. This condition I look upon, and therefore strive to attain it as the perfection of colour blending in summer bedding arrangements. It is because the work has been, and is done, in such a slipshod fashion—without any regard to beauty—other than the smallest quantum that may sometimes be extracted from gaudiness, that summer bedding has, in some quarters, got into disrepute, and I do

not mean to defend it further than to say that for geometrically formed gardens no other style of flower gardening is better suited. Perhaps, though, as I am not my own master in the matter—for I am compelled to do it—I had better say no more on the subject, except it be to quote the old truism, that "whatever is worth doing at all is worth doing well," which in this connection I will interpret as meaning, that all of and about summer bedding is not included in the colours red, white, and blue any more than it is in fancy, unmeaning, intricate designs. Grape thinning, as usual. Early Grapes are ripening fast and colouring first rate; abundant ventilation, combined with warmth in the pipes night and day, when dull, are certain aids to high finish. Of course, I am presuming that the foliage has been kept free from spider; if it has not, then all the fire and ventilation imaginable will not help the fruit to colour well. It is usual to withhold or greatly reduce atmospheric moisture soon as the Grapes begin to colour, and from thenceforth red spider spreads rapidly. Having now for some considerable time disregarded this practice, I am in a position to state that it is unnecessary; high finish is compatible with a reasonable amount of atmospheric moisture being continued till the fruit is quite ripe, and we do it; and though spider does sometimes trouble us, it is but little—so little, in fact, that my present frame of mind is to propose to relegate aridity of atmosphere for Grapes ripening to the same category of forgetfulness to which we long ago sent sulphur, because it was neither a preventive nor remedy for spider. Strawberry forcing still gives us an immensity of labour in the way of watering, picking off surplus fruit, and shifting about the plants from one place to another. The Strawberry house has now to be kept too warm to preserve ripe fruit longer than a couple of days, and as heat is a necessity to obtain large fruit soon as ripe, we now transfer the plants to cold frames, and arrange them thinly on inverted flower-pots to admit of the berries hanging free of sides of the pots and the ground, and in this position they keep well from five to seven days after they are fully ripe. Potted off seedling Gloxinias and tuberous Begonias; staked Chrysanthemums; pinched back for the second time the plants that are intended to be grown in bush form.

MAY 21.

Fine in the early part of the day, but a regular downpour—0.54 inches—all the afternoon. Did a little more planting in flower garden. Planted out Tomatoes in the open borders; the plants are extra strong, and already showing fruit. Last year was the first attempt we made at growing them in the open garden as upright cordons, and never before did we have half such a supply of fruit. We cut ripe fruit before June was out, and kept on gathering in quantity till the middle of October, when the frost cut down the plants. Ours is good, but not over-rich, soil; we plant firmly and mulch heavily with long stable litter, and support the plants in exactly the same way as are Dahlias. Prepared bed for Ridge Cucumbers and Vegetable Marrows; the latter are not valued here, and therefore we do not attempt to get them early, having plenty of other work of greater importance. Rain setting in, we found plenty of work for all hands in sheds and houses—pointing stakes, making pegs and labels, washing pots and arranging them in their sizes, leaving a good space for each size, as released of bedding plants. Got out to harden all plants that are to be put out as summer bedders, tall and tender sub-tropicals being afforded the warmest and most sheltered spots under the protection of walls and trees. Tied Melons and Cucumbers to trellis, and top-dressed the beds of the latter with rich soil. Early Muscat Grapes ripening have had the laterals closely pinched back, and as the house is a dark one (the roof being almost as much wood as glass), some of the large foliage has been tied aside to let in light to some of the best bunches, for without sunshine my experience is that it is utterly impossible to colour Muscats well. Late Muscats are now in flower; 75° to 80° is therefore our present temperature. They would probably set with a lower temperature; but these figures I know to be safe, and I cannot afford to experimentalise as to how near to freezing point they would set. At this advanced season the only artificial aid as to dispersion of pollen

which we attempt is a slight jerk of the trellis. Lady Downes are also just opening their flowers, and the treatment given to these is an exact counterpart of the foregoing. I may add that all duplicate shows, as well as many others, were cut off the Vines a week or more ago. Early Peaches are colouring, and high quality of fruit depends much on slow maturation; therefore, we air freely day and night, and by preference, fire a little on cold nights rather than shut up the house closely.

MAY 22.

Fine and warm; splendid growing weather. Being cloudy and the ground so moist, we postponed progress of bedding out in favour of planting out Stocks, Asters, and Zinnias, a plot of each of which we always grow for use as cut flowers, besides groups of them in the mixed flower and Rose borders. The better to apply water, which is necessary for the first month after planting, the plots devoted to their culture are all drill-planted, and the clumps in borders are planted in indented fashion with trowels, and soiled up soon as the plants begin to get top-heavy, which always serves as a warning that it is time to afford slender and tall-growing varieties small sticks by way of support. Clumps—from five to nine plants—of seedling Verbenas and Petunias we have also planted in mixed flower borders, and took the precaution to guard against destruction by slugs by sooting the drills as well as every group that has been planted, and in addition a boy will be charged with the responsibility of looking over the borders and drills in search of them, the first job each morning for a fortnight or so. This searching and hand-picking for slugs we find necessary to preserve many other seedlings besides the above, and we get rid of a lot of them by baiting them with bran, which we put down in small patches close to the Box and other edgings, that serve as harbours for them. The slugs, if any, cannot resist this bait, which, if looked over late at night or very early in the morning, and occasionally renewed, will soon effect a riddance, or, at any rate, so reduce their numbers, that the injury done will be but little. Made our latest sowing of Sweet Peas and staked those last sown. Wind and rain of the last few days have contributed to the untidiness of walks, &c., and for once we have left it undone in order to get on with planting. Indoors this could not well be done, more particularly those houses that had been cleared of bedding plants, and a good sweep and swill out, and in one or two instances renewal of gravel, has been done. Got out Pines—plants included—that were ripe and placed in fruit-room; they are required for the 1st of June, and this we find the best way to retard them. Watered all Pines; a quantity of the latest succession want potting, but we have no time for the work yet, and till we have we shall water rather freely to keep the plants growing. To all fruiterers we now give liberal supplies of liquid manure at each watering, and the walls, beds, and floor are damped down with the same in sunny weather when the house is closed up for the day. Thinned fruit in late Peach house, pinched back sub-laterals, and tied main shoots to trellis.

MAY 24.

More rain, and, anxious as we were to have it, we now feel inclined to say, plenty for the present. It has indeed suited all our crops, and revived the drooping condition of all last winter's planted shrubs, and if the mulching be now made firm round about these, one can hardly think they will feel the need of water—other than what falls naturally—all the summer. We began our planting out as usual, but rain coming on, we had to desist, and again betake ourselves to the usual indoor jobs of preparing stakes, pegs, labels, and washing pots, and weeding the mulching, and watering with rain water inside Vine and Peach borders. A couple of the handiest labourers pinched and tied down shoots of late Peaches, allusion to which I make as showing how one may utilise the services of intelligent outdoor hands when weather conditions are unfavourable to their own work. It is time the sentimentality about such men learning too much and getting above their calling if put to such work was exploded, for it is all nonsense, as the very opposite is the fact, for they are proud to be thus trusted with such work. Grape thinning, potting seedling Primulas, sponging foliage

plants, and thinned out fruit on Strawberry plants in pots.

MAY 25.

Fine and warm; splendid growing weather. Planting flower beds, and finished planting Zinnias, Asters, Stocks, and Everlastings in mixed flower borders. The rain and wind combined had bent down several kinds of herbaceous plants, and these we have had staked and tied, and the borders are now being weeded. Pyrethrum, Pæonies, Spiræas, Delphiniums, Geums, will shortly make a grand show, and neatness of surroundings will add to the general effect. Planted out Celery and thinned out Turnips and Lettuces. Indoors work has been potting Ferns that are required for table decoration into larger pots. *Adiantum cuneatum* and *Lomaria gibba* are the most valued kinds for this purpose; small Palms—*Cocos Weddelliana* in particular—*Dracænas*, and *Crotons* are about the only other kinds of plants we use for table decoration. In respect of fruit houses, Grape thinning still monopolises most of our time, and Peaches and Strawberries come next, as there are always shoots to be pinched and tied down and fruit of Strawberries to be thinned out. HANTS.

FRUITS UNDER GLASS.

VINERIES.

THE work in this department is still at high pressure, and will continue so until thinning is brought to a close. Just now we have the general crop of Muscats, the late keeping or bottling section, and Hamburgs in hand. Thinning, at all times an irksome operation, just now is unusually pressing, as we have so many claims which must have prompt attention, the more so as the season is advanced and growth is rapid. The cleaning of Lady Downes owing to the presence of a great number of small berries, which neither swell nor drop, should be taken in hand as soon as the bunches are well out of flower, when the final thinning may at once be proceeded with. The next Grape which strongly resents neglect or delay is the Black Alicante, a second rate, but handsome variety, now much grown for autumn and early winter use. This stiff-stalked, unyielding Grape invariably sets well without artificial aid, and the bunches, which are very large, require a great deal of thinning—indeed, more than they often receive. A close, handsome bunch, as compact as a cricket-ball and as black as jet, is a pleasing sight in the autumn; but if intended to succeed the latest Hamburgs (its proper season), internal thinning should be sufficiently severe to admit of a free circulation of air through it when the leaves are falling and cold fogs pervade the atmosphere. Gros Colmar, also a free-setting Grape, may be thinned until the novice begins to fear that he has spoiled his cluster, and it will then fill up and require looking over a second and third time to prevent its fine berries from binding. The thinning of this eyeable Grape should, however, by this time be finished, as it requires a long period and a great deal of heat to bring out its best qualities and fit it for keeping well into the spring. Gros Maroc, on the other hand, can be grown and ripened under ordinary midseason Hamburg treatment, and its berries will lay on the most beautiful blue-black bloom; but to insure first-rate keeping qualities and satisfy the taster, who is not to be duped by size, colour, and finish, the varieties I have named, Alicante excepted, should be grown under Muscat treatment. This, the king of Grapes, unlike the preceding, should have a little license after the berries are out of flower, as it is so easily thinned, and many of the imperfectly fertilised berries do not always declare themselves until after the others are well advanced. Bowood, an excellent early Muscat, is very free, and its bunches being more clumpy with heavier shoulders, I always find it necessary to take this variety in hand first; indeed, it is always ready first, although the old Muscat occupies the warmest part of the house, and its roots are close to the hot-water mains. In like manner it retains the lead, and is first ready for use in the autumn.

Late Hamburgs, now hardly worth growing, except for private use, and judges of good thin-skinned Grapes will not willingly dispense with them, should now be fit for thinning. This year, however, they

present a marked exception to the rule, as mine have only just been tied down, and unless we have a great improvement in the weather they will continue late up to the end of the season. In order to ripen this crop properly and keep them well into the winter, the largest shows should be cut off at once, and compact medium-sized bunches retained. These it will be necessary to thin with a free hand, and although small, the heaviest shoulders will well repay a little extra care by being drawn up with strips of matting to let in air when the leaves are falling from the Vines. Hamburgs in these late houses should be grown in well-drained borders composed of sound loam; if inside, so much the better, and the use of manure calculated to produce gross growth must be carefully avoided. A good mulch of stable litter for keeping in moisture and drawing the most useful rootlets to the surface is, however, necessary, and feeding with diluted liquid when the Grapes are swelling will produce conditions most favourable to the ripening of the wood in the autumn. When quite ripe the Grapes may be cut and kept in bottles of water in the Lady Downes house to favour sharp firing.

Vines for planting.—Although thousands of well-ripened canes one year from the "eye" are still grown by the trade, the majority of gardeners now prefer transferring them to their permanent quarters in a growing state. Where internal borders are not in favour or their formation is impracticable, and external planting is the only course open, well-ripened canes are still used for conveying the sap through the front walls to the interior, and very good Vines they make, as many of the oldest and best in the United Kingdom have been established in this way. The best time to plant dormant canes extends from February to the end of April, or Vines of the current year may be put in as soon as the wood is ripe, but before the leaves fall in the autumn. The first system enables the grower to fill his house with good canes in the course of one summer; the second occupies a winter and a summer. Both of them are now out of favour, as nothing short of a crop of ripe Grapes, say in May or June, followed by a houseful of young canes in the same season, often from spring-struck eyes, will satisfy the express grower. Every man, it is hardly necessary to say, has not the convenience for striking and growing on his own young Vines while the old ones are maturing a crop of fruit; but the trade will do it equally well for him, and he may plant in a green state as late as the end of June with every chance of success. Nay, more; he may cut another three weeks off a good summer, and then fill a large house with wood and a narrow internal border with roots. "Theory," some will say, "theory"; give us an instance of its having been reduced to practice. Last year, under my own directions, a range 90 feet in length, in three compartments, was erected for a gentleman who cannot carry out certain improvements until he is well supplied with Grapes from these houses. The contractor did not appear on the ground until June, and the work was sufficiently advanced to admit of making internal ridges and planting the third week in July. About one-half of the Vines used had been cut back and well grown in a nursery; the others were grown from eyes put in early in the preceding January. All grew away well, were stopped once, and then filled the trellis from base to summit. Had the gardener who took charge of the newly planted Vines felt so disposed, one-fourth of each rafter might now have been furnished with Grapes, but he decided on cutting them down to the front wall-plate. Each stool is now sending up two fine rods, which have been once stopped to strengthen and fill up the main buds, and the yearlings, if anything, promise to be the strongest. May is undoubtedly the best month for planting spring-struck Vines; but, given an abundance of light, air, and moisture, combined with plenty of top and bottom heat—the latter from fermentation in the soil—they may be planted much later, and a season will be saved, provided a ripe bud can be secured for pruning back to it. It is hardly reasonable to suppose the trade will supply young Vines which have been struck and grown in squares of turf; but private growers who raise their own should strain a point, as they can move them at any time without producing a check. When young Vines, which have been raised in small pots are turned out, all roots that have com-

menced coiling should be carefully set at liberty with a pointed stick, and the bases may be slightly crushed by pressure in the palms of the two hands to set the young rootlets at liberty and prevent them from cutting or strangling each other when they become old. It is hardly necessary to remind the summer planter that one bushel of warm soil is better than a ton of cold for giving the young Vines a quick start, and this warmth, equal to that of the bed on which they have been raised, should be secured by natural fermentation of the new compost, aided by a living of manure or leaves if necessary. Further, the ridge or narrow border kept up by retaining walls of turf should be built 6 inches above the intended level to allow for settling. When the soil is in suitable condition, each Vine may be transferred with a large steel or tan fork, and carefully planted with 2 inches of fine soil resting on its roots. Moderate pressure with the hands will do no harm to the tender rootlets, but the best of all modes of settling the soil about them is washing-in with water at a temperature of 90°. Light mulching will then follow, and the house must be kept close, moist, and shaded for a few days—possibly a week—until they begin to grow. The shading may then be removed by degrees, more or less, according to the state of the weather, but the sooner the Vines are inured to the full influence of the sun and light the better.

CUCUMBERS.

Old plants that have been in bearing all the winter should now be got rid of, as spring-sown successions which are clean, healthy, and more profitable come in to take their place. If the latter are grown in pits and frames and their produce is equal to the demand, the clearance of the old plants will afford a favourable opportunity for emptying the pits to the bottom, cleansing, and lime-washing as a very important preliminary to a fresh start, either with Melons or more Cucumbers. Every hot-water pit should be thoroughly overhauled at least once a year, not only for the benefit of the succeeding crop, but also to do away with cockroaches, crickets, red spider, and a host of other enemies which migrate or get carried into other compartments where this work is neglected. Should replanting with Cucumbers be decided upon, the most economical mode of procedure will be the formation of hills or ridges running along the pit, and as far away from the pipes for giving top heat as may be convenient. This precaution will not make much difference through the summer, as solar heat well managed will suffice; but it will tell to advantage when strong fires are needed in the autumn. Another important matter at all times, in summer especially, is thin planting to admit of extension training and full development of vine and foliage. Laterals and sub laterals must, of course, be pinched either at the fruit or one joint beyond, but so long as the main shoots can extend and the house is properly tended with air and water any novice can grow good fruit and keep his plants in health. On the other hand, plants huddled and crowded, top-dressed, and fed soon run into each other and become as unfruitful as they are unmanageable. The only remedy for this state of things is the introduction of the knife, not in the sense in which it is generally used, as cutting and lopping every plant brings on gumming and canker, which result in premature death. In what way, then, must the knife be used? Why, simply to cut off every alternate plant close to the ground, and when, like Jonah's Gourd, the interlacing vines and leaves begin to droop, pick them out and devote the space they have occupied to their neighbours.

MELONS.

The detailed management of these, both in houses and frames, having been so often written, a repetition of it to many must appear tedious, and yet questions are constantly being asked, apparently by people who never trouble about Melons until they find themselves in a fog. In the preceding paper I stated that old Cucumbers might be cleared out preparatory to cleansing and replanting with spring-sown plants or Melons. Of the two I should give preference to the latter, as good summer Cucumbers can be grown in frames, and there is yet an abundance of time for securing a crop of Melons from the hot-water pit or house before it is again wanted for winter Cucumbers. If the pits, as is generally the case, are narrow, and

one or two pipes run along the bottom, the plants should be grown on hills formed immediately above them, as fire heat may be needed when the fruit is setting and again when it is ripening. Meantime, if space admits, the sides of the pit unoccupied by soil, of which a cube 18 inches square is ample, may be filled in with fermenting leaves or tan to keep the soil warm and the roots moist through the early stages of their growth. If, on the other hand, the pot system is preferred, a thin layer of fermenting manure or leaves resting on the pipes and covered with turf, Grass side downwards, should be placed in the pits before the pots are introduced. Although thin, these substances will keep the crock-roots away from the hot-water pipes without cutting off their influence, and they will form an excellent medium for the retention of water or liquid on their passage downwards. Pots 12 inches to 14 inches in diameter well filled and fed will grow excellent Melons; but for summer use, when the plants often require water twice a day, I give preference to pots a few inches wider, and, driven to extremities, I do not disdain a set of large Seakale pots or square boxes of the roughest manufacture. Anything, in fact, capable of holding the compost in a solid state and letting out the water will answer just as well as terra-cotta vases. The compost, good friable loam and old lime rubble, can hardly be too dry for filling the pots with, as it requires very firm ramming before and after the young plants are introduced. If soil in this state is not at hand when wanted, a quantity should be broken up roughly and dried in the sun, as pounding when wet produces conditions unfavourable to the ramification of the roots and the free passage of the water. Melons, it is hardly necessary to say, will grow in ordinary garden soil and make more Vine and foliage probably than fruit, but by ramming and withholding manure thousands of hungry roots will establish themselves from the crocks to the rims of the pots, and be ready to devour any quantity of diluted liquid when the swelling fruit requires feeding.

THE FRAME GROUND.

I stated in my last paper that the fine weather we were then having might be but fleeting, and suggested particular attention to the coverings and linings. Those remarks have, unfortunately, been verified, and although we are now entering the month of June, days and nights are cold, the hills occasionally tipped with snow, and the sun is more frequently absent than present. Under these unfavourable circumstances, while blaming the Gulf Stream or icebergs, we must pick our way as best we can and hold fast the little we gain day by day until we once more find ourselves enjoying seasonable weather. Nothing, we know, can equal brilliant sun heat in the frame ground, as dull weather is always intensified by an excess of vapour from the soil and the surroundings. An effort must therefore be made to counteract the effect of these cold, dark fogs by withholding the syringe and by supplying the roots of Melons and Cucumbers with extra warm water on fine mornings without wetting the foliage. A chink of air must, of course, be put on to prevent condensation and scalding, or the effect of sudden bursts of sunshine can be turned to benefit by the use of the thinnest shading. Well made-up linings and good covering must still prevail, and not one iota of vine or lateral must be allowed to develop superfluous flowers or foliage.

Eastnor Castle, Ludbury.

W. COLEMAN.

TREES AND SHRUBS.

LAWSON CYPRESS AND ITS VARIETIES.

By comparing the woodcut in the plant catalogue of the Lawson Nursery Company of the original British seedling of this beautiful Cypress, raised in and, I believe, still growing in the Company's Nursery at Edinburgh, with the individuals common in gardens everywhere, it would seem that the species, in the hands of responsible British and foreign, but especially British, seed collectors, notwithstanding the exercise of discriminating care on the part of a few, has degenerated in habit and possibly constitution. Be that as it may, it is to be regretted that the majority of the individuals are so disproportionately tall, that they cannot be called handsome, and but for their charming green foliage they have little claim to be considered ornamental. I refer to plants that have attained to say 10 feet in height. Distinct in habit, and if healthy beautifully green, the worst of them undoubtedly are, but garden ornaments they are not. Trees varying from 10 feet to 16 feet in height, by 2½ feet to 4 feet or 5 feet in diameter of branches, are not finely proportioned, nor can they be considered so proportionate as to be intrinsically ornamental in the positions they usually occupy in gardens. Yet such are the proportions of the great bulk of the Lawson Cypresses in this country. They might be useful if grouped or lined for shelter and screens, and clumps of them, rather closely planted, in parks would present distinct and pleasing features. But for planting singly on lawns and in special positions in either large or small gardens, where their port and outline would be brought out in decided relief, better proportioned specimens are required. The variety *gracilis pendula* is alluded to in Veitch's "Manual" in the following terms: "In this variety the branches are long and gracefully pendulous. It is a handsome lawn plant of very vigorous growth." To the correctness of the description I can bear testimony, and I may be allowed perhaps to add that instead of the leader only of this variety being drooping Deodar-like, as is that of the typical species, this feature is again and again repeated in the principal branches and adventitious leaders, which break through and gracefully droop and dangle over the broad pyramid of feathery green. It is the best habited and most vigorous of all the forms, either named or unnamed, which I have seen suitable for lawn and special planting. But among the common herd are trees of exceptionally handsome outline, proportions, and inheriting, we must infer, vigorous constitutions. They are not many; but occasionally in my rambles I have come across a specimen which, though not representing any one of the numerous named garden varieties, is so superiorly effective over ordinary individuals, that it would be desirable to propagate it extensively.

Now, it is fortunate as well as satisfactory to know that if the seeds of such individual trees only were gathered and sown, the seedlings raised therefrom would be greatly superior in habit and constitution to the ordinary disproportionate, over-tall, green-pillar race that at present, so to say, "hold the field." And, in consideration of the vast numbers everywhere planted in Britain, and from which we may safely judge of the favour in which the species is held by arboriculturists, it is, I think, only right that the same care should be exercised in the selecting of seed of so useful a tree as is usually and judiciously bestowed, with a view to improvement, on that of ordinary vegetables. I have reason to believe, too, that the crop of seed produced by a tree of

distinctive character as regards habit, colour, and vigour will, in a largely general way, reproduce the parent. The variety *gracilis pendula*, to which I have already referred, is not, fortunately, predisposed to bear cones. But years ago I secured from it a small quantity of seed, from which I raised a goodly number of plants. I had the satisfaction of watching their development until they were a little over a foot high, and at this size, and indeed from the first, 99 per cent. of these clearly wore the mantle of their common parent. I have raised seedlings of the neat, formal variety of the American White Cedar, widely known in Britain as *Retinospora leptoclada*. Those seedlings, when only a few months old, were not distinguishable from cutting plants of their common parent. As the catkins of this Cypress, in common with those of the other members of the great Coniferous family, are wind-fertilised, I need scarcely recommend that stock plants of particular varieties such as I have herein indicated, seeds of which are desiderated, should as much as possible, and where practicable, be isolated. Foresters and others on large wooded estates might easily do this, and from the trees secure quantities of seed calculated to ensure a race of plants superior to the present common stock of the Lawson Cypress.

GEORGE SYME.

THE WAYFARING TREE.

(*VIBURNUM LANTANA*.)

THIS tree is now, and will be during the summer and autumn months, a very striking object. Its popular name is well applied, as on many soils it grows very abundantly by the roadsides. Here it is one of the commonest of hedge bushes, especially where the hedges flank the roads. In the fields it is of comparatively rare occurrence. Where it is found, it seems to thrive as well there as it does in its more general habitat. In some instances it assumes the form of a low tree, but much oftener it grows as a spreading bush. It is unquestionably one of the hardiest of our native shrubs, and begins to develop its leaves before almost any other. As an ornamental tree, it does not seem to be very much used in shrubberies, but there are some large groups of mixed species near here which were planted a few years ago in forming a new park where it has been rather largely employed. It has made good progress with the other kinds—as it was sure to do—and is not the least attractive among them. The aim with which it was grown would, of course, have much to do with its culture. There is a specimen I have lately noticed here which, although from its position was evidently not grown with any idea of effect, has assumed a tree-like form. It rises in a single stem for some 6 feet or 8 feet, and then breaks out into a spreading head. As an isolated specimen on a lawn, a tree of this character and dimensions would not be at all inappropriate. As a bush, it generally grows here from 4 feet to 6 feet high, and with a similar diameter. Being in hedgerows, it is subject to periodical cutting. If it was left for a longer time, these figures would probably be exceeded. There is one advantage gained by the occasional cutting it receives in such places, and that is, that the young wood springs up more thickly from the stool. By this means a more uniform and rounded shape is given to the bush. I have here and there seen it growing in ordinary coverts, but not very largely. I do not know what properties it has in resisting the attacks of rabbits, but from every other point it seems a very desirable covert plant. The poverty or the dryness of soil does not appear to affect it. With a tree which does not often exceed in size the thickness of one's arm, very much cannot be said of the value of its wood. As a general rule, it is better suited to the fire than to any other purpose. On account of the toughness of the young wood, it seems in former times to have been pretty generally used for tying purposes.

Cauliflowers in trenches.—Dig out the soil 3 feet or more wide and 8 inches or 10 inches deep. Wheel in 6 inches in depth of manurial compost, and thoroughly blend it with the 6 inches of natural soil below it, adding a little of the surface soil to bring the trench up to within 2 inches or 3 inches of the ordinary level. Set out the plants two rows in a 3 feet wide trench, as large coarse Cauliflowers are not so useful as close white-hearted ones of medium size. The most reliable Cauliflower in August is Autumn Giant, but it is hardly so white or delicate as a well-grown Walcheren, and the Giant frequently comes too large. True, we may in some measure counteract this by reducing the space allowed to each plant, but even then it gets too large for some.—E. H.

Indeed, some authorities take it that its generic name was derived from this circumstance. Now, at any rate, it is very seldom it is so used here, as either Hazel or Willow is employed. Loudon says that in Germany the shoots of two or three years' growth are used for tubes to tobacco pipes. Its use for such a purpose is not unlikely, as the pith of the wood at the age indicated is of a suitable size. Its propagation in quantities where it does not grow naturally would be an easy matter, as it produces large quantities of seed. The seed should, however, be laid in heaps in the same way as haws, as if sown when gathered it does not germinate for a long time. For positions where the foliage of trees is subjected to much dust, such as in the streets of towns, the Wayfaring Tree has a considerable value. Its ally, the Laurustinus, often occupies a place just within the street railings. *Viburnum Lantana* is equally worthy of being occasionally used. By planting the two species, both summer and winter-flowering shrubs would be obtained. After weeks of drought, when the whole of this tree has been choked with the dust of the passing traffic, it still continues to thrive, and after a shower resumes its original freshness. Its foliage, though not so delicate as that of the Guelder Rose, seems better fitted for the situations in which it so commonly grows. As a hedge plant in the sense of forming a good fence, it has no especial recommendation. When it is so used, it requires tolerably frequent cutting, as, if left to grow on, its habit becomes too loose for a barrier against cattle.

D.

A tree group.—This consists of the common Beech intermixed with seedling purple Beeches. The latter range in colour through crimsons, pinks, bronzes, to browns, fading into greens. Those familiar with the exquisite tender greens of the common Beech during the earlier stages of its leafage will see, in their mind's eye, how rich and satisfying such combinations of colouring must prove. Somehow or other, notwithstanding the extreme effectiveness of the purple Beech, it is but little used in home woods or landscapes. This is much to be regretted, for it grows just as freely as the common Beech. This is especially so with seedling purple Beeches, and fortunately from 25 to 50 per cent. of the seeds from good strains of purple Beech will come purple. They will not come all alike, or all alike good, but this for park scenery or landscape effect is by no means to be regretted, but the contrary. The variability of seedlings adds to the enrichment of pleasure grounds or parks through the endless variety of their many-coloured tints, alike in the early spring, throughout the summer and in the autumn. Those, however, who prefer their purple Beeches all of one hue can easily have them so by purchasing grafted plants from the trade or working their own. There are two varieties well known in the trade, besides several less known. One has much darker and larger leaves than the common purple Beech, and has also a more vigorous habit. On the whole, however, the play of light and changes of colour are more beautiful and more richly varied in the common variety. The darker, larger strain forms more of a dense mass of purple, so full and deep in colour that some have called it the black Beech. Another group, equally effective in its way, though far more evanescent, was formed of wild Geans, white as "sheeted ghosts," in the profusion of their blossoms, intermixed and flanked with purple Beech. The contrast here was almost too violent, but becomes less so as the white blossoms of the Geans give place to red or black fruit, and by the time the purple Beeches begin to run back into a sort of dusky green in the autumn, the Gean leaves are flamed with tints of fiery reds and golden yellows. Few trees are, in fact, more ornamental in the early spring, and, indeed, through-

out the season, than the wild Cherry or Gean, and it is surprising that it is not more freely used in the furnishing of landscapes.—D. T. F.

Cydonia japonica.—This was pronounced by Loudon forty years ago to be one of the most desirable deciduous shrubs in cultivation, and, notwithstanding that several good hardy shrubs have been introduced since then, I am now prepared to endorse Loudon's opinion respecting it. It is matter for surprise, consideration, and regret that this fine shrub is not more commonly planted than it is. In habit, foliage, and flowers, which burst forth with impatience on the first relaxing grip of winter's frost, and continue unfolding their charms so unusually long, it is all that can be desired. When trained to a house front or ordinary wall its flowers are shown off to advantage, and though there



Cyclamen europeum.

may possibly be better wall plants in cultivation, it is in every way a distinct and charming addition to the rather limited class of plants to which it belongs. It does best, and is, I think, most effective in the southern counties at least cultivated as a shrub on the lawn, or in a front position in the shrubbery, where its blossoms, always attractive, are early in the year much more so than elsewhere, by reason of the scarcity of shrubs in flower at the same time.—G. S.

Pyrus Sorbus.—Late in December, 1881, I was given some seed of the True Service tree, which was at once sown and placed in a cold frame, and in the spring I had a nice stock of plants; these were put out in an open piece of ground and grew about a foot during the summer. In THE GARDEN of February 20 this year there was an interesting article on this tree, in which it is stated that the young plants must be kept in pots and in a frame during winter, and not planted out until three or four years old. This statement made me fear for my plants, unprotected all this trying winter, but I am glad to say that they are quite uninjured and are now growing freely.—A. K., *Easton*.

The Golden Mock Orange.—I am glad to confirm "Alpha's" high estimate of this strikingly effective shrub. It produces a striking contrast to Yews, or even Laurels or Hollies, and perhaps is never so telling as within easy distance of the Silver-leaved Maple. The more sunny the site and dry and poor the soil the more golden the leaves of this plant, as well as the golden-leaved variety of Weigela. The flowers of the Golden Mock Orange are equally fragrant as the type. The double Mock Orange is far better for cutting and decorative purposes than the single, and is equally vigorous and floriferous. It is, however, very far from common. It mostly flowers a fortnight or so later than the type, and the blooms remain for several weeks after the single blooms have faded.—D. T. F.

Exochorda grandiflora.—There is not a more lovely early flowering shrub than this, yet though it has long been in gardens, it seems not to have become common. Sometimes it is seen grown as a wall plant, and as such it flowers freely, but it is more effective when allowed to grow in its natural way, that is, as an open spreading bush. One point in favour of protecting it by a wall is that the blooms are secured from damage by late spring frosts which, when in the open, occasionally injure them, while with a plant or plants in both situations the flowering season may be thereby lengthened; those on the wall will be sometimes two or three weeks in advance of the others. It is a native of Northern China, and was introduced long ago into this country by Fortune.—A.

FLOWER GARDEN.

HARDY CYCLAMENS.

ALTHOUGH it has been long known to cultivators of alpine plants that many of our small Cyclamens are perfectly hardy and well adapted for culture in the open air, but few have hitherto taken advantage of this fact, except in the case of *C. Coum* and in that of *C. ibericum* (also widely known as *C. Coum vernum*), and perhaps in that of a few of the Atkinsi varieties.

Generally, Cyclamens are cultivated in large pots or pans, and beautiful they are, as anyone visiting our London spring shows can testify. This is doubtless a good way of popularising these pretty little alpine gems, but it does not help us much with their cultivation in the open air. From our own observation we should say that, with the exception of *C. africanum*, and perhaps *C. neapolitanum*, Cyclamens are as hardy and as capable of standing severe frosts as any plants in the garden. The supply of bloom, however, will depend on the position chosen for them; when exposed, the flowers, though well coloured, are few and small, while under the protecting shade of a Pine tree or Evergreen bush blooms are produced in perfection, notwithstanding the dense

shade overhead, and even drip. Then, apart from the consideration of flowers, Cyclamens without an exception are very desirable plants on the rockery on account of their beautifully marbled foliage. In the case of *C. repandum*, perhaps better known as *C. hederaefolium*, its large handsomely marked leaves have been more admired during the last three or four months than those of any other hardy plant in the garden. It is an excellent plant, too, for a wood; where the shade is just dense enough to keep the Grass from becoming too luxuriant this species will grow and flower as freely as it does in sunny Southern France. In Cornwall, we believe, *C. repandum* has really been naturalised in a wood in which it seeds and produces yearly thousands of young plants; many of its older corms are

over a foot in diameter and produce annually hundreds of flowers. In the wild garden at Kew a very satisfactory trial has been made with this plant, and when in flower in early spring it is abundantly appreciated by visitors, a fact clearly indicated by the well-worn turf in front of it. In sheltered spots on a rockery, however, it appears to be best at home, and in this way with deep, rich, well-drained soil complete success has been attained with six out of the nine species enumerated, besides varieties. Many *Cyclamens*, instead of rooting underneath, as in the case of the Persian species, throw out roots from the top; our practice, therefore, is to use clean silver sand, and plant them half an inch or more beneath the surface. *C. europæum*, here represented, should never be wanting in a collection of hardy plants. It is one of the few that flower in the autumn, and its blossoms are almost as large as those of an ordinary *C. persicum*. They are variously coloured and sweetly fragrant. As will be seen, it is a very free flowerer, and will do well in more open spots than most of the others. It varies very much, forms of it being known in gardens under the names of *C. Peakianum*, *C. Clusii*, *C. littorale*, *C. odoratum*, *C. æstivum*, *C. purpurascens*, &c. *Cyclamens* are all very easily raised from seed, which as soon as ripe should be sown in pans and covered with Moss or Cocoa-nut fibre. When the young plants are ready to handle they should be pricked out and allowed to remain until finally removed to their flowering quarters, which should be as soon as the leaves have died down. D.

Yucca gloriosa in a cemetery.—This plant is almost alone in Britain as a perfectly hardy representative of the general features of such tropical subjects as Screw Pines and similar vegetation. And as such, in all stages of growth, but, especially when old and branched, it catches the eye at once, even when associated with other plants. Its stout, quaint trunk, simple or branched, crowned by a rosette of sword-like leaves, is highly suggestive of the Screw Pines, and only requires the prop-roots of the latter to complete the likeness. The special effectiveness of this plant was, the other day, forcibly revealed to me in looking through a large cemetery situated on the outskirts of Norwood. The place I found to be profusely planted with the usual deciduous shrubs and trees—umbrageous, upright, and pensive—and also with Laurels and Privets, Pines and polymorphous Cypresses, all well placed, whether suited as to soil or not, whether in harmony or incongruous in their combinations, because of the loving solicitude which placed them there. Amongst them, occupying no very prominent position, was growing an old, old plant of this *Yucca*. It was the only one of its kind that I saw in the cemetery, and was certainly unique in appearance. The cemetery would have been more attractive, perhaps, had it been freely studded with similar plants, singly and in groups. Too little is made of this attractive subject. We meet with one here, and another there, widely apart. And yet, taken all in all, it is one of the very best hardy ornamental Evergreens of moderate growth in these islands, and as such should not be practically overlooked, as it is now, by landscape and other gardeners.—GEO. SYME.

SHORT NOTES.—FLOWER.

Onosma tauricum.—Mr. John Wood, of Kirkstall, says (p. 443) that this plant has been killed in Yorkshire during the past winter. On my small rockery, twenty miles south of London, it is so rampant, that I shall have to cut some of it away. No glass was put over it during the past winter. *Polygonum Endlicherianum* and *Umbilicus spinosus* both perished, though covered with squares of glass; *Convolvulus mauritanicus* was very late in moving, but is now breaking strongly; *Erinus alpinus* has not survived.—F. H.

Narcissus poeticus stellaris.—This, the latest of all *Narcissi* to bloom, has been re-discovered. Last year I sent to London blooms of it in July. To Mr. Baker, of the herbarium, Kew, is due the credit of identifying it with Sweet's plant.—EDWD. MORSE, *Epsom*.

WILD AND GARDEN PRIMROSES.

There is, I think, no reason for assuming that the double forms of Primrose found so frequently in gardens are the progeny of our wild species, but rather of some similar form found in continental Europe, and from which the ancient French or Dutch florists developed the numerous double kinds which we now possess. The Primrose family, it is well known, is an extensive one; we find members of it in almost every clime, but especially in the Alpine, Caucasian, and Himalayan ranges of mountains; and, still further, we have found very beautiful hardy forms in Japan, and tender ones in China. From this latter country came to us many years ago that beautiful form *Primula sinensis*, or the Chinese Primrose, which our native florists have developed into one of the most varied and beautiful of winter greenhouse flowers. The charming and curious *Auricula*, perhaps the oldest of all our florists' flowers, is the product of one or more alpine species, which, it is assumed, has taken 200 years at least to develop into its present varied and beautiful forms. The wild Primrose of our woods takes badly to civilisation, i.e., garden culture. Transplant it from its native habitat into gardens, and unless the natural conditions of its existence are provided, it will soon die. Give it a cool, pleasant retreat and it may thrive, but even then only when the features of its wild condition are very closely reproduced. Hence it should not be removed from its native woods. May the day be far distant indeed when any floral craze shall depopulate our woodlands of one of their prettiest and earliest flowering plants. But whilst anxious to preserve wild Primroses in woods, we have no lack of hardy Primroses in our gardens far more varied and beautiful indeed than is usually imagined. Ordinarily all kinds of so-called spring flowers, or, more properly speaking, *Polyanthuses*, are called Primroses, but really these are distinct from garden Primroses proper, i.e., such as have the true habit, and also bloom very early; indeed much earlier than do the wood Primroses. For these kinds we are very much indebted to some Continental firms, and also to the cross-breeding effected by some home florists, so that the garden strain which, while showing habit of bloom and character of leafage similar to that seen in the wild Primrose, yet differs from it materially in possessing robust habit, and producing much finer blooms, varying in colour from pure white to the deepest crimson. If seed of these be obtained and sown now in shallow pans or boxes, using fine sandy soil, keeping it just moist, and during hot sunshine a little shaded, the seed will germinate in three weeks, and a fine stock of plants will be furnished, fit to dibble out into the open garden during the summer. These plants will begin to flower during the winter and give a rich profusion of bloom early in the spring. Seed may be saved from some of the best flowers, and if ripened may be sown at once; and if this practice be continued, the garden will never lack beautiful Primroses. Compared with these the wild Primrose flowers are but as Buttercups to Tulips. Very closely allied to these garden Primroses are the new strains of border, or, as sometimes called, fancy *Polyanthuses*. These are of Continental origin, and include many forms that are half Primrose, half *Polyanthus*; that is, send up Primrose blooms first, and later stout stems carrying trusses of blooms, as *Polyanthuses* do. The proper *Polyanthus* is assumed to be a product of the Cowslip and Oxlip, *Primula elatior* and *veris*. Very many of the flowers are twin or duplex, or better known as *Hose-in-hose*, but still very effective and beautiful. These border *Polyanthuses* include a wondrous variety of colours, and they need the same treatment as is recommended for garden Primroses. A. D.

What is *Narcissus major*?—I have been looking at the numbers of the *Botanical Magazine*, as referred to by the Rev. Wolley Dod in THE GARDEN (p. 418), and I take it that *N. major* of the *Botanical Magazine* (t. 51) is really the true *maximus*, drawn and painted, I suppose, from

bulbs grown somewhere on the London clay, a condition under which *Narcissi* only produce flowers two-thirds their proper size. Mr. Wolley Dod gives this striking contrast in detail in THE GARDEN (p. 423). When I venture a little further I find that the same plate (t. 51) in the *Botanical Magazine*, connected with Parkinson, fig. 1, p. 101, is the great yellow Spanish Daffodil (*pseudo-Narcissus hispanicus maximus*), described and grown well as I see it in my own grounds, and also in the College Botanic Garden, Dublin. There is no doubt that fig. 1301 in the 32nd volume of the *Botanical Magazine* is true *propinquus*, but there called *major*. Now it is between these two forms that I want to place *spurius*, which may be the major of the present Dutch nurseries, and which certainly should be called ugly in comparison with such magnificent blooms as Henry Irving, General Gordon (*S. coronatus*), Golden Spur, Yellow or Irish King, &c. Therefore by dropping the term *spurius* in future we shall know what is mock from what is real as regards the finest of all spring flowering bulbs. I am of opinion that the lower figure, t. 1301, in the *Botanical Magazine*, is a true illustration of what we know as *obvallaris*. And in the *Botanical Magazine* (xxxii., t. 130), the white *moschatius* illustrated, though lost to cultivation in England, has been re-introduced from Ireland, and is now to be known among whites as Gladys.—W. B. HARTLAND, *Temple Hill, Cork*.

***Lonicera sempervirens*.**—This fine Honeysuckle is now in full bloom. As a wall plant it is a valuable acquisition, and contrasts finely with other varieties. The foliage is neat and of a glossy green; the flowers a lovely coral, and produced in great abundance. From a distance it is striking and extremely effective. Like nearly all the Honeysuckles, it requires no special treatment. I have at present only seen it on walls; if, however, it could be grown without the protection of a wall, as, for instance, over arbours or other structures, and allowed to assume a natural form, so elegant a characteristic of the family, the effect would be greatly enhanced. So far as I am at present acquainted with this Honeysuckle, it appears to be perfectly hardy and fairly robust in growth. Where red flowers are desirable, it is in every way an excellent plant.—C. D.

Butterworts.—Some years ago when travelling in the Maritime Alps I remember seeing a Butterwort similar to the one described by "F. W. B." the other day in THE GARDEN. It was growing in considerable quantity on the face and ledges of wet calcareous rocks. The leaves when fully developed were much longer than those of *Pinguicula grandiflora*, and the flowers of various shades of rosy purple, with white or nearly white eyes or centres. Perhaps "F. W. B." will say if his plant was found on rocks or in alpine pastures, and also let us know the length of the leaves, though these do not develop to their full length till after the flowering season is over. I believe this plant to be *Pinguicula grandiflora* var. *longifolia*. I regret to say that I have now no living specimen of it. It is, however, well worthy of cultivation.—R. POTTER, *Holgate, York*.

Lily of the Valley out of doors.—I never knew anyone who was not delighted with the Lily of the Valley. There are some who can enjoy it from Christmas until the present time, but these are few compared with the numbers who desire to possess it and have no means of growing it indoors. In glass houses it becomes common in March and April, but it is only when it comes into blossom in the open in May that the opportunity occurs for everyone to have it who has a garden. Lily of the Valley is not, however, universally grown in the open, a circumstance for which it is difficult to account, unless it be that many have the impression that it is hard to cultivate—an idea not uncommon. That Lily of the Valley is difficult to grow is, however, a mistake. It is one of the hardiest and easiest plants to cultivate that we possess; severe weather does not injure it in the least. It is easily established anywhere, and it grows luxuriantly and blooms profusely in all soils

and situations. When grown in pots good roots blossom well, but nothing like so freely as when established in the open, as then the refreshing green leaves become a complete mass, and the delicate white fragrant blossoms are thrown up in crowds. When small roots are first planted they do not produce many flowers; but when they spread out and become established, they flower with the greatest certainty every year, and we find that a rather poor shallow soil suits this Lily better than where it is very deep and rich. The plantation of it which flowers best with us is one which has had no manure or any attention for four or five years. When once established, the best treatment it can have is simply to "leave it alone." Much interest might be created in large places by planting it extensively in pleasure grounds and woods, and in small gardens a few square yards of Lily of the Valley would give as much satisfaction as anything it is possible to introduce in the way of a hardy flower.—J. MUIR, *Margam, South Wales.*

The double yellow Wallflower.—One of the most striking objects in my little garden is a small free-branching double yellow Wallflower, bearing very fine spikes of large yellow flowers. Whether or not it is distinct from the old double yellow that we have known for so many years I am unable to say. It looks finer in every respect, but that is probably because I have grown some plants in pots, and treated them generously, though the spikes of bloom on plants grown in the open ground are equally fine. When in the country in the spring of 1884 I came upon a large patch of this double Wallflower in a cottage garden, and begged a few slips; they were made into cuttings, put into a sandy soil, and the majority of them struck root. Some were potted, others placed out in the open ground, but both have done well; the main and one or two of the side shoots of each plant have flowered, and the remaining shoots—which are thickly set on the plants, for they have a profuse growth—will no doubt flower next spring. Really it is a most charming plant, and one wonders it is so seldom found in gardens. The spikes when cut last a long time in water, in this respect being much superior to the single varieties. How many distinct types of double Wallflowers are there known to cultivators?—R. D.

Hepaticas after flowering.—The best time to plant Hepaticas is undoubtedly just as they go out of flower. I have experimented with them for the purpose of ascertaining the best time of year at which to remove them, and I am quite convinced, as just remarked, that the best time is as soon as they go out of flower, and the worst during the latter part of April and up to the end of July. I find that they will bear removal or dividing at the end of March, and suffer very little by the process, but if disturbed at the roots while they are developing their leaves they do not flower so well the next year. The double pink sort is the only one that will bear any amount of rough treatment, but even that old useful variety flowers best when properly treated. I do not find any difference in the behaviour of the single ones; they are all susceptible of injury, either to the roots or leaves. If taken up and replanted once in three years, that is as often as it is necessary to interfere with them, but it is very desirable to give them a change of soil occasionally. We simply take them up and replant them in a fresh position. I do not find them very particular as to the character of the soil, provided it is not too light nor too heavy. They appear to thrive best in a medium staple, and where they get a fair supply of root moisture. As regards position, if shaded after 11 a.m. they do better than when the sun shines on them all day. The leaves, I find, burn under a strong summer's sun earlier than is good for them.—J. C. C.

Milla biflora.—We have just planted our stock of this bulbous plant in a well prepared bed of soil in the open, but warm and sheltered from rough winds. As it is not a strong-rooting subject, we make the soil rather fine and light. The bulbs

are buried about 2 inches under the surface, and set 6 inches apart. If they do as well this year as they did last we shall be quite satisfied, for they kept flowering for a period of three months, some of the strongest bulbs sending up as many as three spikes of flowers during the season. It is quite evident that this Milla does better planted out than in pots. I should mention that our bulbs have been kept all winter in dry soil in a dry shed, from which frost has been just excluded, and I find that they are quite sound and plump. Last year I kept a portion in paper bags, but at planting time they had shrivelled up more than was good for them. Too much root moisture during summer does not suit this Milla, as it keeps the soil too cold about its roots.—J. C. C.

HYBRID NARCISSUS TRIANDRUS.

M. GOIHENEUF (p. 406) mentions that he has a hybrid between *Narcissus calathinus* (triandrus) and *N. pseudo-Narcissus* now flowering in his garden at Nantes. Mr. Frank Miles announced



Wild hybrid *Narcissus* from Portugal: *N. triandrus* × *N. pseudo-Narcissus*; colour, uniform sulphur.

last year that he had raised a hybrid from the same parents. Last summer Mr. Alfred Tait sent me three bulbs with strange flowers which he found growing amongst *N. triandrus* and *N. pseudo-Narcissus* in the north of Portugal, probably hybrids between these two. I send an exact life-size outline of a flower which one of these bulbs has just produced in my garden at Edge.

Edge Hall, Malpas.

C. WOLLEY DOD.

Fixed colours in Anemones.—Few garden flowers vary more when raised from seed than the

common *Anemone*, and yet the fixing of any particular variety or colour, so that it reproduces itself with exactitude, seems to be of easy accomplishment. Some years ago I procured from a cottage garden a single scarlet variety, where it had been cultivated for a long time, no other kind having ever been raised there. Curiously enough, I have never had any *Anemone* but this, and the long continued isolation to which it has been subjected has had the effect of fixing the variety, so that it comes true from seed. What seems rather curious to me is, that there is not the slightest variation in tint. The white eye is just the same size—in fact, there is no perceptible variation. One would have thought that, even if all the seedling plants came red, there would be some variation in intensity of hue; and the fact of their coming so true shows how completely isolation induces permanency of habit and colour, and in a measure enables us to comprehend how it is that plants generally in a natural state vary so little. I think it would be an advantage if the most distinct colours in *Anemones* were fixed.—D.

FLOWER PAINTING.

THE only objection that can be urged against "Veronica's" exhortation (p. 473) to paint flowers *in situ* is the unfortunately fatal one of impracticability, as far as art students are concerned. So long as towns continue to exist, it will be in them that the art schools will be found, and to counsel students in our smoke-canopied cities to paint flowers "as they are growing happily" is beside the mark. Of course those artists whose friends have extensive collections of interesting and beautiful plants cannot do better than adopt "Veronica's" suggestion of painting flowers in the open air; but since flowers are seldom beautiful when growing in towns, and since the professors of the arts are not usually possessed of the kind of garden to which it would be worth while to transport their pupils for study, the majority of art students must work at flowers in the studio.

The differences in the conditions of light out of doors and indoors are sufficiently well known, and are becoming daily more recognised in painting; but it does not seem obvious that the attainment of facility in the presentment of flowers under the latter modified conditions should be ignored prior to attacking the heart-breaking difficulty of endeavouring to reproduce the unattainable glow and brilliancy of flowers in bright sunshine. At any rate, the object is not to say what would be best to do were things as they should be, but to do what may be done, things being as they are. All flowers do not lose character when cut so utterly as "Veronica" would seem to imply; some, no doubt, look sad enough after a journey, but many have a wonderful power of recovering when placed in water, and the thing is to select kinds which will endure in a state of beauty when cut, as, for instance, is the case with *Chrysanthemums* of all sorts. Again, like the *Daffodil*, many *Lilies*, *Irises*, and flowers of other bulbous or tuberous-rooted plants, if cut in a semi-expanded state, in which they will travel uninjured, will open as well in water as out of doors; but then these are just the sort of subjects that are not generally ready to the student's hand. A *Fildes* or a *Fantin* can pick and choose either subject or locality at will, and if "Veronica" can bring painters of established reputation to give up a method which combines the greatest convenience with the largest income for a mode of treatment far more troublesome and not more lucrative, the world will be very grateful for the conversion, when it shall have been accomplished; but the choice is not so free among the younger workers, and here the demand is for material under circumstances in which it can be practically made use of.

What would be thought of an attempt to teach a child writing by setting it to copy any chance scribbled notes in the margin of some old book instead of selecting the fairest and most beautifully formed letters? Yet this is exactly what is going on in the employment of scraps of floral vegetation as subjects for flower painting. To say that a *Dandelion* is better growing in the sun than when half dead indoors is to utter a truism which cannot have become truer since 1836. But if beautiful flower pictures are

desirable, worthy flower subjects must be provided, and then their fleeting life may be perpetuated without being either stereotyped or "still." THETA.

ORCHIDS.

ORCHIDS AT SYDENHAM.

THERE are many collections of Orchids near London the owners of which do not send their plants to exhibitions. One must, therefore, visit the gardens in order to become acquainted with their contents. Mr. Augustus Sillem is the owner of a choice collection at Lawrie Park, Sydenham; and one is sure to find either some interesting or well-grown specimens in flower there at almost any season at which it may be visited. In the cool house *Dendrobium Jamesianum* is finely in flower, and a beautiful variety it is; its pure white flowers with a cinnabar-red stain at the base of the lip are very effective. If given too much heat, this plant does not succeed. It may be associated with *Odontoglossum crispum* as regards cultural details. It grows with *Disa grandiflora*, which is also making remarkably vigorous growth. The latter is placed close to a doorway, and therefore subjected to continual draught arising from opening and shutting the door—treatment which it seems to like. Suspended behind the door in a Teak basket is *Nanodes Medusæ*, a singular Orchid. It was figured in the *Botanical Magazine*, t. 5723, and has attracted considerable attention ever since. It is seldom, however, seen in such vigorous health as here, where it is producing four spikes of bloom. *Odontoglossum polyanthum* is the most distinct of the yellow ground section. It grows freely, and is a very desirable species to cultivate in a cool house. It was introduced from Ecuador some eight years ago. *Odontoglossum triumphans*, a bright and handsome species and well deserving of careful culture, had fourteen flowers on one spike. *Dendrobium transparens* is also very pretty; its small rosy lilac flowers, which are freely produced, are useful for small button-hole bouquets. I noticed some handsome plants of *D. Dalhousianum*, the flowers of which measure $4\frac{1}{2}$ inches across. *D. albo-sanguineum* was also in flower, and, suspended in baskets from the roof, had made good growths. A rather uncommon, but pretty *Epidendrum* is *E. radiatum biflorum*, the flowers of which are placed with their backs close to each other; the sepals and petals are cream-coloured, and on the lip, which is concave, are radiating purple lines. The Foxbrush *Aerides* is still the most beautiful in the genus to which it belongs, its long handsomely-branched spikes being very effective. *Oncidium Londeboroughianum* is doing well in a Cattleya house temperature; so is also *C. citrina* on blocks near the glass roof. In the warmest house are numbers of plants of the remarkable *Scuticaria Steeli*, the long terete leaves of which, 4 feet in length, hang downwards with peculiar grace. It succeeds well on blocks. Amongst *Phalenopsis*, which are all in excellent condition, the rather pretty *P. Luddemanniana* was in flower. Of these the collection contains many well-grown plants. All the Moth Orchids like a warm, moist atmosphere, and to be suspended close to the glass on the shady side of the house; at the same time they require to be shaded from the sun.

ORCHIDS AT "THE FIRS."—The collection at this place, belonging to Mr. C. Dorman, has long been celebrated for the fine varieties and choice species which it contains. A large conservatory is attached to the house, and this is kept rather warmer than conservatories usually are, so as to accommodate some beautiful *Cattleyas* in flower, which, intermixed with richly coloured *Azaleas* and graceful *Ferns*, form a very effective display. A large house adjoining is filled with specimen *Cattleyas*, *Lælias*, and similar plants, some of which are immensely large, amongst them being some of the white *Lælia anceps*, *Cattleya Skinneri*, and other popular members of that genus. One house is set apart for

Masdevallias, conspicuous amongst which is a handsome form of *M. Veitchi*, known here under the name of *grandiflora*. It is distinct from Mr. Southgate's fine form, named *major*, and I should say superior to it. The Bull's Blood variety of *M. Harryana* is the most striking as regards colour amongst the varieties of this genus, but the flowers lack symmetry. *M. Shuttleworthi* is very distinct and elegant, and I prefer it to another favourite, viz., *M. Wagneri*, although the latter is a charming little plant. The *Chimæroid* section is well represented, the best being *M. Chimæra Roezli*, the darkest form of the species, and very striking. The variety *Backhousiana* is also in flower, but it is not so large as the form which I saw in the York Nursery under that name when it was first introduced. There is also a large specimen of *M. rosea*. This species is pretty enough in its way and distinct from anything else, but it must have disappointed those who paid high prices for it; the flowers are pale purplish rose in colour and freely produced. The *Odontoglossum* house is also at present interesting on account of the varieties of *O. crispum* which it contains. In *O. spataceum*, which is pale yellow, the petals are narrow and crumpled, and spotted with dull purple at the base. *O. triumphans* is very fine, as are also *O. Cervantesi*, *O. Edwardi*, and *O. Andersonianum*. There is here an excellent arrangement for keeping the atmosphere moist—immediately under the stage a very shallow tank filled with gravel and water, which, when not needed, can be drained off. A house about 5° warmer—say about 50° in winter and early spring—has been set apart for such Orchids as *Odontoglossum vexillarium*, *Dendrobium Jamesianum*, and *D. infundibulum*; these two are so nearly allied, that they can only be distinguished by the colour in the centre of the pure white flowers; both are easily grown. Another Orchid making a brave display here, too, is *Epidendrum vitellinum majus*; one variety, particularly fine, has flowers large in size and of great substance. *Maxillaria Sanderiana* when in flower, as it is here, at once rivets attention; it is the best species by far belonging to this genus; its flowers, which are very large, are white with the exception of the lip, which is dark reddish maroon, the outer portion being very dark; the base of the petals is also irregularly marked with the same colour, but lighter. It seems to grow freely in a pot in the usual compost, consisting of Sphagnum, peat, and charcoal. The *Cattleya* house and the next compartment for East Indian Orchids, contain many interesting plants. *Dendrobium cretaceum* is very prettily in flower; its lip is marked with very pale yellowish lines. *D. Jenkinsi*, another old, but beautiful *Dendrobe*, may be seen here growing freely on a block and covered with its rich, deep yellow flowers. A lovely *Dendrobe*, grown under the name of *D. amethystoglossum*, was very charming, its drooping spikes being well furnished with pretty white flowers, the lip of which is violet. *D. Dearei* is very fine; it has seven and eight flowers on a spike. *D. suavissimum*, a handsome plant, bears but four spikes. *Cattleya Arnoldiana* is of quite the *C. Mossiae* type; the sepals and petals are white when they first open, but blush-white afterwards; the lip is veined with a purplish tint and the throat yellow. *C. Lawrenciana* is also in fine flower; this species seems to be very free, as it is to be seen in flower in most collections. Of *C. Aclandiae*, a very dark variety, there was one handsome specimen with six flowers open. A very large specimen of *Cologyne Massangeana* was producing lovely flowers, the distinct appearance of which, together with its long pendulous spikes, has made this species very popular. *Galeandra nivalis* is a novel and desirable Orchid, and was in good bloom; the greenish buff sepals and petals, the white lip and dull purplish spots at its base form a pretty contrast. *Odontoglossum citrosimum* is a handsome species in any form, but the variety *punctatum* here is greatly in advance of the others, as it is thickly beset with violet spots. The spikes of this species when grown in pots or baskets should be allowed to hang over their sides when suspended from the roof. J. D.

HARDY ORCHIDS.

THAN the Madeira Orchis (*O. foliosa*) there is perhaps no more stately or desirable member of the family to which it belongs. Of the easiest culture in any damp, peaty bed, producing grand spikes of rosy lilac flowers, and lasting for a considerable time, this perfectly hardy plant is certainly deserving of more extended cultivation than it at present enjoys, for, except in a very few gardens, it is rarely seen. Once known, it will be always appreciated as one of our most ornamental peat-loving subjects. The Marsh *Epipactis* (*E. palustris*) is another plant of the easiest culture, its requirements being somewhat similar to those of *Orchis foliosa*. Having a widely-creeping root-stock, it should be allowed ample space; and when thoroughly established, left alone, as, like most of the fibrous-rooted Orchids, it is rather impatient of disturbance. The raceme of large pinky white flowers is both interesting and ornamental. *E. ovalis*, another rare and beautiful member of the Helleborine family, is readily enough cultivated as a rock plant, if only its natural requirements are attended to in planting. Good loam interspersed with fragments of limestone and old lime rubbish suits it well, and the warmest and sunniest position in the garden; at least, under these conditions it has lived, flowered, and increased with us for many years. It is a small-growing plant, rarely exceeding 6 inches in height, with a raceme of small pinky purplish flowers, somewhat resembling those of *E. palustris*, but hardly so ornamental. Some years ago this pretty plant was fairly abundant on the Orme's Head—one of its few British stations—but it is now almost, if not quite, extinct. We cannot endorse the opinion of some botanists, that this is but a variety of *E. latifolia*, for the formation of both flower and root, and other minute technicalities are widely different from those of that well-known species.

In a little shady nook, behind a limestone boulder, a couple of plants of that rare little highland Orchid, *Liparis Læseli*, has for the fifth season in succession displayed their sweet, though rather inconspicuous, flowers, but, we must add, never so strongly as lately. Strange to say, although in the most luxuriant health, they have never increased in number, the two original bulbs being just as when planted. For the benefit of anyone who wishes to attempt their cultivation, we may add that they are planted in sandy peat and brick-dust in a rather damp shady spot, and carpeted over with *Campanula hederacea*. *Orchis pyramidalis* has increased considerably under cultivation, for, although many plants have been given away, the original number still remains—a curious problem to solve. Growing close to it is a fine tuft of *Herminium Monorchis*, the result of a single plant planted four years ago. There are now eight plants. It is well named the Musk Orchid, for certainly the flowers are deliciously fragrant, thus to a great extent making up for their diminutive size. Amongst that curious genus *Serapias* there are some ornamental species, notably *S. Lingua* and *S. neglecta*. The curiously coloured flowers and long tongue-shaped lip of *S. Lingua* render it at once striking and beautiful. It is easily grown, even in an ordinary border, indeed, more easily than any of the Continental species. *Orchis globosa*, from Italy, very nearly resembles in colour and arrangement of flowers our native *O. pyramidalis*, and is a species that is well worthy of a place in any garden, large or small. With us it has done well for a number of years, flowering freely and gaining in strength and luxuriance as it becomes more and more acclimatised and established. The flowers are bright pink and arranged in a dense globose spike. By devoting a piece of ground solely to the cultivation of hardy Orchids, they will succeed much better than when planted in the ordinary border, and they will form quite as interesting a feature of our gardens as the majority of plants now commonly cultivated. A. D. W.

Orchids in flower at York.—A walk through the extensive and well-managed Orchid houses in the

York Nurseries is nearly always most interesting, especially so just at this season when many varieties are in bloom. When going through them a few days since I noticed amongst others growing in a large span-roofed, unshaded house, already described in your columns, several grand varieties of *Lælia purpurata*, some, with pure white sepals and petals and deep, port-wine-coloured lips, being very handsome. The spikes of one or two plants were much shorter than usual, and consequently more dense and compact. There were also some very fine plants and varieties of *Cattleya Mossiæ*. Of *Cattleya Skinneri* there were several fine plants well in bloom, one of them, as in the case of *Lælia purpurata*, showing a more compact habit in the way of bloom-spikes than ordinary. This was a grand sort as to colour, being of a magenta-crimson shade with a yellow eye. The comparatively new *Cattleya Lawrenciana* was very noticeable. I learned that this variety has the great merit of being a free bloomer, not more than 2 per cent. of the plants in this nursery having failed to flower. *Cattleya gigas* and its varieties were showing plenty of sheaths; perhaps the free sunshine and abundance of air usually given on all favourable occasions may have something to do with this somewhat shy-blooming variety being more free than usual. In the cooler end of the Mexican house *Odontoglossum vexillarium* was coming nicely into bloom, one or two dark varieties of it being very pretty. In the cool houses were, amongst other kinds, a fine plant of *Odontoglossum nevium*, with five or six spikes, and a few good examples of *O. crispum*. The *Masdevallias* were very striking. In the distance, the first sight of the house, looking at it from one end, reminded one of a houseful of zonal *Pelargoniums* of good kinds in full bloom, so freely were the plants in flower. All the well-known kinds were there represented, and many of them of fine varieties. Amongst the more rare were *M. leontoglossa* and *Chimæra*.—H. J. C.

ORCHID EXHIBITION AT HOLLOWAY.

It is fortunate that Orchid shows, which are now the fashion in London nurseries, are not all alike, or they would become monotonous. On the contrary, so far as we have seen, each is distinct in character, and all are extremely beautiful. They differ chiefly in manner of arrangement. Mr. B. S. Williams' show this year in his nursery at Upper Holloway we consider surpasses all others which he has hitherto held, not only in extent and variety, but also in arrangement. The show house is a great building, over 100 feet in length, with a broad path through it. At the back there is quite a little forest of noble Palms, Cycads, Aroids, and the like, and these form as it were the groundwork of the Orchid show. The Orchids are thus intermingled with foliage in a beautiful way, their brilliant colours being toned down by the greenery, and that is what is wanted in order to derive the fullest idea of Orchid beauty.

The present is the best time to see the greatest variety of Orchids in bloom, and onwards for the next month this exhibition will afford a real treat to the Orchid lover, whether he goes there to see variety or finely grown specimens; indeed, the chief feature of this show is the magnificent plants upon which Mr. Williams justly prides himself. Here you may see matchless specimens of such grand Orchids as *Lælia purpurata*, *Cattleya Mossiæ* and *Mendeli*, *Vandas*, and others, and these *bona-fide* specimens have a very different appearance from the "made up" specimens which are generally seen at flower shows. Some of the largest plants here are growing in bushel pots, and in the case of the *Lælias* bear half-a-dozen or more noble spikes, while some of the plants of *Cattleya Mossiæ* carry from two to three dozen flowers.

LÆLIA PURPURATA, being one of the specialities of the nursery, is represented, not only by large plants, but in numerous variety, and at the present time one may see half-a-dozen or more superb forms, some even rivaling the finest that have originated here. For instance, there is one we saw named *Reginæ*, which even eclipses in colour the splendid variety *Williamsi*, which is considered to be the standard of excellence in *Lælia purpurata*. The *Reginæ* variety has not such a broad labellum, but it is richer and deeper in colour, and the sepals and petals are also stained with a

much darker purple. The golden yellow of the throat, which is also beautifully pencilled, adds to the attractiveness of the flower. On one of the spikes of this variety there were five flowers, and one can imagine the beauty of such a specimen. Another variety remarkable for colour is that named *bella*, which was certificated last week at the Regent's Park. Though classed as a variety of *Lælia purpurata*, it is with much reason supposed to be a hybrid between that *Lælia* and *Cattleya lobata*, as it combines the characters of the two. Its flowers have intensely dark lips, almost a black-crimson, while the sepals and petals are only slightly lighter. Of quite an opposite character is the variety *Russelliana*, which is remarkable for its lightness of tint, the petals being snow-white and the labellum deep pink, lined with rose. It is as lovely as it is rare, and it is not surprising that such a high price is put upon it. The best variety of *Lælia purpurata* we shall describe is *albo-lilacina*, an awkward name for a very charming plant, whose flowers have pure white petals and a broad lip of rose-pink, netted with purple. But how can the subtle beauty of such a plant be described? It must be seen. The white variety (*alba*), once considered the choicest of Orchids, is here more plentiful than the purple-petalled type. There are dozens of fine plants of it carrying spikes of from four to seven flowers.

Among the *Cattleyas* in bloom the more notable are *C. Mendeli*, *Warneri*, and *Mossiæ*, and of each one may see varieties differing much in point of size and beauty of colouring. Of *C. Mendeli*, the queen of the varieties is that named *superbissima*, of which a coloured plate was given in THE GARDEN some time since. To those who know what *C. Mendeli* is, this grand variety may be described as having flowers a third larger than ordinary, with broader sepals and petals, and an enormous lip exquisitely frilled at the margins. We were fortunate in finding the lovely *C. Morganii* in flower, which we had not previously seen. It belongs to the *Mendeli* group, but is more like a *Trianae*. The flowers, which are not large, have pure white petals, sepals, and lip, the only colour being a dash of amethyst at the tip of the latter. It is one of the most distinct of all *Cattleyas*, for no one would mistake it for any other variety. There are very few plants of it in cultivation; hence it is much sought after.

THE *CYPRIPEDIUMS* in bloom represent several choice species, notably *C. Druryi*, a singular-looking plant with yellow sepals barred with black. There are also *C. selligerum majus*, one of the finest of the hybrid *Lady's Slippers*; *C. vernixium* and *Ashburtonia*, other handsome hybrids; *C. ciliolare*, in the way of *superbiens*, but darker; *C. Lawrencianum*, one plant having as many as twenty flowers; and *C. caudatum*, whose long-tailed petals are always a source of wonder to those who see the plant for the first time. There is likewise the beautiful hybrid *C. albo-purpureum*, which, we believe, has *caudatum* for one of its parents. The flowers are as large as those of the parent, but the tails are not nearly so long. The colour partakes of its other parent, the charming *C. Schlimi*, being of a delicate rose-pink.

THE *DENDROBES* are represented numerously, and one may find amongst them such little seen species as *D. Draconis*, which is in the way of *D. Jamesianum*, but smaller in flower; *D. Falconeri*, *Bensoniæ* and *lituiflorum* may be seen in bloom, but none produce a finer effect than *D. thyrsiflorum* and *densiflorum*. Of the latter there are two magnificent specimens, each carrying a score of golden clusters.

ODONTOGLOSSUMS, of course, contribute largely to the show, and the best types of such as *O. Alexandræ* and *O. Pescatorei* intermingle with rarer kinds like *O. hastilabium*, which is represented by one of the best forms we have seen. *O. vexillarium* may be seen in great variety, and also *citrosium*; and not less remarkable is the *Lily of the Valley Orchid*, *O. pulchellum majus*, whose wax-like flowers produced amidst grassy foliage make it a favourite with everyone. There are some grand specimens, each carrying half a dozen or more spikes, of such species as *O. luteo-purpureum*, which will shortly be in bloom. The *Oncidiums* worthy of notice include the golden yellow *O. concolor* and *Marshallianum*, which are the showiest, and among rarer species is a small dwarf one named *O. Suttoni*. It is tufted in growth, and

bears crowds of small flowers. The greatest rarity among Orchids, however, is *O. tetracopsis*, a really handsome species belonging to the *O. serratum* section. The flowers are over 2 inches broad, with brown sepals and petals, bright yellow barred with chocolate. The spike is long and irregularly branched, and bears its flowers in clusters of threes and fours. Its ally, *O. macranthum*, is among the noblest of the species in flower.

Other noteworthy Orchids in bloom at the present include a very fine variety of *Masdevallia Harryana*, named *grandiflora*; the flowers are about 3 inches long by 2 inches broad, and are of a splendid magenta colour; *Odontoglossum polyanthum*; *Miltonia Weltoni delicata*, the prettiest pale form we have seen; *Houlletia odoratissima antioquiensis*, certificated at South Kensington on Tuesday; *Anguloa Clowesi*, a grand plant with several large flowers more like a golden yellow Tulip than an Orchid; *Thunia Marshalli*, with pure white flowers and glaucous foliage, elegant in growth; *Masdevallia Chelsoni*, a pretty hybrid; *Scuticaria Hadweni*, a rarely seen Orchid with singular terete foliage and large handsome flowers. The above form the chief elements of the show as it is now, but presently its features will be altered by other classes of Orchids, notably by the crowds of specimen *Lælias*, *Cattleyas*, such as the forms of *gigas* and *Warneri*, *Odontoglossums* and *Masdevallias*, of which latter there is a houseful of plants fairly bristling with flower-spikes in the bud stage.

Orchids from Lochmaben.—Judging from a gathering of Orchid blooms sent to us by Captain Vere-Hopegood, from Elshieshields Tower, Lochmaben, it is clear that the collection there must be rich in good varieties, for every flower sent represents what we consider fine forms of the species. There is a magnificent form of *Cattleya Mendeli*, and another of *Lælia elegans*, the latter remarkable for its broad and highly coloured labellum. The flowers sent of *Odontoglossum Alexandræ* and *Phalænopsis grandiflora*, both from small plants, indicate that their culture is understood. The collection also contains a plant of *Lycaste aromatica*, carrying between eighty and ninety flowers—a fine specimen.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MAY 21 AND 22.

ONE of the best summer shows we have seen at the Palace was held last week. It was not only extensive, but the high quality of the exhibits was remarkable. They occupied the central transept and the aisles, and here we must say a word respecting their arrangement, which was out of the ordinary run and unusually effective. Instead of the customary long lines of stages with the plants put upon them in such a manner that they could not be seen, the latter were arranged in groups on the floor—a way by which they could be seen on all sides; intervening spaces were left, and therefore the public could move to and fro freely. In one place were groups of brilliant *Azaleas* placed in an oblong mass; in others were stove and greenhouse plants, Ferns, Palms, Crotons, and other large plants—in fact, every plant except small ones, which alone were placed on benches. An arrangement such as this is a step in the right direction, and Mr. Head, the garden superintendent, deserves credit for having introduced it. He will, however, we suspect, not receive thanks from some of the exhibitors, especially those who show stove and greenhouse plants—all fronts and no backs—in fact, fan-trained plants, or only half plants, as someone remarked at the show. By arranging them in groups on the floor their defects are seen at a glance, as one exhibitor discovered to his cost. His plants were shown at the Regent's Park, and on the grassy banks there fan-trained specimens looked admirable, because one could not see their backs; but here, crowd them how one would, their flowerless backs would obtrude themselves; consequently another collection, inferior in some respects, but better-grown plants, gained the prize.

The schedule, as usual, was a lengthy one, there being no fewer than forty-five classes, representing prizes to the amount of over £200. The main

features of the show were the fine-foliaged plants, particularly Caladiums and Ferns. Roses, Azaleas, Calceolarias, Pelargoniums, Dracenas were also uncommonly good. Orchids, which, as a rule, are not shown well here, were numerous, but were not remarkable, nor were the stove and greenhouse plants compared with what they were a day or two previous at the Regent's Park. The Azaleas from Mr. Turner, of Slough, attracted everyone, and one cannot imagine how they could be better. The collection of nine large plants were perfect cones of bloom. They consisted of old favourite sorts, such as Chelsoni, Duc de Nassau, Stella, Grandis, Comtesse de Flandre, Reine des Fleurs, and A. Borsig, which is still one of the finest whites. The Slough collection of small plants in 9-inch pots was not less remarkable, every plant being the perfection of good culture. We noticed among this group of eighteen such beautiful sorts as Grandis, Cordon Bleu, Mrs. Turner, Flambeau, Duchesse de Nassau, Roi de Hollande, Irma, and Jules Vervaeke, all of which would make a worthy selection in any garden.

The Caladiums, from Messrs. Laing's Forest Hill Nurseries deserve special mention on account of their superb growth, all the nine plants shown in the group being huge specimens, about 4 feet through and as much in height. The sight of such a noble group as this makes one ask why Caladiums are not grown in gardens generally so fine as these. As a rule, they are small plants, not nearly so noble as when large. Messrs. Laing's selection included such beautiful sorts as Candidum, Ferdinand de Lesseps, Mithridate, Clio, Comtesse de Condiva, Fritz Kaeclin and Luddemannianum, every one of which may, without hesitation, be chosen as good kinds. There was another collection of well grown Caladiums, but not being so large did not attract so much notice as the Forest Hill monsters.

ORCHIDS, as we have said, were not remarkable either in the collections or groups, though in the latter there were numbers of interesting kinds, particularly in that from Mr. Southgate's garden at Streatham, which won the first prize as a group of not less than forty. These were tastefully arranged with Palms, Ferns, and other foliage, and had a beautiful effect. C. Mossie, Warneri, Skinneri, Odontoglossum crispum, nebulosum, and Pescatorei, Masdevallia Chimera and Harryana, Dendrobium thysiflorum, Falconeri, Ainsworthi, Farmeri were among the more notable plants. Mr. James' collection from Lower Norwood contained fine plants of well-known kinds, and that from Mr. Hyatt's garden was praiseworthy. The best collection of nine plants in the open class was that from Mr. Cobb, of Sydenham, who had a capital collection made up of Lælia purpurata, C. Mossie, a fine mass; Odontoglossum vexillarium, Alexandræ, citrosimum, Cypripedium Lawrencianum, Cattleya Skinneri, and Dendrobium thysiflorum. In Mr. James' second group was a grand specimen of Cattleya Mendeli, carrying about a score of blooms, also Dendrobium Jamesianum and D. thysiflorum. The amateurs' class was more numerously represented, Mr. Cobb heading the list with a good half-a-dozen, but there was nothing remarkable about any of them.

Among the Ferns the finest were those from Handcross Park, all being huge specimens admirably cultivated, and no little skill must have been exercised in bringing to such perfection the two great plants of Gleichenias (G. rupestris and rupestris glauca), seeing that they are among the most difficult to manage. They were both about 4 feet through and as much in height. Still more remarkable than these was a plant of a most elegant Fern, not new, but very little known. This was Thyrsopteris elegans, a near ally, we believe, of the Davallias. It is at the same time one of the noblest and most elegant Ferns we have ever seen. In order to describe it, the reader must imagine a frond of a finely-cut Davallia, a foot and a half across, mounted on stout stems ranging from 2 feet to 5 feet high. It is not too much to say that this Fern was the most remarkable exhibit in the show, and we shall be surprised if, after seeing it in such perfection, every Fern-lover will want to grow it. The other Ferns in the first-prize group by Mr. Rann, from Handcross, included two fine Tree Ferns, Dicksonia squarrosa and Cibotium Schiede, and a

huge Bird's-nest Fern, Asplenium Nidus-avis. In the other Fern groups we noticed a particularly fine specimen of the climbing Lygodium scandens, from Mr. Nelson's garden. It was a tall cone-trained plant some 6 feet high. Accompanying it was a huge plant of Gynogramma chrysophylla, one of the Gold Ferns. Nephrolepis davallioides furcans and Davallia polyantha, with claret-stained young fronds, were among other notable Ferns shown.

THE FINE-FOLIAGED plants were excellent, and in this class also Mr. Rann showed the finest among the amateurs. He had a gigantic and highly-coloured plant of Croton multicolor and Prince of Wales, two of the best, and some gigantic Palms and Cycads, which had a fine effect, arranged as they were in an isolated group. Canon Bridges' garden at Beddington contributed some grand-foliaged plants, among them being Allocasia crystallinum and Dieffenbachia Chelsoni; and in the open class Mr. Penfold showed, from the same garden, the finest Asparagus plumosus we have seen, a specimen 4 feet across and in the rudest health. This Asparagus is beautiful in a small state, but large specimens like this shows the elegance of the plant better. Mr. James's first prize group contained, among other fine plants, a grand specimen of that rare Cycad, Macrozamia Denisoni. Crotons and Dracenas are always a fine feature of the Crystal Palace shows, as good prizes are offered for collections of them. There was, however, no novelty about them, the same sorts being shown as in previous years, and, as usual, a local exhibitor, Mr. Causton's gardener, showed the finest and won the highest prizes. The best Dracenas came from Mr. Crowley's garden at Waddon. His gardener, Mr. King, showed excellent specimens of such well-known sorts as Baptisti, vivicans, anerleyensis, amabilis and recurva, all being large and highly-coloured examples.

The Calceolarias, Gloxinias, and Pelargoniums gave a glow of colour to the central transept. The dozen Calceolarias, from Mr. James, of Farnham Royal, who headed the prize list, were simply perfection, the strain being the finest, and the plants with heads of bloom 18 inches across. Mr. Hill and Mr. Phillips showed large specimen Pelargoniums excellently, the most conspicuous sorts being Fortitude, Sultana, Isabel, Madame Thibaut, Jeannette and Martial.

The Roses, from Messrs. Paul, of Waltham Cross, which formed a group below the stage, were the centre of attraction, both the pot plants and cut blooms being excellent. The group contained many new sorts, and not a few of the sorts that have emanated from the famous Waltham Cross rosaries, and among these may be mentioned Duchess of Bedford, unsurpassed among deep crimson, Masterpiece, Lady Sheffield, Crown Prince, Queen of Queens, and Emperor, the last named being a very deep crimson-rose, particularly beautiful in the bud state; hence it is a valuable button-hole Rose. Among the Tea sorts none were more beautiful than the new Etoile de Lyon, which has primrose-flushed flowers, contrasting charmingly with the bronzy red new foliage. Another group of pot and cut Roses was from Mr. Rumsey, of Waltham Cross, and these with the competitive groups formed quite a feast of Roses for the visitors, who seem to appreciate them better in May than at midsummer.

The groups arranged for effect were but two in number, from Messrs. Laing and Messrs. Hooper, who respectively took the first and second prizes. Both were good, the first group being undoubtedly the best, as regards the quality and variety of the plants comprised in it, but there was much to admire in the second group, which was not too crowded, and the plants formed little groups of one or more harmonising colours; therefore did not present that spotty and jumbled appearance which mixed groups generally have. For instance, there were clusters of Gloxinias, and Carnations, and Petunias, surrounded by elegant greenery, and these formed a groundwork out of which arose stately Palms, Ferns, and other fine-leaved plants. Messrs. Laing's group was remarkable for its brightness, the colour being derived by crowds of Orchids, Begonias, Gloxinias, and similar showy plants, intermixed with beautiful leaved plants in a tasteful way. The group was arranged in a corner, and not a pot or stage could be seen, the plants being brought down to the floor.

The miscellaneous classes included those devoted to bouquets and other flower arrangements, some of which were tasteful, but those which took the first prizes we did not consider the best. Among other objects of interest was a very fine collection of Apples, in excellent preservation, from Messrs. Cheal, of Crawley. There were about fifty dishes, representing varieties which one would scarcely expect to see in May.

PLANTS CERTIFICATED.—First-class certificates were awarded to Mr. Laing for the following plants: Begonia Marquis of Stafford, a beautiful double-flowered tuberous sort; Begonia Charmer, a large single variety, flowers large, finely formed, and rose-pink with white centre; Caladium Comte de Germiny with crimson transparent leaves; C. Raymond Lemonier, with crimson leaves edged with yellow. Mr. Clay also took a first-class certificate for Pelargonium Delight, one of the decorative section, with white flowers spotted with carmine.

A full prize list will be found in our advertising columns.

ROYAL HORTICULTURAL.

MAY 25.

PRIZES being offered for various subjects, such as Roses in pots, Orchids, Calceolarias, &c., these, added to the contributions from the floral committee, made a very gay and attractive show. Groups of hardy flowers were again to the fore, and visitors to the "Colonies" found much to admire. A great many subjects were submitted to the floral committee, but only a few certificates were awarded.)

CATLEYA MENDELI DUKE OF MARLBOROUGH.—A magnificent variety, of which a very fine specimen was exhibited by Messrs. F. Sander & Co., St. Albans. It had several flower-stems, the blossoms being large and extremely attractive. The sepals and petals are broad, of thick texture, white at first, afterwards flushed with the most delicate mauve. The lip is unusually large and well formed, lower part rich bright amethyst-purple and exquisitely fringed; the throat amber-yellow, with purple lines. The plant bore a dozen flowers, and was the centre of attraction.

HOULETTIA ODORATISSIMA ANTIQVOTIENSIS.—A new variety, having large flowers with reddish maroon sepals and petals; the lip white, with slight margins of reddish maroon and a pale yellow crest. Its spike is erect, and bears about half-a-dozen flowers. From Mr. B. S. Williams, Victoria Nurseries, Holloway.

ODONTOGLOSSUM VEXILLARIUM SUNRISE.—A fair-sized pale form, the upper portion of the flower almost white, the tips of the sepals and petals white, the lip delicate lilac-purple shading off to almost white. From Mr. H. M. Pollett, Bickley.

VANDA CERULESCENS VESTA.—The sepals of this variety are white instead of pale blue, and the lip is of a pale violet-purple, distinct and pleasing. From Capt. Vipani; sent through Mr. F. Sander.

PELARGONIUM (SHOW) PURPUREUM.—One of Mr. Foster's seedlings, shown by Mr. Turner from the Slough collection; flowers large and a little rough, lower petals rosy purple, bright shaded upper petals with margins of vermilion and pink, large white throat, somewhat starry, the white running out into the purple of the lower petals.

AMARYLLIS HER MAJESTY.—A very distinct variety of the reticulata group, differing from the usual hybrids seen at the early spring shows in that it will flower at almost any season of the year. It bore a stem carrying four flowers of a dull wine-crimson mottled with narrow pale veins. From Mr. B. S. Williams.

GLOXINIA MISS CANNELL.—A large and attractive, erect-flowering variety; the flowers large, white, with an irregular purple band round a white throat; good form and substance and free blooming. From Messrs. H. Cannel and Son, Swanley.

LITHOSPERMUM GRAMINEIFOLIUM.—A distinct and handsome species, having evergreen tufts of firm, grass-like leaves, and flower-stem 8 inches or so in height, bearing drooping clusters of brilliant deep blue flowers. From Mr. T. S. Ware.

PEONIA ARBOREA MADAME LAFFAY.—A very fine variety; the centre of the large double flowers bright

rose with a broad margin of pale pink. Mr. T. S. Ware.

Other Orchids shown included a fine specimen of *Saccolabium curvifolium*, carrying fifteen spikes of flowers, from Major Lendy (awarded a cultural commendation), and from the same exhibitor came cut specimens of *Lælia* and *Cattleyas*. Mr. Williams had *Oncidium tetracopis*, with bright yellow sepals spotted with brown, the petals brown, the upper one margined with yellow. *Lælia Russelliana*, apparently a pale lipped variety of *L. purpurata*, from Provost Russell's collection at Falkirk, and another variety named *Reginæ*, the sepals and petals pale lilac-purple. Mr. Henry Little, Barrons, Twickenham, had *Cattleya Mendeli* Masterpiece, with white sepals and petals, the lip having a central blotch of purple margined with white on either side, and *C. Trianae Littleana*, pure white, with deep yellow lip.

Pelargoniums were shown by Mr. C. Turner, who, in addition to the certificated variety, had *Magnate* (Foster), pink, lower petals flaked with orange-carmine, white throat, and dark top petals, large and striking; *Mandarin*, rich bright crimson shaded with maroon, black top petals with broad margin of vermilion, very rich and striking in colour, good form, and very free; *The Czar*, rich bright vermilion lower petals, white throat, dark top petals, fine form; *Margaret*, pure white lower petals, dark top petals margined with carmine and having a narrow white edge; *Outlaw*, carmine and pink lower petals, white throat, dark top petals; and *Alice*, a decorative variety, light, and very pretty. Messrs. J. and J. Hayes, Edmonton, had *Criterion*, bright crimson top petals, magenta-crimson lower petals; *Gladstone*, dark top petals with broad margin of carmine-rose, pale magenta lower petals, with slight violet centre; and *Albert Victor*, white, with pale red blotches, and white margins to the petals.

Messrs. Hooper & Co., Covent Garden, had a basket of double *Petunia Empress*, good in form, very free, and of a bright rosy pink colour. Messrs. James Carter, Dunnett, and Beale, High Holborn, had a collection of plants of their prize *Mimulus*, the flowers of which are large and striking in colour. Messrs. E. H. Krelage & Co., of Haarlem, sent several flowers of *Tulips*. Messrs. William Paul & Son, The Nurseries, Waltham Cross, had twelve boxes of cut *Roses*, making a very interesting exhibit. Mr. W. Rumsey, Joyning's Nursery, Waltham, had boxes of cut *Roses* also. Mr. Fredk. Roemer, Quedlinburg, Germany, sent a collection of cut blooms of fancy *Pansies*, some of them large and striking. Mr. T. S. Ware, of Tottenham, had a large collection of hardy flowers, including the following fine *Tree Pæonies*: *Berenice*, *Lambertina*, delicate blush, large and fine; *Louise Monchild*; *George Paul*, bright purple; *Rubra odorata*, bright pink, &c.; the new double form of *Iberis sempervirens*; *Irises* in variety; *Dodecatheon splendens*, *Anthericum Liliastrium*, *Sarracenia flava*, *Cypripedium parviflorum*, *Gentiana acaulis*, &c. Messrs. Barr & Son, King Street, Covent Garden, had a large collection of hardy flowers also, including *Tulip Golden Star*, a rich golden self, and various other forms, *Irises*, *Marguerites*, *Carnations*, *Pæonies*, &c.

The Competitive Classes.

Although there were but ten classes in the schedule of prizes offered for plants, the prizes being fairly good, yet the competition generally was poor, *Clematises*, for instance, and amateurs' *Azaleas* finding no entries. The show was redeemed from mediocrity by the admirable pot *Roses* from Messrs. Paul and Sons and C. Turner, the grand bank of show *Pelargoniums* from the latter, also the charming bush *Azaleas* from Mr. Turner, and the truly superb lot of *Calceolarias* from Mr. James, of Farnham Royal—which, whilst showing as fine quality and cultivation as could well be looked for in these showy greenhouse plants, were only honoured by a bronze medal; whilst a very poor dozen plants, shown by an amateur, obtained as a second prize a sum of £2. With so much money saved in the schedule—probably one-half of the amount offered—something better should be done for honorary exhibitors than the granting of valueless bronze medals.

ROSES.—These were in great force, the best twelve plants in 9-inch pots, neat bushes, fresh and well

bloomed, coming from Messrs. Paul & Sons, Cheshunt, Mr. C. Turner, Slough, following suit with fresh plants, less perfectly bloomed; and Mr. Rumsey, Waltham Cross, with a moderate lot. Of *Teas* there were in good form *Etoile de Lyon*, *Céline Forestier*, *Souvenir d'un Ami*, *Madame Willermoz*, and *Innocenti Pirola*, all charming; and of H. P.'s, *Camille Bernardin*, *Comtesse de Serenye*, *Comte de Paris*, *Merveille de Lyon*, *White Baroness*, *Marguerite de St. Roman*, *Edouard Morren*, *Lord F. Cavendish*, and *Comtesse de Camando*—all good. In non-competing groups from Messrs. Paul & Sons, and Messrs. W. Paul & Sons, Waltham Cross, both firms showing huge banks of plants finely bloomed, were many fine kinds. The former had some standards of *Niphetos*, elegantly bloomed, and also some of the charming fairy *Rose*, *Mignonette*, a pretty double, rosy pink variety, very free. *Centifolia Rosea*, *La France*, *Edouard Morren*, *Comtesse de Serenye*, and others were represented by some very large, finely-flowered plants. Messrs. W. Paul & Sons' bank of fifty plants comprised many interesting kinds, very striking being *Madame Emilie Fontaine*, a lovely cupped, full-petalled *Rose*, of a rich rosy crimson hue, and very distinct; also a very striking flower was found in Professor Edward Regal, really a half-scarlet *Marie Baumann*, though, as shown, lacking that famous kind's fullness. *Paul Neyron*, *Alfred Colomb*, *Duke of Teck*, *Mdlle. Victor Verdier*, and *Captain Christy* were fresh and vigorous amongst many.

AZALEAS were represented by a dozen, beautiful bush plants, each about 2 feet through, from Mr. Turner, as finely bloomed for their size as well could be. This was the only collection out of two classes. *Roi de Hollande*, dark red; *Grandis* and *Duchesse de Nassau*, bright red; *Mrs. Turner* and *Madame Van Houtte*, pleasing pink; *Mdlle. Marie Lefebvre*, single white; and others made up admirable variety. Messrs. Lane, of Berkhamstead, had a big group of *Azaleas* in great variety, but the plants seemed rather drawn and lacked freshness. No doubt they serve a useful purpose in helping to keep the conservatory gay. Under this heading may also be mentioned a group of hardy *Rhododendrons* and *Azaleas*, from the same exhibitors, and similar to the Messrs. Paul's. Silver Banksian medals were awarded to each group—not paying, in so doing, a very high compliment to the *Roses*.

PELARGONIUMS were grandly shown by Mr. C. Turner, who had show kinds in fine 3 feet to 4 feet plants, also some of lesser dimensions, and *Regal* kinds wonderfully bloomed. This collection of eighteen plants proved the most attractive feature of the show, and fully maintained the old high reputation of the Slough Nursery. Such kinds as *Kingston Beauty*, *Prince Leopold*, *Amethyst*, *Comtesse de Choiseul*, *Goldmine*, *Empress of Russia*, *Mons. Demoulin*, *Rosetta*, and *Duchess of Bedford* were superb. The lot of eighteen plants in competition from Kingston were poor in comparison, and by no means did justice to Mr. Wiggins, who can do these things much better.

CALCEOLARIAS, of course of the herbaceous order, were represented in the competition by one poor dozen only, the class being unfortunately limited to amateurs. Mr. James's grand group of some thirty plants, really big massive heads of bloom, rich in colour and in variety, redeemed this fine greenhouse flower from mediocrity in this instance, and merited as good an award as anything in the show. Mr. James favours rich self-colours in his flowers largely, and these, when lit up by the sun, glow like masses of fire. London light seldom does justice to these things. Only one group of *Tree Carnations* was staged, these coming from Mr. Turner, whose plants were finely bloomed and well grown. The colours were chiefly scarlet, crimson, yellow, and flaked forms in quaint variety.

ORCHIDS.—Of these popular exhibition plants only three collections of nine each were shown for the six prizes offered. Mr. H. Little's gardener, Twickenham, and Mr. Hyatt, Streatham, were the two amateur competitors, and Mr. James, of Norwood, the only trade grower. Mr. Little's plants were the largest and best bloomed. *Dendrobium thyrsiflorum*, with twenty fine spikes, *D. densiflorum* and *D. Dalhousianum*, were also excellent. *Cattleya Mossiae*, *Mendeli*, *grandis*, and *Skinneri*, *Lælia purpurata* and *Aerides Fieldingi* made up the group. Mr. Hyatt

showed a fine *Lycaste Skinneri*, with twenty good blooms, *Masdevallia Harryana*, a fine *Cypripedium villosum*, some excellent *Cattleyas*, &c. Mr. James, who had no competitor, naturally came first with his plants, which included very good *Odontoglossum Alexandræ* and *Pescatorei*, *Cypripedium Lawrencianum*, *Cattleyas*, &c. A group of small plants from Mr. A. H. Smee, Wallington, was interesting, as representing kinds grown partly in the open air, and if so, were admirably flowered. This collection included *Odontoglossum Alexandræ*, *Masdevallia Harryana*, various *Cattleyas*, and the pretty *Odontoglossum Phalenopsis*. A bronze Banksian medal was awarded. A similar award was made to Mr. Jas. Green, of Queen Victoria Street, for an exhibition of flower-vases and glasses in various forms, which attracted much attention.

SPECIAL PRIZES.—These were offered solely for Melons and Cucumbers. Messrs. Sutton and Sons, Reading, who offered prizes for the best brace of any one of three kinds of Melons named, brought several lots, the best proving to be a small, but highly coloured, brace of *Hero* of Lockinge, from Mr. Lockie, Windsor, the next best coming from Longford Castle, being Sutton's Imperial Green Flesh, the *Hero* of Lockinge coming third. For a brace of Cucumbers limited to two kinds named Mr. Lockie was again first with shortish, but very smooth, handsome *Purley Park Hero*; the second best pair, assumed to be the same kind, but wanting the good form seen in the first brace, came from Mr. E. D. Lee, Aylesbury. There were six lots staged, whilst in a similar class promoted by Messrs. James Carter and Co., High Holborn, for the best brace of *Model*, Mr. Lockie was again first with pretty well-balanced fruits, about 15 inches long, the second best lot coming from Glenhurst, Esher. There were seven braces of this kind in the competition, showing much variation.

Fruit and vegetables.—The chief exhibit before this committee was a collection of South Australian fruits, shown on behalf of the colony by Sir Charles Stewart, and which included three gigantic Pears, apparently *Pitmaston Duchess*, grand in form and finish, and weighing 2lbs. 12oz. and 2lbs. 14oz. each. Finer of the kind has never been seen in this country, and they were admirably preserved. Also there were some fine and beautifully finished samples of Apples. *Reinette du Canada*, *Gloria Mundi*, *Betty Geeson*, *Calville Malingre*, *Namper Pippin*, *Cox's Orange Pippin*, *Duchess of Oldenburg*, and others unnamed, some fine Quinces and Medlars, and samples of the *Black Prince* and *Sherry Grapes* of the colony, both black and well coloured, and greatly resembling *Black Hamburg* and *Barbarossa*. These Grapes were exceedingly sugary, but lacked flavour, and the committee found of the Apples that even such a kind as *Cox's Orange Pippin* was wanting in that respect. Mr. Lockie sent a seedling Melon from *Hero* of Lockinge and *Scarlet Invincible*, very luscious and richly flavoured; Mr. C. Herin, from Chalfont Park, sent fine Citrons; Mr. W. W. Dick, Thames Ditton, had four small Melons; Messrs. Veitch and Sons, Chelsea, samples of *Sandringham* and *Bismarck Apples* to show keeping qualities; and Mr. Chittlebrough, Norwich, some good firm Golden Tripoli Onions, which, if saved from last autumn, showed very superior keeping character.

Scientific committee.—*Rhododendrons.*—Mr. Boscawen exhibited five branches of *R. arboreum* "improved," being a hybrid between *R. arboreum* and *R. atro-sanguineum*. The truss stands well above the foliage, and is more continuously flowering than *R. arboreum*. The tree is now 15 feet high.

Liparis Loeseli.—Mr. Ridley exhibited plants of this Orchid; the pot in which the rhizomes had been was allowed to become perfectly dried; but in breaking up the earth and watering this spring they have recovered and are flourishing vigorously. Colonel Clarke remarked on the tenacity of life of Orchid bulbs (e.g., *O. Morio*) under great drought.

Tobacco cultivated in Great Britain.—Colonel Clarke exhibited dried leaves of various kinds—1. Plants sown early and gathered early of a yellowish brown colour (1884); this was the best quality. 2. Plants left too long in the ground, the leaves being much longer and greener. 3. *Nicotiana rustica*, a very

coarse form. 4. Hybrid between *N. rustica* and the Havana Tobacco. It bore the form, habit, and colour of the latter.

Red-spotted Potatoes.—Mr. Plowright also sent the following remarks on this subject: In 1884 it will be in the memory of the committee that a number of tubers grown at Chiswick in connection with the Jensenian experiments were found upon section to be spotted inside, as if from the effects of the *Phytophthora*; so much, indeed, did they resemble truly diseased tubers, that some members of the committee regarded them as such. Specimens were, however, sent to Prof. De Bary, Dr. Kuhn, and Mr. Jensen; and without throwing any light upon the true nature of the spots, all three were unanimous in their opinion that the spotting was entirely unconnected with the *Phytophthora*. An instance of this spotting disease came under my notice the same year near King's Lynn, and I took the opportunity of making a few observations upon the affection. First and foremost, although resembling the *Phytophthora* spots in colour, there is this great difference. The *Phytophthora* spots always originate upon the surface of the tuber and pass inwards, this being, as De Bary has long ago shown, the essential nature of the disease. Second, *Phytophthora* spots are soon followed by decay (wet rot); the spotted tubers under discussion do not tend to decay at all. I had under observation about half a bushel of suspected tubers, for the tubers show no indication of the spotting until they are cut open, from October till May, but none of them showed any signs of decay. I obtained these tubers from the grower, who resided near King's Lynn, and who suffered considerable loss from the affection, because it was impossible to tell how many were spotted until they were cut open; the consequence was that the crop was unsaleable, and, as a matter of fact was used for feeding pigs.

In the following spring (1885) my tuber began to sprout just as healthy tubers would. On the 24th May (1885) five tubers were selected, which on section showed the internal pottings in a very marked degree; they were planted in my garden and carefully watched. In due course they threw up healthy shoots, which bore healthy leaves and grew in all respects as healthy Potatoes ordinarily grow. On the 16th October they were dug up and examined. They had produced forty-eight tubers, each of which was cut up into slices and closely examined for the internal spots, but not a trace of the disease could be detected. Hence it would appear that, whatever may be the nature of the affection which gives rise to this internal spotting, it cannot be very readily transmitted to the young tubers by using diseased sets, and although this negative result is all that I was able to arrive at, yet it seemed to me of sufficient interest to lay before the scientific committee.

Presentation to Mr. George Maw.—Handsome testimonials were presented the other day to Mr. and Mrs. George Maw, who are leaving the neighbourhood of Broseley to reside in Surrey. The many acts of kindness performed by Mr. and Mrs. Maw, together with their uniform courtesy and genial character, have long secured for them a prominent place in the estimation of their neighbours and friends, and when it was definitely known that, in consequence of intense study, Mr. Maw had been advised to seek a change of air, the idea at once presented itself that one who had received the well-earned respect of such a large circle of friends, both in public and private, should not be allowed to remove without some tangible tribute being paid to his sterling worth. Consequently a meeting was called and a committee appointed to carry out the arrangements. After due consideration it was decided that the presentation should consist of a silver tea and coffee service for Mrs. Maw and an illuminated address for Mr. Maw. The address was enclosed in a handsome gilt frame, and is really a work of art. The presentation to Mrs. Maw was well chosen; it consisted, as has just been stated, of a silver tea and coffee service, each of the vessels being lined with gold. Upon each appeared the monogram, "G.F.M." (for George and Frances Maw), and the crest of the family; this portion of the testimonial was specially admired by all who had the privilege of seeing it.

NOTES OF THE WEEK.

Wild Poet's Narcissus.—Messrs. Barr send us some flowers of *Narcissus poeticus*, in order to show how greatly they vary in size, form, and colouring of the crown or cup. Some are nearly as large as those of the variety *grandiflorus*, others have broad petals, others narrow and starry, while, as has just been stated, the colour of the crown varies considerably.

Genista præcox.—This beautiful shrub is now in full flower, and a charming feature in many a garden. It is different from other kinds of Broom, inasmuch as its flowers, instead of being white or bright yellow, are primrose or straw-coloured. Every twig is wreathed with bloom, so that even a small bush of it is effective. It is now in great beauty in the York Nurseries, where it is perfectly hardy, having withstood some very severe frosts.

Anthurium Rothschildianum.—The largest spathe of this new variety we have yet seen is one which we have received from Mr. Marshall's garden at Belmont, Taunton. It measures 5 inches in length, by 2½ inches in width. On one side it is copiously spotted and freckled with scarlet on a white ground, while the reverse side is crimson, spotted with white. It is a fine variety, but opinions vary as to its beauty. The plant from which it was cut is stated to be a small one with only eight leaves.

Cantua dependens.—Mr. Bedford sends from the garden at Straffan House, Co. Kildare, a lovely spray of this beautiful Chilean shrub, which he justly calls a good old plant, but one seldom seen. It is, indeed, an uncommon plant, but we find that since attention has been specially directed to it that it is more frequently to be met with than it used to be. Its culture is being better understood, but our readers cannot be too well informed of the varied conditions under which this and other so-called difficult plants succeed.

Mimulus.—Some uncommonly fine blooms of *Mimulus* have been sent to us by Messrs. Carter, who call them their Queen Prize strain. The flowers measure nearly 3 inches across, and are extremely varied in colour, the majority being bright yellow heavily blotched with crimson, and some are beautifully freckled in the tubes. The fine effect which a mass of such *Mimulus* would produce in some damp spot in a garden can be easily imagined, and the length of time during which they keep in bloom is much in their favour as garden plants.

LAW.

ANDREWS V. GREAT EASTERN RAILWAY COMPANY.

THIS action raised a question as to how far railway companies are liable at law for injuries admittedly occasioned to plants, shrubs, &c., growing on land in proximity to their lines from smoke and noxious vapours evolved from their engines. The plaintiff is a nurseryman carrying on business at Temple Mills, Stratford, and his gardens are situated at the point where the defendants' line to Loughton branches off from their main line to Cambridge. The nursery is close alongside the defendants' main line upon its south-eastern side. The action was brought to recover damages as compensation for a nuisance, caused, it was alleged, by the negligent use by the defendants of their engines in respect of the smoke and noxious vapours evolved therefrom, which had substantially damaged the various plants and flowers grown by the plaintiff in his nursery. The plaintiff also prayed for an injunction to compel the defendants to abate the nuisance complained of. The defendants admitted that the plaintiff's nursery had sustained damage by reason of the matters complained of, though not to the extent alleged. They denied that they were guilty of negligence as alleged, and pleaded that that being so they were relieved from liability by statute. The alleged nuisance, they contended, was unavoidable and incidental to carrying out legitimately the undertaking for which the Legislature had created them.

Mr. Edwin Andrews, the plaintiff, was called, and stated that he had begun business on his own account at the place in question in 1872. His nursery was about an acre and a half in extent, and there were

now about 40,000 square feet of glass upon it. Before 1880 there were about 30,000 square feet of glass. He chiefly grew Grapes and Cucumbers, and had besides the usual nurseryman's stock. The average profits for the three years immediately before 1880 had been between £600 and £700 a year net. After that year these profits had fallen about 50 per cent. It was about 1880 that he first experienced the smoke from the defendants' engines as a nuisance. At this time there began to be a congestion of engines used in shunting and making up luggage trains in a large new siding. These engines would stop opposite his garden by signal and often "fuel up," and so emit dense volumes of black smoke and dust, which would catch him on three sides according to the wind. This smoke and the noxious gases caused the leaves of plants, &c., to curl and frizzle up. They became choked and ruined by a foul black deposit, which also settled on the glass and obscured the light. Witness stated that from 1880 to 1884, when he instituted this action, he had made numerous complaints from time to time on the subject to the defendants both by letter and personally. These complaints, it was stated, had had the effect of temporarily lessening the nuisance. It was shown in evidence that the defendants, in consequence of the complaint, fined some of their engine-drivers and others for causing or permitting excessive smoke at the spot in question. The correspondence between the parties was put in and scientific and other evidence was given to support the plaintiff's case.

Mr. Justice Field pointed out that to entitle them to protection by statute from their common law liabilities railway companies must not be negligent nor unreasonable in the "user" of their traffic and in carrying out their statutory powers. In going over the evidence his lordship remarked that there was evidence to show that when the defendants chose the matters complained of abated, which seemed to negative the defendants' contention that they were unavoidable. Finally, his lordship asked the jury whether the plaintiff had sustained such a substantial and material loss as to entitle him to compensation, and if so, was it caused by the defendants carrying on their business in a legitimate manner as authorised by statute, or was it due to some excess by the defendants of those powers? If they thought that a portion of the injury was due to the legitimate "user" of the defendants' line and a part to an excessive "user," they would have to separate the two as far as was possible when assessing the damages.

The jury retired at 3.25 p.m. to consider their verdict, and at 3.45 they returned and stated that they found for the plaintiff, damages £500.

LATE NOTES.

Double white Petunia (*G. M. Walker*).—An excellent variety, large, very double, and pure white; one of the best white *Petunias* we have seen.

Iris Robinsoniana (*J. S.*).—The flower was quite withered when it reached us. Can you not send a newly expanded bud, so that it would open after we received it?

Rhododendrons.—Messrs. John Waterer, Bagshot, will hold their annual exhibition of the above in Cadogan Place, Sloane Street, during the month of June.

Names of plants.—*T. D.*—The *Habrothamnus* seems to be identical with that called *H. Newellii*.—*W. Sutton*.—White flower is double variety of *Saxifraga granulata*. Please send other again.—*Capt. V. H.*—*Adiantum palmatum*.—*A. Purpy*.—Apparently *Brassia verrucosa*.—*E. M. G.*—*Elegans japonica aureo-maculata*.—*C. E.*—1, *Asplenium Fabianum*; 2, *Doodia lanceolata*; 3, *Cyrtomium falcatum*; 4, *Asplenium bulbiferum*.—*R. P. Grayson*.—Fine variety of *Masdevallia Harryana*.—*Mrs. N.*—*Trollius japonicus*, *Polygonum cuspidatum*, *Tecoma capensis* (in flower).—*J. C. L.*—*Saxifraga cymbalaria*, an annual.—*W. K.*—1, variety of garden Tulip (cannot name); 2, fine form of *Scilla campanulata*; 3, *Iris germanica*; 4, variety of var. *I. germanica*.—*G. J.*—Next week.—*C. J.*—*Jasminum Sambac*. The *Abutilon* is curious, but we have seen the same freak before.

BOOKS RECEIVED.

"*Reichenbachia*; or Orchids illustrated and described." By F. Sander, St. Albans. Part I. "British Fungi." By Rev. John Stevenson. Blackwood & Sons.

"Beeton's new Book of Garden Management." Ward, Lock & Co.

"Official Guide to Museums of Botany at the Royal Gardens, Kew." No. 3. Timbers.

"Catalogue of the Miss North Gallery of Pictures, Royal Gardens, Kew." By W. B. Hemsley.

"Familiar Wild Flowers." Part IV. By F. E. Hulme F.L.S. Cassell & Co.

"Rus in Urbe; or Flowers that thrive in Towns." By Mrs. Haweis. Simpkin, Marshall & Co.

WOODS & FORESTS.

THE POPLARS.

As timber-producers the Poplars may be considered as three groups, the White Poplars, the Black Poplars, and the Aspens. These will fairly represent the best trees for planting. The Lombardy Poplar I purposely exclude here, as I do not consider it a suitable or profitable tree to propagate for timber. In the first division I include the Abele (*Populus alba*) and the Grey Poplar (*Populus canescens*). There is a difference of opinion as to the worth of these two trees for timber, some writers asserting that the common species is to be preferred to the Abele. This perhaps may arise from their finding the Abele in a less favourable situation than the other tree. On the whole, although probably there is not so great a difference as some assume, I should prefer the Abele for the value of its wood, and I think the experience of most who have a knowledge of the subject will support me. The Black Poplars include the common Black Poplar (*P. nigra*) and the Black Italian Poplar (*P. monilifera*). Besides other distinct characteristics, the formation of the leaves of these trees will readily distinguish them from the White Poplars, as they are heart-shaped, without lobes, and smooth, or without down on both surfaces.

With regard to the situations most suited for these trees, although the White and Black Poplars often grow to perfection in very moist places, they will not thrive in boggy, undrained soil. The Aspen is the tree most likely to succeed on such spots, as its roots do not descend so deeply as those of the other species. This fact, although it is an advantage in enabling it to grow where others will not, proves that the Aspen is the least suitable of the Poplars which have been spoken of, to be grown in hedgerows or in places where the pasturage is valuable. The superficial character of its roots causes it to exhaust the soil, and thus seriously impair or destroy its productiveness. The wood of the Aspen, too, is not so good as that of the White and Black Poplars. Like that of all the species, the wood is very light when dry, but is softer, and shrinks and splits to a greater degree than the white or black species. As an ornamental tree it has a certain value, and the trembling habit of its leaves, caused by the long and slender leaf-stalks, is well known. For rapid growth among the Poplars nothing can equal the Black Italian, which sometimes reaches 100 feet in height. Taking the height at an average of 80 feet, and considering that for three-fourths of this height it usually runs up in a single noble stem, and then throws out its branches at this distance above ground, the head having a diameter of half or more than half of the height of the tree, some idea may be formed of its dimensions. The grandeur of the Oak is often spoken of, and of course, when its value and the habit of its growth and the abundance of its foliage is considered, it is in every respect worthy of the homage paid to it; but, nevertheless, as a standing tree it is very seldom that in the dimensions of its trunk, particularly as regards height, in its large visible roots by which it is anchored to the soil, or in the character of its bark, the Oak can compare with a well-grown Italian Poplar. It is not often that a very rapid growing tree forms an impressive object, but with the Italian Poplar it is different, as, although it is well known as a rapid grower, and that its timber is of a light and soft nature, its exterior betokens a tree which has stood the blast of centuries. There is one drawback with regard to it which should be mentioned, although it is common to many other trees, and that is the

liability of its large limbs to be torn and splintered by gales. There are some large trees of this species which I have often occasion to pass, and here and there, high above the ground, a gigantic wound is to be seen where a large branch has been torn off. These fractures, however, do not seem to affect the general health of the tree, but their effect upon the timber surrounding the breakage by the admission of water I have never particularly noted.

I have spoken of the Lombardy Poplar as not being a suitable tree to plant for timber. It is, I suppose, nevertheless, the most widely known tree of the genus; at any rate, it is one about which no mistake can be made in its identification; its spire-like, pyramidal habit makes it visible for miles. As to its value as an ornamental tree opinions amongst landscape gardeners have differed greatly. Some have condemned it unsparingly, whilst others have upheld its employment. The truth probably is that it should be used and not abused. This is a tree of which one occasionally sees rows in front of and in close proximity to dwelling houses. The idea is absurd. Here and there a tree in a group of other kinds, at a reasonable distance from the house, would be quite admissible, but certainly far enough away that if blown over it would not cause damage to the building or its occupants. In addition to the danger, rows of trees directly in front of a house dwarfs its proportions, excludes light, but affords no shelter. It seems impossible that trees should be so used, but it is a thing which I have repeatedly seen. With regard to propagation, there are few trees more easily grown than most of the Poplars, as they throw up suckers in abundance. This is more noticeable in some species than in others. The kind which produces the most is perhaps the Aspen, as its roots grow so near the surface.

D. J. YEO.

Mixed plantations.—Perhaps "Deeside" will be pleased to hear that there are no objections to mixed plantations when the species are nearly of the same habit. Thus Ash, Elm, Beech, and Sycamore do tolerably well together, as they grow at about the same rate; so do Scotch Fir, Larch, Corsican, Austrian and other Firs, being all of similar habit. Where they do not thrive in company, a hillside, for example, may be planted on the grouping principle, and the groups may be either large or small. If it comes to a question of profit, however, sentimental considerations must yield, or be paid for, and so long as that is understood planters can lay out their woods as they desire. I have no doubt whatever about the wisdom of planting trees of similar habit and rate of growth together. The advantages of the practice are patent to the most casual observer. Planting Firs and deciduous trees together is, on the other hand, a specially bad practice.—WOOD AGENT.

The best firewood.—"Wilts" gives some valuable hints on this matter (p. 414). Most of the examples will stand the test of experience. Nevertheless, in large kitchens, parlours, or other places where sparks are not dangerous or otherwise objectionable, there is no wood fire so cheerful on a winter's eve as good and rather old Scotch Pine well furnished with resin. This blazes with a glowing cheerfulness hardly matched by any other wood. Perhaps he also places Elm too high for firewood. It burns dead as a rule, and is by no means comparable to Ash and Oak. Hazel also burns well, and all that "Wilts" says about Beech and White Thorn is true. There is one wood, however, which may be ranked higher than either of the woods mentioned, and that is Yew, say eighteen months or two years after it is cut; this burns slowly, gives out a fierce heat, and throws out no sparks. Where it can be had in quantity it is one of the most satisfactory of all woods for burning in the open grate. In fact, a fire of Yew is perhaps the nearest approach we can have in heating force to one of coal. Its specific gravity approaches more closely to that of coal than any other wood, and the heat of a Yew fire

is well nigh as great, while no wood with which I am acquainted lasts so long in burning as Yew.—D. T. F.

DAMAGE FROM THINNING WOODS.

WHEN plantations are thinned at an early stage the thinnings can be removed without damage to the trees left and no harm is done; but I fear great damage is frequently caused in taking down falls of mature timber in thick woods, and the question which arises is, How can this damage be best avoided or repaired? Imagine, for example, a tall Larch, perhaps 70 feet or 80 feet high, or a lofty Oak, with great boughs and a top perhaps a ton weight or more, crashing its whole length to the ground among other trees, often over them, and always doing more or less damage to their limbs and trunks. This is one of the worst features of our system of felling timber. All over the country every year falls are set out in plantations, a certain proportion of trees being taken, and the custom is to go over the whole perhaps once in twenty years or thereabouts. If you go through a wood after a fall has been removed, you cannot fail to observe the quantities of limbs and branches either torn from the standing trees altogether or hanging broken from them, sometimes riven off close to the trunk, and at other times leaving great jagged projections sticking out, which in time decay back into the trunk, perhaps spoiling the tree. Not long since I had a large Oak tree, which I thought sound, cut up into planks for our carpenters, and was disappointed to find that the centre of the trunk was quite decayed and soft and rotten to the extent of about 8 feet, the decay extending nearly equally above and below a point where a branch, about 2½ inches in diameter, had been broken off at some time, allowing the moisture to get in. Such faults are, of course, common, and timber buyers are alive to them, and frequently come armed with a long flexible steel probe, which I have seen them introduce its whole length at a suspicious-looking knot where a branch had come off, and insist upon an allowance of so many feet being made for damage before bargaining. To estimate the loss from such causes, one has but to reckon the age of the plantation and the probable injury done by breakages among the branches in the time. It is not easy to prevent or remedy the damage done to standing trees by falling timber. Workmen can to some extent prevent damage by felling the tree where there is most room, but there is seldom much choice in that respect in thick woods, and as to repairing the damage, the only way is to prune the broken limbs by the knife and saw—work so troublesome and expensive, that it is seldom or never attempted, except in the roughest fashion. The sure way would be to do as they do on the Continent and in America, viz., cut down the timber *en bloc* as the falls are set out and plant up behind—a plan which I daresay will not commend itself to owners of woods or foresters under all circumstances, but one that is far more feasible than might be imagined at first sight—that is in the case of plantations of mature age. In old and decaying woods it is desirable to go on the old principle of thinning out the worst or dead trees, but in the majority of cases plantations of mature age are healthy, and might be reaped like a crop of corn. Much less ground would be gone over by this plan, and a fall of a thousand or two trees and poles would not create a great blank in any one year, and re-planting could be prosecuted effectually and constantly. The plan is worth considering at all events on many estates. I do not believe in the very common plan of filling up vacancies with young trees where many old trees are still left standing to fell at some future period. Such plantations never do so well

as those planted on cleared ground, and when felling takes place among the older trees the young ones always suffer much damage.

YORKSHIREMAN.

FORESTERS V. TIMBER MERCHANTS.

I AM afraid that sometimes the relations between these two are not what they ought to be. After all is said and done, their interests are identical, and they should not "cut each others' throats." Whether the forester, as representing his employer, sells to the consumer or to the timber merchant, the etiquette of trade demands that he should conform to certain understood rules for the good of all. Thus, if the forester sells large quantities to a timber merchant to sell again, and the latter discharges all his obligations honourably, clearly the former should take no advantage afterwards by selling to the consumer below market price, or below a price at which the merchant who has bought from him can sell again. The desire to do business on any terms, in order to raise cash and show a good account, has, on some estates that I know, led to very unpleasant consequences to all concerned in this respect. It may be an open question whether it is better to sell to the consumer direct or to the merchant, but it is manifestly not right to deal with both, and then undersell the one to accommodate the other for the sake of doing trade. Selling to the consumer and to the timber dealer are two very different things, and, as a rule, I believe, owners of timber do the most profitable business with the merchant; hence he should be used fairly. Woodmen are not such good hands at negotiating bargains as the merchants, because not being so familiar with the market they are not sure about prices and are apt to ask either too little or too much. A neighbour of mine last year decided to peel his timber himself, cut and lot it, and sell it. On comparing notes with him the other day I discovered that he had sold his bark to the man that got ours, and at from 12s. to 15s. per ton less, and that after paying all expenses on the sale of the timber he was no more in pocket than his neighbours who had sold to the merchant and got the money, and he had to select his lots to suit purchasers. We dispose of between three and four thousand pounds worth of timber annually, mostly to timber merchants, who clear us of a large quantity of inferior timber in the shape of small short poles, rails, and dead trees that could not be easily disposed of any other way, each kind being valued, but all sold in one lot. Consumers are much more particular, and we find it better to sell the good and indifferent together to the timber merchant. The lots are sold standing, as a rule, and paid for within a stipulated time; and I may say that during the past twenty-five years no bad debts worth mentioning have been incurred, although the purchasers have suffered losses. That some owners of woods, or their agents, sell their timber for less money than they might get for it I feel assured, otherwise some merchants pursue a reckless system of business, because they make a practice of underselling everyone else in the trade, and continue to do it for years. It has been a matter of surprise to me for some time back—say, two years—how a certain dealer in this part of the country habitually quotes lower than anyone else, unless the explanation is that the timber he buys is sacrificed to raise money, much of it coming off one estate.

Y.

Timber of *Pinus insignis*.—I saw some trees of this Pine cut up many years ago, but found the quality of the timber to be of rather a soft texture, and not to be compared in quality to that of the Scotch Fir of the same size. I have, however, no

doubt but that the quality of its timber will improve with the age of the tree, and until such time as some of the trees in this country have reached the years of maturity we cannot speak with confidence respecting this point. In the meantime, I think it would not be advisable to plant this tree out in quantity as a forest tree for utility; but for ornamental effect and embellishment it occupies the first rank, and may be planted either as a standard on the lawn or grouped with others.—J. B. W.

ECONOMY IN TIMBER FELLING.

I HAVE read with much interest Mr. Yeo's article (page 487) on the above subject, and agree with most of what he advances, especially as to the advantage of cutting timber by contract. On this estate (North Riding) of over 6000 acres of woodlands, I have all the timber cut by contract, and employ a staff of skilled men all the year round, who do very little else. Excepting small Larch poles and the Oak, all the work is done at so much per 100 cubic feet. The following are the prices given:

Larch and Scotch Fir, 2s. to 2s. 3d. per 100 feet; Ash, Beech and other hardwoods, 5s. per 100 feet. I let the felling and stripping of the Oaks, and harvesting, chopping and bagging of the bark at so much per ton of bark, and the price recently has been about 48s. per ton. The Oak is rounded and dressed afterwards at a cost of 5s. per 100 feet for saleable timber; and 3s. 6d. per 100 feet for all that we keep for estate use.

We generally reserve for ourselves all the topwood for fencing, and a portion of better timber to make beams, &c., for roofing purposes. I find that we get the work done much cheaper, more expeditiously, and as well by contract as by day. It would be very useful and interesting if others of your readers would give their prices and experience in this matter.

W. B. H.

VALUE OF THE SPRUCE.

I AM inclined to agree with your correspondents "Yorkshireman" and "R." (p. 461) in their condemnation of this tree, which is admitted to be of no value as timber, and cannot even be recommended as firewood. It can hardly be said to be ornamental, as after it has attained to the age of ten or fifteen years, it in most instances begins to lose its lower branches, as well as its healthy colour, and it is then the reverse of being ornamental. The exceptions to this is where it happens to be planted in low-lying and somewhat damp situations, where it sometimes succeeds better. But it seems almost a pity to plant the Spruce so extensively as is still done, seeing that so many better varieties of coniferous trees can be obtained at a similar or a slightly higher price. When the Spruce is quite young it generally assumes the form of a neat and compact plant; and, being cheap, it frequently gets planted in situations where it can never be likely to thrive; even in towns it is frequently to be seen in wretched condition in close proximity to buildings, &c.; and it is also very frequently planted in churchyards and cemeteries, where, if it grows at all, it is soon found to be sadly out of place.

On light land, or on a chalk formation, it almost invariably becomes unhealthy, even before it has reached the age here stated, and the only really useful purpose to which this tree can be applied is as nurseries, or to be so planted as to afford shelter to more valuable plants or trees during the early stages of their development, and as it submits readily to the operation of clipping or trimming, it forms an effective and by no means unsightly fence or hedge, the stopping of the leading shoots appearing to induce the plants to retain their lower branches, and it will be found to succeed as a hedge plant on soils where it will not grow satisfactorily as a tree.—P. G.

—In reference to this subject, Spruce and red deal, or red wood, as Mr. Yeo calls it, do not compete with each other in the market at all, and his remarks on that head have therefore no application. As to my "admission" that there is little difference between home and foreign Spruce as to quality, that is neither here nor there; but, as I said before, the English Spruce is by far the most knotty, and that is

a grave fault to the purchaser and an expense to the producer, because it costs as much to fell Spruce as Oak, owing to the labour incurred in trimming off the numerous branches. As to your correspondent's prices, they are fanciful. I have the latest price list of one of the chief importers of foreign timber before me now, and I here append it, in which Norway pines are delivered here from West Hartlepool at 9½d. per cubic foot; partly square Norway timber, 6 inches to 9 inches square, with good average length, 8d. per foot; square Swedish timber, 4 inches to 12 inches square, 10½d. to 12½d. per cubic foot; 2½ per cent. off for cash within a month. These prices for round and sawn timber of nice length, all usable, and far cleaner than the home-grown, speak for themselves and show what our home-grown timber in the rough might be expected to fetch delivered. One penny per foot would be much nearer the mark than Mr. Yeo's 6d. I enclose the list to the editor, which was put into my hands the other day by a colliery owner on whom I called.

—YORKSHIREMAN.

COSTLY WORK.

MR. YEO tells us (p. 487) that hedgerow timber should not be sawn or felled, but be stubbed up, that is, dug out and the roots transported away. Now I will just give you an idea how this would work. Not long since I sold a hedgerow fall of standing timber for a little under £500. Had it been plantation timber of the same age it would have fetched £1000; but the trees being very branchy with short trunks, the cordwood hardly to be disposed of at any price, and the risk from nails driven into the trees in mending fences great, that was the most we could get for it. The purchaser felled it, and he was bound by the contract to leave a sufficient number of stakes and quantity of brushwood to repair the gaps created in the fences, the tenants having the choice of stubbing any trees they thought fit in their fields, and the roots into the bargain, which can sometimes be disposed of to gardeners near towns for a trifle, but, as a rule, have to be buried or removed out of the way. Now just imagine the financial consequences of stubbing a fall of this sort at the owner's or purchaser's expense. Under any circumstances the trees, according to Mr. Yeo, have to be felled or sawn off at the root, which work here costs about 1d. per foot, and as near as one can reckon the stubbing and removal of the roots would cost 10s. per tree extra. As there were over 1000 trees actually in the fences and fields, this means between five and six hundred pounds outlay to either the seller or the buyer, besides collecting and carriage, and which would bring the price of the timber up to a figure at which it would be utterly hopeless to dispose of it in the market, except at a ruinous loss. Now for the other side. In the first place, there is no occasion whatever for stubbing hedgerow trees, and neither the landlord nor the tenant does it as a rule. The farmers keep the fences round their fields in repair themselves, according to agreement, and if they can keep them in good condition with broad spreading trees growing over them at intervals and killing them by their shade and roots, what difficulty is likely to be found in keeping the same fences in order when the tree tops are removed? Stubbing hedgerow trees is simply out of the question unless the tenant chooses to do it, and he does not choose, but prefers to make up the gaps with the stakes provided, getting the live fence forward by degrees as well as he can manage. The usual plan, as in our own case, is this: The hedgerow trees being removed, as much for the benefit of the farmer as the landlord, the tenants are usually consulted, and the trees they wish taken away are marked. They are then made acquainted with the sale agreement, in which the privileges of all concerned are respected, and the farmers are allowed to stub any of the trees at their own cost that they wish removing in that way, and they get the roots if they want them; but, as a rule, they seldom stub more than a few of those in their fields where they are in the way of the plough. In this way the matter is arranged to the satisfaction of all parties, and without loss to any of them. The short and the long of it is hedgerow timber is never of much value at any time, but when it comes to cost, as much or more to remove it as it is worth, the case is worse still.

YORKSHIREMAN.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TOO MANY FLOWER BEDS.

SOMEONE has wittily said that he could not see the town for houses, a remark equally true of many flower gardens; you cannot see the flowers for the flower beds. Such mistakes not only offend cultured taste, but are costly as well as vulgar. It is just as if an artist filled in the whole of his canvas with light and colour and left no place for neutral tints or shade. It is even worse, for it is an easy matter to shut one's eyes or pass by on the other side a picture filled with gaudy glitter; but such modes of escape from the cram of gay colouring with which so many gardens are overaccentuated are impossible. We are, however, fast escaping from an excess of colour, but overcrowding still remains. And there may be, there is, an excess of beautiful form as well as of gaudy colour. The one thing wanting, for the absence of which nothing can compensate, is view space. The furnishing may be of the best; its artistic balancing and blending may be perfect; yet may the effect prove most discouraging from lack of the means of seeing it. So much is this felt in some places, that elevated mounds, towers, or raised galleries are provided, coigns of vantage from which the bewildered visitors, satiated and fatigued by weary wanderings in an incomprehensible, because impossible to behold, maze of beauty, may get one clear glimpse of the natural and artificial wealth around them. But surely such contrivances are confessions of weakness and of failure in our landscapes, and it ought to be possible so to dispose and arrange our material that each feature of interest may have sufficient scope to unfold and reveal itself without being swallowed up by its immediate neighbours.

The greatest of all wants in most flower gardens are wider view-fields, open spaces, standing room from which to look upon the beauty of form and colour provided for our enjoyment. The eye needs rest as well as room, and neither Nature nor art could furnish more refreshing rest than that provided by wider openings or glades of green Grass interposed between the different masses or groups of more demonstrative beauty. What shade and neutral tints are to pictures, Grass is, and more, to the flower or foliage masses displayed on its surface. Fortunately, in these days of long-continued and serious depression in rural incomes, the clearances here advocated ensure economy as well as the elevation of garden art. Every flower-bed swept away saves money in furnishing and keeping, as well as enhances the enjoyment of those left. Nor need such clearances be confined to flower gardens only; they are probably most needed there, and should therefore begin, but by no means end, with the formal flower garden. They are just as much needed in the shrubbery and pleasure grounds as on the lawn. I know acres of ground in close contiguity to some of the finest gardens that are neither lawn, shrubbery, nor profitable wood, but a mixed medley of all three, and therefore alike unsatisfactory. Were these remodelled, the Grass lawns extended, the shrubberies compressed into smaller areas and enriched, and all the space economised converted into arable or pasture land or planted with timber trees for profit, it would be found that utility and art had joined hands and

made marvellous improvements over hundreds of acres of valuable property now running to waste from both points of view.

Another great evil consists in not knowing where to stop the flower-beds. I have nothing but approval for the modern system of the naturalisation of native and suitable exotic plants in our shrubberies and home woods. The so-called wild garden, properly disposed and filled, is at once the most satisfying and artistic of all our many styles and forms of gardening. But this is a very different matter from allowing the flower garden, in all its stiffness and formality, to overrun the lawn and overflow into the shrubberies and home plantations. To point out the incongruities of doing so, as well as to impart a more vivid idea of my meaning, a single illustration will prove more instructive than pages of mere description. At one end of an acre of flower-beds, arranged in geometrical order, and another half acre of ribbon borders, a lawn of several acres in extent bounded the garden front of the house and swept far back into large shrubberies, these being flanked by plantations and the park. The lawn was furnished with a few fine specimens of Cedar of Lebanon, Cypress, Purple Beech, Evergreen Oak, and some very large Elms. In addition to these and running all through them were beds of Roses, Dahlias, Pelargoniums, and annuals. These not only cut up the grand expanse of Grass into shreds and patches, but also dwarfed the majesty and grandeur of the Lebanon Cedars and other fine trees. What fellowship or artistic touch in common could these perishable flowering plants have with the giant trees venerable with the hoary beauty of several centuries on their gnarled trunks and far-spreading heads? And yet for half a century this strange, incongruous combination had endured. No sooner, however, were the flowers swept clean off the Grass lawn and the trees thereby uplifted to their rightful plane of higher splendour and more expansive magnificence, than everyone exclaimed, "What an improvement!" and the merest tyro in landscape gardening would never dream of restoring the old ill-matched pair of fragile flowers and comparatively imperishable arboreal grandeur. The violence of stature and character irritated the eye and offended the taste of every artist, and, strange as it may appear, seemed to dwarf the stature and lessen the size of the trees. The contrast, too, between the flower garden and the lawn is now far more pronounced.

D. T. F.

ROSE GARDEN.

OWN-ROOT ROSES.

MR. TAPLIN's remarks on this subject (p. 489) are highly interesting; but the sweeping statement that own-root Roses are always better than either budded or grafted plants, both under glass and also in the open ground, needs qualification. In fact, Mr. Taplin himself qualifies it further on and almost limits it to Roses in the open air; and to these in so far as worked plants are more liable to be killed outright by frost than those on their own roots. No one will dispute this, but then it is too narrow a basis for the wide assertion to rest upon. I also am a strong advocate for own-root Roses. But in sites and climates where the risk of injury or death from cold is reduced to a minimum, even worked Teas and the more tender Perpetuals do as well, or even better, worked than on their own roots; whereas, under glass and free from climatal vicissitudes, worked and unworked plants may be used with about an equality of good results. Nor is Mr. Taplin's experience of imported worked plants very conclusive evidence against them. These, if overfed in the nursery, often fail when transplanted without the strain of a long voyage, and not a few own-root Roses, when their roots are as long and unbranched as the tops, do likewise; only in

the latter case the collar mostly lives and there is a nucleus of life left. So little, however, at times are fat plants from nurseries valued or relied upon, that the chief anxieties of experienced cultivators is to secure cuttings or buds from them before the original stocks or plants perish. Doubtless there is little comparison between these and home-struck cuttings of La France or others. But Mr. Taplin must know that a fairer test would lie between rooted cuttings and plants worked, say, on the Manetti or other free-growing stock side by side in his nursery at Maywood, New Jersey.

It would be interesting also to hear his report as to the quality of the bloom on the worked and struck plants thus grown side by side. Many British growers cut most of their finest show flowers off the Brier stocks. As a rule, though, more flowers may be gathered from plants raised from cuttings; finer individual blooms may be obtained from worked plants, and especially from maiden shoots on the Brier. Has Mr. Taplin observed this superiority of size, quality, and colour on the Brier? Another point is by no means made plain. It is this: After referring to the number and vigour of the shoots on Roses on their own roots, Mr. Taplin adds, "we nevertheless get the best blooms from shoots with a single bud." How are these produced—by thinning, or pruning, or how?

Mr. Taplin's mode, time, and success in striking Roses cannot fail to be useful, as the demand for own-root Roses is likely to become insatiable. There is one other most interesting point about the Gloire de Dijon on tall Briers escaping while the more dwarf plants were killed to the ground line. It would be most interesting to be furnished with the height of these plants and the temperature they passed through comparatively unscathed. This would throw additional light on a subject of great scientific interest, as well as practical importance to horticulturists—viz., the lines of greatest cold within certain limited areas of the earth's surface. My own impression is that the line of maximum cold may mostly be found within a yard of the earth's surface. Were Mr. Taplin's Roses from 3 feet to 6 feet high? If so, they would furnish one more important fact in favour of our impression—it can hardly as yet be called a theory. D. T. F.

ROSES PLANTED OUT UNDER GLASS.

ALTHOUGH Roses in pots grow and flower tolerably well, no one practically acquainted with their behaviour when planted out in well-prepared borders can deny that they are not altogether more satisfactory. Such is my experience, after having grown them in pots for nearly twenty years, and also in a large unheated house. In preparing the borders, not only was good soil provided, and of suitable depth, but being anxious to secure the best possible results, I also provided ample drainage, which was a mistake, as in that case very much more water was required to keep the soil moist than would have been needed had no drainage been provided. In fact, my experience in regard to inside borders, whether for Roses, Vines, or Peaches, convinces me that drainage is unnecessary, except where the inside border is lower than the surface outside. I am further convinced, in regard to Roses, that they require at least 2 feet in depth of good soil, and if the plants are to make vigorous growth and remain in a healthy condition from twenty to thirty years, the roots must have plenty of space in which to extend. The roots of our plants have long since got outside the boundary of a border 10 feet long and 3 feet wide, and have run under a gravel walk in one direction, and amongst the roots of Peach trees in another; their condition, too, shows that they have gained strength thereby, a fact particularly noticeable in the case of such climbing Roses as Reine Marie Henriette, Gloire de Dijon, and Cheshunt Hybrid, and also in that of such varieties as Niphetos, President, and Madame Falcot. These, grown in a much deeper and wider border, form huge bushes, and would grow still larger if we could afford them sufficient room. Roses planted out under glass require a very large

amount of water to insure a vigorous growth, and if we did not examine the border sometimes, the roots would be apt to suffer from drought. An inspection of the soil at a foot or so below the surface in autumn often reveals a condition of dryness which one is hardly prepared to find. If we only watered by means of ordinary cans in the usual way, there would be less cause for surprise; but as a plentiful supply can be administered by means of a hose, with which the roots are flushed from fifteen to twenty minutes, more than a gallon being delivered per minute, one begins to understand, after a year or two's trial, how large a quantity of water is necessary in order to keep the soil about the roots sufficiently moist.

SUCH APPLICATIONS as those to which reference has just been made require repeating at least once a month from April to October. One could not be long occupied, moreover, in growing Roses under glass without being convinced of the importance of giving them plenty of light. If a Rose is planted in a dark corner, the growth is weak, and the flowers few in number and small in size; but when trained up under the glass, or when the plant occupies a position in the body of the house where light can play all round it, it will make satisfactory growth, if otherwise well cared for. For this reason, Rose houses should be constructed so as to afford a maximum amount of light. The span-roofed form is the most suitable, particularly if the side lights reach nearly down to the ground, as then light will be equally diffused through all parts of the house. When beds have to be raised in order to bring the plants up to the glass, the roots are liable to suffer from want of moisture. Under the span roof, too, the beds and borders can be arranged best, as there is more roof space over which to train the climbing varieties and for forming bowers over the pathway. In arranging Roses to be trained under the roof, provision must be made to admit sufficient light for plants, if any, growing beneath them. Out of every 6 feet of roof there should be a clear space of 2 feet unoccupied; nor is it desirable to train the growth so thickly over the other part as to exclude all light. In addition to plenty of light, Roses under glass also require a good supply of fresh air, but care must be taken during the spring months not to admit cold currents over the tops of the plants, or mildew will be sure to quickly follow such treatment.

WITH REGARD TO PRUNING, that is best done towards the end of December. The Tea-scented varieties, grown in the form of bushes, require but very little pruning until they have outgrown the space allotted to them; then they should be cut back pretty hard into the old wood, and afterwards be allowed to grow in their own way for a few years. Under this treatment a greater number of flowers will be secured than when annual hard pruning is resorted to; but the cultivator must have an eye to the character of the growth made by different varieties, and prune them accordingly. Some make more small shoots than others, which, if not thinned out at the proper time, would ultimately weaken the whole plant. Madame Falcot, Marie van Houtte, and Madame Lambard make thick bushy growth which requires thinning out during the winter; Niphetos, on the contrary, requires but very little pruning, and the most spare growing of all Tea Roses is Devonensis; therefore, to prune it in the same way as more vigorous growers would be wrong. In every case it is desirable to cut off a few inches of the tops of all shoots which have flowered. In the case of strong-growing climbing Roses, such as Gloire de Dijon, Céline Forestier, Triomphe de Rennes, Reine Marie Henriette, and others of similar habit, they should not be pruned until they have covered the space which they are intended to cover; but after that it is necessary to preserve all the strongest of the young wood during the summer, and to cut away the old wood in winter, for it is the long strong shoots which such varieties make that give the greatest number of the best flowers.

For the sake of making climbing Roses look presentable during summer, it is too much the practice to cut away the young growth as soon as it gets a little unsightly, but that is a mistake. The proper thing to do is to allow such Roses to grow pretty much as they like, and to sling up loosely any long shoots that may hang about in the way during summer; then at the winter pruning they will be ready to take the place of any exhausted shoots that require cutting away. Where there is no available young wood to lay in, old wood must be allowed to remain, and any small shoots may be pruned back to within three buds of the larger branches. The growth resulting from this spurring back will in most cases flower, the only difference being that the blossoms will not be so large as those on young and vigorous shoots of the previous year's growth. In the case of Maréchal Niel, the growth does not often extend very much after the first or second time of flowering. In that case, the shoots which have flowered should be spurred back at the proper time, but where there are shoots 3 feet or more in length which have grown out of the old stem, it is better to tie a few of them in, provided they do not crowd each other, and, after they have flowered, they may be cut clean away, when in all probability others will grow out to take their place. Many, I fear, fail to get strong and healthy plants of this Rose by allowing them to produce flowers before they have sufficient strength to maintain them, and at the same time extend their growth. This Rose ought not to be allowed to produce a single flower until it has made shoots of an aggregate length of 30 feet, and then it will have become sufficiently established to produce a crop of flowers.

AS THE TEA-SCENTED VARIETIES are the most suitable for planting out under glass, the following is a good selection for that purpose, viz.: Alba rosea, Catherine Mermet, David Pradel, Devonensis, Etoile de Lyon, Homère, Madame Lambard, Marie Van Houtte, Niphetos, Madame Falcot, and Perle de Lyon. Besides the climbing sorts already mentioned, the following may be added, viz.: William Allen Richardson, Maréchal Niel, and Céline Forestier. J. C. C.

NOTES OF THE WEEK.

The Wedding Flower.—One of our readers sends us an Iris which he asserts was sent to him from a Continental nursery as Iris Robinsoniana, the Wedding Flower of Lord Howe's Island. The flower sent, however, is only a form of the common *I. lurida*, one of the bearded Irises. We hope that such a mistake occurred unknowingly, otherwise we fear that others of our readers will also be deceived in the same way.

The London parks.—A bill has been introduced into Parliament by Mr. H. H. Fowler, in which it is proposed to transfer the parks and gardens from the Commissioners of Her Majesty's Works to the Metropolitan Board of Works. The parks and gardens will include Victoria Park, Battersea Park, Kennington Park, Bethnal Green Garden, Westminster and Chelsea Embankments. In future the maintenance of these parks, &c., is to be paid for, not out of the revenue of the country, but out of the consolidated rate of London, and no part of the metropolis is to be entitled to any exemption from the portion of the rate that is required for defraying the cost. The extent and limits of the transfer are to be defined by agreement between the Commissioners and the Board, subject to an appeal to the Privy Council. In default of an agreement selecting some other date, the time for the transfer is to be the commencement of next year.

Hardy Azaleas.—These are among the gayest of the crowds of shrubs now in bloom. They represent a wide range of colour—different shades of yellows, oranges, pinks, scarlets, whites, and crimsons; while in other respects, such as size and shape of the flower, time of blooming, and habit of the plants, a considerable amount of variation exists. The varieties of *Azalea mollis* bloom a few days earlier than the

bulk of the hardy or Ghent Azaleas, and of mollis there are now many different forms varying from pale straw to bright salmon-red. All the forms of *A. mollis* are characterised by large and very massive blooms, but for vividness of colouring some of the older kinds maintain their supremacy over the later Japanese introductions. After the bulk of the Ghent varieties are over, the clammy *Azalea* (*A. viscosa*) comes into bloom. In this the flowers are mostly white or pale pink, and deliciously fragrant. The variety *glauca* is distinguished by the markedly glaucous character of the foliage, and is besides valuable from its late-blooming qualities. The last of the Azaleas to bloom is *A. occidentalis*, which may be often had in flower quite up to the end of June, and consequently differs from the earlier ones in being furnished with foliage when the flowers expand. The blooms of this are white, or nearly so, with a yellow blotch. All these Azaleas delight in a cool, moist, vegetable soil, and, in common with most of their allies, the delicate hair-like roots are soon injured by drought. Though the named varieties of these Azaleas are propagated by layers or grafting, yet there is no reason why they should not be raised from seeds and planted in shrubberies, woods, &c., as their vivid-hued flowers would impart quite a striking feature to woodland scenery. One point more remains, and it is that in autumn the decaying leaves assume very bright tints, the various shades of yellow and red being chiefly represented. In this respect some individuals almost vie with their allies, the North American *Vacciniums*.—A.

Guernsey Gladioli.—I send you a few spikes of Gladioli, which I find equally suitable for potting as *G. byzantinus*, and though they are not much more than half as tall, they are much more graceful in growth. The dark salmon-red variety is named *roseus maculatus*; the other two belong to the *G. blandus* family. Both are extremely pretty, and as they are both blotched on the lower petals with carmine, they are showy. These are all I have in pots this season, but we grow many more varieties in Guernsey. If the bulbs are well ripened after flowering, they will do for potting year after year, and they succeed better so treated than Hyacinths. They must be repotted every year before they begin to grow again.—M. NIGHTINGALE, *Monplaisir, Guernsey*.

Crinum latifolium.—Although almost hardy if planted on a well-drained border under the protection of a wall and exposed to sunlight all day, this handsome *Crinum* may be specially recommended as a useful flowering plant for the warm greenhouse, or, say, under treatment like that which is given to *Amaryllises* (*Hippeastrums*). It may now be seen in nice condition in the T range at Kew. The following is a brief description of the Kew specimen: Leaves about a dozen on a short neck or stem, herbaceous, pale green, 3½ feet long by 4 inches wide, channelled, the edges scabrous. Flower-scape 2 feet long, slightly compressed, erect, and bearing an umbel of ten flowers which have long narrow green tubes, widening upwards, and separating into six overlapping segments, 2½ inches long, recurved, and forming a bell-shaped limb 4 inches across. Colour of the segments snow-white, with a broad band of pale rose down the middle. Stamens curved upwards, anthers black. *C. latifolium* is widely distributed over India, and extends even to Africa, the Kew plant here described having been obtained from Zanzibar.

The Gloxinias—always a bright feature in early summer at the Royal Exotic Nursery, Chelsea—are just now in perfection, and the fine display which they make seems to delight visitors to this nursery quite as much as does the Orchid show. Messrs. Veitch's strain of Gloxinias has long been celebrated for its excellence, and each season new seedling varieties eclipsing those of older date are added to it. The greater part of the collection consists of erect-flowered kinds; indeed, the old fashioned horizontal flowered section seems to be now entirely neglected, although it still contains many good sorts. The variety and brilliancy of the colours in the erect group are indescribable; some are self-coloured, others banded with light and dark shades, while the majority have exquisitely netted and spotted flowers, vase-like in form and measuring as much as 3 inches

across. Every day some new seedling opens, good of its kind; but out of the thousands of seedlings raised comparatively few are considered worthy of naming—that is, none are named unless superior to old sorts of the same colour. The following are among the best new named sorts, viz.: *Acme*, remarkable for its dwarfness and large and brilliant cherry-crimson flowers; *Ivanhoe*, white and purple spotted and veined; *Mrs. Hugo*, pale yellow, spotted with purple; *Marchioness of Abergavenny*, an extremely fine spotted variety, white and purple; and *Jubilee*, white spotted purple, and with purple margin. These are some of the new sorts now in flower, but older kinds of different colours will probably never be beaten; for example, there is no better pure white than *Purity*, which has very large and finely formed flowers of snowy whiteness; and again, the richest coloured sort yet obtained is that named *Flambeau*, whose crimson colour is very vivid, although the flowers themselves are undersized. Other varieties which are regarded as the best of their colours are named *Bayard*, *Mrs. Atkinson*, *W. Goldring*, *Cordelia*, *Coronet*, *Diadem*, *Duchess of Connaught*, *Fabiola*, *James Barber* (drooping), *Thalia*, *Carillon* *Diadema* (drooping), and *Rob Roy*, the last a new sort with enormous violet, blue and white flowers. There are two housefuls of *Gloxinias* to be seen at this nursery—one in which seedlings are flowered by the thousand; another, in which the plants are intermixed with *Asparagus plumosus* and other elegant-leaved plants in a most effective way.

Royal Gardens, Kew.—It is officially announced that the vacant curatorship of Kew Gardens, caused by the retirement of Mr. John Smith, has been filled by Mr. George Nicholson, who for fourteen years has been Mr. Smith's principal assistant. A new office has also been created, viz., that of assistant curator, and to this post Mr. William Watson has been appointed. Mr. Watson has for the past seven years been chief foreman, and the management of the bulk of the plant houses has devolved upon him, so that he is well fitted for the post which he now takes, and which, we understand, is still to include the management of the indoor collections. A more suitable curator than Mr. Nicholson could not well have been selected, for he possesses botanical as well as practical knowledge such as the curator of a great botanical garden like that at Kew should have. His special study is trees and shrubs, and the arboretum will, we hope, continue to improve as it has been doing during the last few years since he has turned his attention to it. Now that the new directors and curators at Kew are men in the prime of life, let us hope that they will conduct Kew in conformity with the requirements of the times, and yet maintain its proud position as the first botanical garden in the world.

Exacum macranthum.—This beautiful Gentianwort is an annual attraction at Kew, where it has been successfully managed for six years at least. It is perhaps the best of the numerous species of *Exacum* found in India and Ceylon, for, although the beauty of many of these plants is of a very high order, yet they do not appear to thrive in English gardens. *E. macranthum* is, however, both beautiful and easy to manage—at all events we may conclude as much from its conduct at Kew. We learn that seeds are not formed by cultivated plants, and it is therefore the practice at Kew to strike cuttings from one-year-old plants, and in this way successive batches of flowering plants are obtained. This is necessary, owing to the biennial character of this species. A coloured plate of *E. macranthum* was given in *THE GARDEN* in Vol. XXII., p. 422, and a good deal of surprise was at the time expressed because of the absence of so beautiful a stove plant from collections generally. The large flat flowers, borne in a compact head on stems a foot or so in height, and coloured deep gentian-blue, are indeed almost unequalled in any other stove-flowering plant.

Disporum.—This genus is closely related to the *Gloriosas*, *Littonias*, and *Saundersonias*, these and several others forming the group *Uvularia* in the great *Lily* family. About a dozen species of *Disporum* are known, and four of them are in cultivation at Kew, the prettiest of these being *D. Leschenaultianum*, which has a tuft of herbaceous stems 2 feet high, noded and scale-bearing, like a *Lapageria*, and the

leaves are borne upon short branches on the upper half of the stems, the flowers terminating these branches and hanging gracefully like ear-drops. The leaves are *Uvularia*-like, 2 inches long by 1 inch broad, and the flowers are pure white, half an inch long and wide, the six keeled segments forming a cup. As a plant for the cool greenhouse this species is deserving of attention because of its graceful habit, pretty flowers, and accommodating nature. Its stems are annual. The Kew plant has recently been figured for the *Botanical Magazine*. *D. pallum* grows to a height of 6 feet, and has narrow leaves nearly 3 inches long; the flowers are borne in clusters in the axils of the leaves, and they are three-fourths of an inch long, almost tubular, their colour being pale purple tipped with yellowish green. There is a healthy specimen of it now flowering in the Palm house at Kew.

New Bromeliads for Kew.—The rich collection of Bromeliads formed by the late Prof. Morren, of Liege, has been disposed of by private treaty, and we are glad to learn that the bulk of them has been purchased by the Kew authorities, and may now be seen along with the already extensive collection in the Royal Gardens. In England we do not pay nearly so much attention to the plants of this family as is devoted to them by Continental horticulturists, and more particularly in Belgium and France. At Kew, however, one may always see some of the species in flower, as well as a good many kinds which are exceptionally attractive in the markings of their foliage or in habit. With the species now added to those already at Kew, the nation becomes possessed of one of the largest collections of Bromeliads in existence, and we suspect that when the beauty of many of them becomes better known, Bromeliads will gain popularity even in England. About fifty plants, mostly very large specimens, have been purchased from the Morren collection, and these comprise forty-five species or varieties not hitherto included in the Kew collection. Many of them are as yet undescribed, but under Mr. Baker's watchful care we shall soon know more about them; perhaps, too, Mr. Baker will undertake to prepare a monograph of the whole genus now that by the death of Prof. Morren he has the field all to himself.

Dracontium Carderi.—The genus *Dracontium* comprises about half-a-dozen dendroid Aroids in habit like *Amorphophallus*, the solitary leaf being long-stalked, erect, the blade divided into numerous pinnatifid segments, and spreading out umbrella-like. *Dracontiums* are worth growing as ornamental foliaged plants, their prettily zoned or mottled leaf-stalks being both singular and attractive. For the introduction of numerous plants of this class of Aroids, including the noble *Godwinia gigas*, we are indebted to Mr. Bull, of Chelsea, the species under notice having been flowered by him in 1879. Apparently, however, a slight variety of the same species has been named *D. annulatum* by the same energetic nurseryman; at all events we saw in the Aroid house at Kew the other day a plant thus named which we have since learned is *D. Carderi*. This plant has a leaf 4 feet high, with a spreading blade 2½ feet in diameter. The flower-stalk is half as long as that of the leaf, and bears a folding spathe about 1 foot long, boat-shaped, opening out at the top and revealing the deep black-purple colour of the inside, the colour on the outside being dark green. The spadix is short and violet-coloured. This species is a native of Colombia, and requires tropical stove treatment. Like all these plants, it goes to rest in the winter months.

SHORT NOTES.—VARIOUS.

A good old Rhubarb.—Mr. Edward Woodall kindly sends us a specimen of the old scarlet *Tobolsk* Rhubarb, which has been a long time cultivated in his garden at Scarborough. It is higher flavoured and coloured than the other varieties, and, as we think, better worth a place than some of the large coarser kinds.

Niphetos Rose.—This, it is well known, is one of the best of all *Rose* or button holes, and it is also one of the best for pot-culture. It flowers freely in quite a young and dwarf state, and, being now propagated by the thousand, nice little flowering bushes of it are sold at a price very little over that usually paid for ordinary bedding plants. There can, therefore, be no hindrance to any one having a few pot *Roses* to grow even as window plants, or to add interest to a miniature conservatory.—J. G.

FRUIT GARDEN.

PLACING STONES OVER ROOTS.

I WAS pleased to see "J. C. C." calling attention (p. 496) once more to some of the more obvious advantages of this old-fashioned, but rather important, practice. The stones not only retain moisture, hold blowing sands or light soils in their place, ensure solidarity, and, as "J. C. C." points out, probably increase the temperature of the root-runs, but they also preserve the surface from cracking, multiply the numbers of the roots, and keep them nearer to the surface. These three latter advantages may seem less obvious than the others enumerated, but they are none the less certain and important. Few things are more destructive to the roots of newly-planted trees than the contraction of the soil into fissures by drought, and the consequent rupture of the roots in consequence. To prevent such injury, mulches of loose soil, manure, Cocoa fibre, and other non-conductors are much used; and these are efficient very much in the ratio of their porosity. The more porous the less moisture or heat will pass through, and consequently the less danger of surface rupture or rending. In many cases, however, stones are far more plentiful, readily available, and equal or better as a surface mulch than anything else. Tolerably closely covered with these, surface-rending becomes impossible. The weight of the stones and their great power of conserving moisture render it impossible. Stone surfacings over roots also greatly multiply the number of the latter. This I have proved by numerous experiments and more numerous cases of careful observation. Some very striking and successful experiments have been made at different times on Vine borders. Everyone at all familiar with the habits of Vine roots is aware of their tendency in many cases to run down and bore deep rather than scatter themselves far and wide. It is said by some, place your richest soils or manures on the surface, and the roots will seek for and find them there. But this is not always the case. Weight the surface over the manure with bricks or stones or a heavy layer of concrete for a year or so, and the roots will rise and hug the undersides of the stones or hard surface. In numerous instances I have found this to be the case where heavy stones have been placed on transplanted trees or large shrubs, such as *Hollies* and *Laurels*, for the simple purpose at the time of holding the root masses and balls fast against the wind purchase brought to bear upon the tops. I have used stones of half a hundredweight for these purposes, and in moving them for use elsewhere in two years' time have never failed to find a complete network of roots underneath. So much did this come to be looked upon as a matter of course, that a heap of good compost was kept in reserve to fill up the vacuum left by the stones, and these became the active centres of root force to most of the trees and shrubs. So certain have I become from extensive observation and large experience that the surface stones become active centres of rooting force, that I confidently invite anyone who is sceptical to make the experiment for himself. Finally, surface-stoning leads to surface-rooting. That this is a fact, no one can doubt who has taken the trouble to test and demonstrate the matter for himself. But the why and the wherefore may be more difficult to explain. Doubtless, however, the moisture, the additional heat and augmented weight or pressure may all exert their quota of influence in raising and keeping the roots near to the surface. For the stones, or their equivalents in the form of bricks, old pieces of mortar, not only attract the roots to the surface, but keep them there. I remember a case in point of a Vine border covered with bricks, with interstices of from 1 inch to 2 inches between the bricks; at the end of the second year a network of roots not only underran the bricks, but filled the interstices and began to climb up the sides of the bricks. They were then cleared off, and a 4-inch layer of compost, consisting of half manure and half maiden loam, substituted for them and to good advantage, for the surface of the border was filled with vigorous roots for years afterwards.—D. T. F.

— In loose, dry soils stones placed over tree roots are certainly useful. Being close to the sea

here, we experience plenty of rough gales, and when the soil is dry they carry off the finer particles in the shape of dust, unless covered with something heavier in order to fix them. During the past two summers' protracted droughts I have found that crops in this loose shingly soil, nearly half stones, kept green and growing, while others on soil apparently much better were flagging. I therefore feel sure that it is a mistake to remove stones from soil, as is frequently done under the plea of improving it. Let anyone take two exactly similar plots of the kind of soil that prevails so largely on the sea-coast; let them have one plot trenched up, stones and all, and the next plot screened so as to remove all stones larger than a Walnut, and note the result. The last plot would doubtless look nicest, and for sowing small seeds would be much the pleasantest to work, but, judging from experience, the crops would be best from the other plot. Stone-picking, in short, from light soils does positive harm.—J. G., *Hants.*

THE DELL, EGHAM.

THERE are not many places, even in England—the land of beautiful gardens—where two such distinct types of landscape can be found, side by side and in such strong contrast, as in Baron Schroeder's garden at Egham. You have here, on the one side, the Great Park at Windsor, and on the other, separated only by a parapet wall, a garden such as can only be seen where wealth and refined taste have played a prominent part in its formation. The juxtaposition of these different landscapes is, of course, here the result of circumstances rather than of design, but the occurrence has been turned to good account. The house itself is near the boundary line of the Great Park, and the view from the windows can only be equalled by that from Windsor Castle itself. It overlooks a charming wooded dell, a mile or more in extent, and at the end of the vista, in a direct line, at a distance of some two or three miles, stands Windsor Castle; indeed, the relative situations of The Dell and the Castle are such as to lead one to suppose that an opening which occurs in the woods at this particular point had been made intentionally at some time or other. In the Great Park and elsewhere in this district the trees consist chiefly of Oak, Beech, and Ash, with here and there a group of Thorns, which now enhance the charms of the scene with their sheets of bloom.

The view of The Dell (p. 521) is taken on the park side of the house, to the right of The Dell itself. It was a late autumn day when the photograph was taken, but even then the scene was indescribably lovely; the Bracken was beginning to get brown, and the decaying foliage to present endless tints of colour; in short, the autumn and winter aspect of this part of the country is scarcely less beautiful than that of spring or summer.

What a contrast is this wild Nature to the scene on the other side of the house, separated only by a parapet wall. In this part there is no winter aspect; a perennial summer scene presents itself; for the Baron has wisely made evergreen growth the predominating features; indeed, you can scarcely see a deciduous tree except on the outskirts; in short, the whole garden—the trimly-kept lawns, the faultless paths—only serves to throw into stronger contrast the great park view. The engraving shows two of the stately Lebanon Cedars, which are unquestionably the glory of the place, and these, with other Conifers, such as the Douglas Fir, the Deodar, the Araucaria, and the Lawson's Cypress, and beyond some picturesque groups of bonnet-headed Scotch Firs may be said to be the leading features of the garden as regards the evergreen tree growth. Mingled with these is a multitude of evergreen specimens representing every beautiful thing that is found

to succeed, but, as in most places, the difficulty has been chiefly with the soil, for seldom is a soil found on a place suitable for all kinds of trees. Here the difficulty has been great, for underlying the whole place is a hard, impervious pan only about 1½ feet to 2 feet in depth, and this has had to be broken up before even a shrub could be planted. The natural soil of the place suits the majority of Conifers; hence the grand specimens that one sees here, the result of only about twenty years' growth. But then comes the difficulty; it is not naturally a good soil for Rhododendrons, Roses and the like, which beyond all others are considered of the first importance. The splendour of The Dell Rhododendrons is well known, but such results have only been attained after years of labour. The collection of Rhododendrons here is no doubt among the finest in the country, for as soon as a new sort "comes out" it finds a place here; the great masses of Rhododendrons are composed rather of select sorts than a collection of good and bad, and this is why such a marvellously fine display is effected every June, when crowds of people, through the liberality of Baron Schroeder, visit the gardens.

The house is a picturesque building, admirably suited to the situation. It is long and low, with prominent gables on the garden side, and castellated on the park side. A lofty, pretentious mansion would have been out of character in such a rural spot as this, and no doubt that is the reason why the old mansion which existed when the present owner came to the place was retained and added to. The additions, though extensive, have, however, been carried out successfully as regards the harmony of the new and the old parts, which, as everyone knows, is not always the case. Attached to the house is a charming rocky fernery, designed and planted in a natural way, and a glazed corridor in the front part of the house is also a kind of conservatory, made delightful at all times of the year by brilliantly coloured flowers. Those who have enjoyed the privilege of inspecting the art treasures contained in the picture and sculpture galleries may see that the Baron is not less a patron of the fine arts than of horticulture.

Such a beautiful garden of Evergreens is not very often seen. All that is good among evergreen trees and shrubs has been tried, and though some, of course, do not flourish, the majority do, the result being the best evergreen garden I have yet seen. You see great masses of not only common Rhododendrons, but alpine Rhododendrons, Kalmias, Andromedas, Ledums, and other less common things; interspersed with these are groups of such as Ghent Azaleas and double Furze, which, flowering as they do earlier than the Rhododendrons, light up the garden in early May with their brilliant colours. During June the Rhododendrons are the prevailing feature, and one can imagine the splendour of such a display. After the Rhododendrons are past the Roses are in bloom. These are not dotted about here and there, but are gathered into a great mass—a rosery, in fact, and in this way they produce a grand effect, and, considering how vigorous they look, one would hardly suspect that the soil they grow in has been brought into the place, for while the natural soil is suitable for Conifers and American plants, it is not heavy enough for Roses.

Besides the noble specimens of Lebanon Cedars, of Lawson's Cypress, of Douglas' Fir, and of the Araucaria, fine examples of other Conifers meet one at every turn. Of the glaucous variety of *Cedrus atlantica* there is, perhaps, as large a specimen as could be found anywhere. It is most beautiful, possessing all the elegance

of the common Atlas Cedar and covered with a bluish grey tint, which at times looks like frosted silver. Nordmann's Fir is a favourite, as it thrives so well in a young state, though as soon as it feels the effect of the dry subsoil it begins to decline. Some old and tall specimens of this Fir have a wretched appearance compared with the young trees of the same Fir from 10 feet to 15 feet high. *Abies nobilis* is also a Conifer which refuses to thrive here, and there is a large tree of the true *A. amabilis* which is not remarkable for vigour. On the other hand, *A. Pinsapo*, *cephalonica*, and *Smithi* thrive admirably, and so do all the *Thuja*s and the *Yews*; indeed, the golden *Yews* here are among the finest in the country, and these, with other golden and variegated Conifers, light up the place in winter, as the Furze and Broom do in summer. Although you see such crowds of specimen trees, they have not been planted in a haphazard way. The vistas and glades have been preserved, so that from the principal windows of the house the outskirts of the garden may be seen, yet anyone in the grounds would never suspect the nearness of the high road, which has been skilfully hidden by a dense tree growth. The broad expanse of lawn is not interrupted by walks, as is so often the case; only one good walk surrounds the whole, with a few secondary paths which lead to objects of interest, one of them being a charming hardy fernery.

One of the most remarkable features of the place is a huge specimen of the old double white *Camellia*, 25 feet across. It is planted, or rather was planted at some time, against a wall in what was the old kitchen garden, now transformed into a lawn, but it has long since outgrown the wall and now is a luxuriant tree, which every year is loaded with flowers. The only protection it gets is a temporary screen, which is put over it during hard weather so as to preserve the buds. Another noteworthy plant here is the Tree *Pæony*, of which there are some grand specimens some 5 feet or 6 feet through, and just now they are covered with huge blooms. It is scarcely credible that the greater part of the trees here is the growth of only about twenty years, and that one part of this charming garden was covered with hothouses a few years ago, and that the magnificent collection of specimen *Hollies* which border the carriage drive was planted by the present owner of the place.

The kitchen garden containing the plant and fruit houses is on the opposite side of the high road, but the two portions being connected by a tunnel, a stranger does not notice the division of the property by the road. As regards this department, it need only be said that it represents the highest perfection of cultural skill. All kinds of fruits are grown, from Pine-apples downwards, and the provision made for their culture is, as may be supposed, on a scale corresponding with the importance of the place. The numerous plant houses are crowded with ornamental plants of all kinds, in order to meet the demands of a flower-loving family. Numbers of houses are devoted to Orchids alone, and the treasures contained in them are familiar to the Orchid-growing public. So frequently have "The Dell" Orchids been alluded to in THE GARDEN, that little need be said about them here.

In conclusion, it may truly be said that, whether the visitor to The Dell is an admirer of a beautiful garden landscape, or of trees or of Orchids, or of high-class fruit and plant culture, he would not be disappointed. The place is maintained in high order by Mr. Ballantine, who is well known to be one of the best exponents of English horticulture. W. G.

GARDEN IN THE HOUSE.

WINDOW GARDENING.*

As the following observations are principally intended for people resident in towns, and who, in many instances, either from circumstances or choice, are confined to what they may successfully grow within the limits of a window, I propose considering the subject under the following heads:—

I. WINDOWS AND THEIR ARRANGEMENTS FOR PLANTS.—People who have never been out of a local town like Clonmel can have no conception of the perfection attained in the culture of window plants in Paris, London, Dublin, and even in smoky towns in Lancashire. Take an illustration from each. I once stopped in the Rue de Rivoli, Paris, where I saw a lady move through a window a Wardian case from the drawing-room to the balcony. It was on rails; the window was accurately poised on pulleys; a pressure of the finger sent it up, and a similar pressure sent out the glass-case from inside. It was the autumn, and though the days were very sultry, smart frosts frequently supervene at night; hence the advantage of such an arrangement. The case contained principally Ferns—in the more shaded inside corners were Killarney Ferns and a fine specimen of *Todea superba*. In this case, centrally situated, was a miniature fountain throwing its spray to the top, and catching it below in a small basin, where some gold fish disported; the same water was used over and over again, being self-acting by its own pressure. The case was partially shaded except in front. The balcony was quite brilliant; creepers ran up on both sides, such as *Vitis purpurea* and *Ampelopsis Veitchi*; while Clematises festooned overhead and drooped over the front, and as for other plants, they consisted of India-rubbers, sweet Verbenas, Fuchsias, Begonias, Coleus, and the more hardy Palms. So much for a window garden in one of the finest streets of the most brilliant city in the world. Yet I was told that the whole window arrangements (florally) did not cost £5. This is one of the lessons I would emphasise—bright effects are often owing more to taste than lavish expenditure, and this is characteristic of the French. I was subsequently shown an elaborate window arrangement in Oxford Street, London, in which for a few hours were displayed some rare Orchids—nothing imposing except to the initiated—yet one *Cattleya*, I was told, cost 200 guineas. I mention this by way of contrast, and as characteristic of wealthy London. I am not sure if a window box noticed in Merrion Square, Dublin, the cost of which must have been merely nominal, was not as effective, though it contained no flowering plant, its brilliancy being dependent on foliage. Sunk in the box were fine specimens of *Coleus*, of the richest tints, capable of being lifted readily and taken inside if storms threatened to shatter the soft foliage. Alternately with those were small plants of *Berberis*, *Choisya ternata*, variegated *Aucubas*, and variegated *Euonymus*; while at each end, like feathery sentinels, waved two handsome specimens of *Acacia lophantha*. The box and window-sill were

draped with variegated Ivy, and running up from a lower story and skirting the window sides were a Sweetwater Vine with brilliant foliage on the one side, and *Passiflora carulea* on the other. This was not far from a brilliant balcony of flowers tended by "Speranza," of whose poetry Irish people are proud. I have thus given three illustrations taken from three of the finest cities in the world, in some respects typical, and showing that beautiful window effects are not dependent on great wealth, nor on flowering plants alone. Indeed, a more lasting result can be attained by combinations of foliage of different sorts.

THE MOST SUITABLE WINDOW AND ROOM PLANTS AND THEIR GENERAL TREATMENT.—The window gardener who would succeed in growing to perfection any plant whatever in red pots on a window-sill in the open air would deserve a prize. One day's hot sun will roast the roots, if not watered—while a heavy shower will, as a rule, make them water-logged. A box is better, either with soil to put the plants in, or without soil, to drop the pots into. In either case there should be holes to allow superfluous water to pass away. One great advantage in having the plants outside the windows of a room is that light and air are

sill to grow plants on. An indispensable requisite for this purpose beside the box is some good loamy soil, not always easy to be had in towns. Indoor, without any forcing arrangements, plants of various kinds can be had in bloom the whole year round—say *Chrysanthemums* and late *Fuchsias* during October and November; early *Hyacinths* and *Lily of the Valley* at Christmas; *Daffodils* and *Dieleytra* and the beautiful *Nile Lily*—best of all room plants—during the spring months; *Pelargoniums*, *Tea and Perpetual Roses*, with *Fuchsias* and *Japanese and American Lilies*—capital room and window plants—during summer; while for variety, many of the fine-foliaged plants, such as *Yuccas*, *Aloes*, *Aspidistras*, *Grevillea robusta*, several *Palms*, such as *Phoenix sylvestris* and *P. reclinata*, *Chamærops excelsa*, and *C. Fortunei*, with proper treatment will last healthy for years. In fact, any plant with fleshy or coriaceous foliage will stand well the dry atmosphere of rooms. Generally, small pots are to be preferred; some one member of the family should take charge of the plants; sponging or syringing the foliage is most desirable; and lastly, water should not remain in saucers, with the one exception, that of Musk. Gardening, i.e., the love of

plants and flowers, whether the space extends to several acres or is limited to the windows of a room, is, as has often been asserted, the purest and most self-satisfying of pleasurable occupations.



Lawn view in winter at The Dell, Egham, showing Lebanon Cedars and Rhododendrons.

not impeded, and a further advantage is that the evaporation from the box or plants, which might be injurious in a bedroom, passes away. As I have stated, windows intended for plants should either be worked by means of pulleys, to move readily up and down, or at least be capable of opening inwards. Windows only capable of opening outwards cannot be readily utilised when plants are being tended. Too constant watering is avoided by planting the edges of boxes or large pots with *Sedums* or hardy *Saxifrages*, or Moss. What is best to have in boxes is the next question. I am not sure if I were limited to one annual that I would not grow *Mignonette*, which would scent the air all around it until cut off by frost in December. Variety might be produced by having *Asters* or *Stocks* growing through the *Mignonette*, or the box might be edged with blue *Lobelia*, and have Sweet Peas, Canary Creepers, and *Pelargoniums* of different sorts behind. When the annuals begin to decline, at once remove them, say next September or October, and plant bulbs of various kinds—*Crocuses*, *Snowdrops*, *Daffodils*, *Hyacinths*, &c., and a succession will be obtained at a trifling cost the whole year round. This is an illustration of how one can be agreeably amused who may have but a window

window, doing well in the most dismal court or alley. Some of the best specimens were shown by caretakers of offices. Not long since I saw outside a window in one of the streets near the Marylebone Road a patriarchal bulb growing in a good sized pot, and which in all probability had been untouched for years; round it was a circle of offsets of large size, and these in their turn had thrown off others. It is a plant that will bear a good deal of rough treatment in this way, provided it can have sufficient moisture, and, therefore, when growing in a sunny window, it should be stood in a shallow pan or large saucer of water, as it is undoubtedly a moisture-loving plant in such a position. The peculiar growth of the bulb causes it to invade all that portion of the soil on which water can be poured. In addition, window gardeners of the City class appear to be very fond of adding fresh soil to the surface of their plant pots, and it is next to impossible to give them water; hence the necessity for standing them in some vessel containing water. It is a subject good enough for an ordinary greenhouse. The flowers are almost colourless, but it is an interesting and curious plant, well worth more attention than it receives. In some parts of the country the Star of Bethlehem is called the Onion plant.—R. D.

The Onion plant

(*Scilla longibracteata*).—Not long since I was in the house of a cottager where several Onion plants, as this *Scilla* is termed, were growing in a window, and a visitor remarked, "Do you know that it is unlucky to have an Onion plant in the house?" This led me to speculate how this superstition arose, but I can find no trace of it. When the rector of St. Botolph, Bishopsgate, used to hold a City Flower Show in Finsbury Circus, some remarkable specimens of the Onion plant were produced. I have seen its inflorescence over 3 feet in length produced by bulbs 10 inches and 12 inches in diameter. It is one of the best of London plants for a

* Window and Town Gardening as an Industrial Pastime: A lecture delivered by Mr. W. J. Murphy before the Clonmel Industries' Association.

NOTES.

IRIS FLORENTINA.—I sometimes think that we see a little too much of the old purple *Iris germanica*, and too little of the finer kinds of *Flag Iris*, such as this milk-white *Iris* of Florence, and the great-flowered mauve *I. pallida dalmatica*, or the violet and white *I. Victorine*. Of all these *I. florentina* is most floriferous, nearly every growth yielding a spike of blossom. Cut in the bud stage and brought indoors, these spikes open out every bud, and no *Orchid* can rival the silky sheen of the delicate petals. *I. pallida dalmatica* would be well worth growing for its leaves alone even if it never flowered, which, however, it does quite freely. Three or four of its great spikes placed in a big pot indoors with its own great flat leaves form a picture such as but few other flowers could surpass. The best of these *Flag Irises* are so fine when well grown, that a collection should be formed in every garden. We have here a very lovely *Iris*, somewhat like *I. florentina*, only whiter, but it is a very shy-blooming kind. Is it the one known as *Princess of Wales*? Planted a little above ground level, we find most *Flag Irises* grow and bloom freely, and the strong growth of the English and Spanish kinds promises a rich harvest in June and July.

PANSIES AND VIOLAS.—There is nothing exclusive about these homely flowers; everyone may grow them even in gardens of the smallest. A big bed of *Iris florentina* carpeted with rich dark purple *Pansies* is a sight that even an *Orchid* grower might envy. Last September I passed a little cottage on the roadside between Melrose and Abbotsford, and the garden close to the road—separated only by a rude rail fence—contained some of the finest *Pansies* I ever saw. The fresh crisp northern air suits these rich velvety blossoms to perfection; indeed, the north seems to be the true home of these lovely flowers. In Dicksons' nursery at Pilrig Park I also saw them in good form by the acre, another proof that the northern growers appreciate this flower at its true value. Of late years the *Violas* approach the *Pansy* in size, form, and rich variety of colouring, while at the same time they are far more enduring and floriferous. Mr. Clarke, of Wemyss Castle, Fife, has raised some beautiful things in this line, and a bed of Mrs. Clarke—a good white—we had here last season won the hearts of all who saw it at its best. On hot, dry soils, either puddled beds or beds enriched or lined with fresh cow manure are necessary to their freshness and beauty, but these flowers are really worth any trouble, so satisfying are the results obtainable. For carpeting borders of tall, strong-growing perennials there are few plants more satisfactory than really good kinds of *Violas*.

THE CHINESE WISTARIA.—Can there be a sweeter or more beautiful wall shrub than this as seen at its best in a warm and sheltered garden? I saw several garden walls near the pottery at Sevres quite wreathed with masses of its Grape-like clusters nearly six weeks ago, but here it is only just now expanding its soft mauve flowers. Near Paris this rambling shrub is planted quite abundantly, and especially is it used for the draping of iron railings, thus forming a sort of floral wreath or frieze, and frequently extending for a length of very many yards. When grown inside garden walls near the public road a shoot is often trained a foot or so above the wall coping on a strained wire, thus forming in spring a wreath of olive-green leaflets and drooping blossoms very beautiful to see. There are two or three varieties. Perhaps the finest form is a white one, having elegant long spikes of bloom, and then there is the double-blossomed form, which, like most other double *Pea* flowers, is a

wretched thing. The main drawback to the more frequent planting of *Wistarias* is their slowness of growth for the first year or two, and some little difficulty is often experienced in propagating them. Layering is slow, but sure. On the other hand, once well planted, a *Wistaria* will cover a hundred feet of wall and live for a century or more—a thing of beauty. Even in London it grows well. At Chelsea and Battersea, and also at Chiswick, there are even yet fine examples, so also at Hampton Court and at Hatfield. There is, or was, a noble specimen on Mr. Turner's cottage at Slough, which has been illustrated in *THE GARDEN*, where also Mr. Parsons has shown the weird wintry aspect which this plant often assumes when old.

PARROT TULIPS.—In large borders among green leafage of many kinds these brilliant *Tulips* are now very effective. They show best in the sunshine, when the light is reflected and intensified as if from petals of burnished brass. Even when seen at a distance the blooms have quite a lamp-like effect, and are so bright that ordinary kinds of late *Tulips* look dull beside them. They are free blooming, strong-growing kinds, and vary in colour from pure yellow through all shades of orange and red until a glowing blood-red or crimson ends the scale. On warm, dry, sandy soils they are not only hardy, but increase rapidly from year to year. Among some of these flaming *Parrot Tulips* (*T. turcica*) we have a pretty single kind of a pinkish terracotta colour, which is much admired. Can anyone tell us where roots of the old yellow late *Tulip* having a green bottom can be obtained? It was formerly much prized as a hardy kind, and endures fresh and fair for a long time after it is cut and placed in water indoors. The great crimson-red *T. Gesneriana* is just now very fine, and endures both sunshine and wind bravely. It is one of the best of the hardy border kinds, but there are two or three forms varying in size, and although all are good, major or *Strangers* are the largest and best.

FLORAL WREATHS.—The most appropriate and graceful of these are simply woven by loving fingers at home. Bought flowers have no such associations as those which linger around the blossoms of one's own garden, and perhaps the poorest kind of paid-for sadness is that represented by the cumbersome wreaths and crosses of the flower shops. When the late J. C. Loudon was buried at Kensal Green, in 1843, just as the coffin was lowered into the grave a stranger stepped forward and threw in a few strips of Ivy. It was the tribute of respect offered by a poor man whom the great horticulturist had once befriended, and the act had in it that true human feeling which is the very soul of poetry. We have all heard of the famous horticultural lady, who, while growing the finest of exotics in her conservatories, always purchased the flowers which she gave away; but who would think of giving bought flowers to a bride, or of offering them in respect to their dead friends if they had a leaf or flower of their own to give? At funerals more especially is floral millinery in bad taste. If our joy or grief be sincere, let it be expressed by real flowers simply placed together with a few fresh green leaves. The American florists are in some cases worse than our own, but even in America floral designs of the cart-wheel or the windmill types are avoided by people with any pretensions to good taste.

WEEDY CORNERS.—In even the best of large gardens weedy corners often exist as if by some sort of natural selection, and one cannot do better than fill them with big-leaved plants of habit too luxuriant for the beds or borders devoted to herbaceous plants generally. As someone has

well said, "where *Briers* are one may have *Roses*, and the *Apple* might replace the hedge-row *Crab*;" and so wherever weeds grow up in neglected corners, plants of character might be substituted with advantage. There are some strong-growing plants which give our native weeds no quarter. Of such are *Solomon's Seal* and *Lily of the Valley*, the *Japan Knotweeds*, the *Hungarian Bindweed*, *Siberian Heracleum*, and the common *Ferulas*. All the *Rhubarbs*, again, are happy in such corners. *Rheum palmatum tanghucicum* is one of the best of all the kinds, being distinct and handsome alike in leafage and in blossom. Its white plumes shine out from the trees here and there to a height of 6 feet or more, and are handsome as so seen under partial shade. The bare and unsightly spots where manure heaps or wood-stacks have been are soon covered up if dug over and planted now with *Primroses*, or with any of the big-leaved plants above named. A friend of mine planted the site of a big manure heap with *Solomon's Seal* and *Lily of the Valley* two or three years ago, and the spot is just now one of the best features of a good garden. *Bluebells* and *Primroses* may also be planted in such waste corners if partially shaded, and will well repay the trouble after many days.

RAMONDIA PYRENAICA.—This plant is rather capricious, but grows well with us wedged tightly in a pocket or niche on the top of a partially shaded wall. It is screened from the mid-day sun by an adjacent *Chestnut* tree, and is watered now and then during dry weather. Last year we had thirty or forty flowers all open at once, and the effect was a pleasing one. I see the white-blossomed variety just opening its buds in a neighbour's garden, where it grows well in a slanting position on rockwork beneath overhanging stones. In all gardens where low walls exist it would be easy to put rough stone copings on them suitable for alpine plants of many kinds. In damp or low-lying localities all the *Sedums* and *Sempervivums* do best as thus elevated high and dry above the soil. The rougher the stones are arranged the better if good deep chinks and niches are left to hold soil. The silvery *Edelweiss* never does better than on a stone-topped wall in full sunshine, and the same is true of *Linaria alpina*, *Erinus alpinus*, and many other little gems of that kind. When I was in Edinburgh last autumn I very much regretted that I had not my pocketful of *Foxglove* and *Wallflower* seed to scatter down the face of the noble rock on which the Castle stands. A few seeds of common, but beautiful, flowers and a few hours' pleasant labour would make a garden of the place. I hope this may catch the eye of someone who is sufficiently interested to carry out my suggestion.

THE ASPHODELS.—A friend who has returned from Greece has disenchanted me. I had acquired a notion that the fields of *Asphodels* were flowery gardens under another name, but my friend says that as he saw them nothing could well have been more dreary—a stony waste of ghastly white stalks, and of bruised and battered leaves under a scorching sun. It may be that the beautiful spring-like phases of the plant just before its blooms may have passed ere my friend's impressions were received; at any rate, the fact remains that a few well-placed clumps of the white *Asphodel* are most beautiful just now in the garden. This year we had a foretaste of the tall white *Asphodel* in the white variety of *Camassia* (*C. Leichtlini*), which grew 5 feet high after being replanted last August, and was quite *Asphodel*-like in port and blossom. So strong and fine were they, that some of our visitors mistook them for some species of *Eremurus* rather than for what they really were. The old King's

Spear, or yellow Asphodel (*A. luteus*), is a distinct and effective plant, even if less noble in port than *A. ramosus*, the white-flowered kind. Both look best in bold groups near an old wall, or near stones partly hidden by *Acanthus* leaves. Once well planted, these Asphodels will grow for years without attention, so that they are suitable for positions in church or cemetery gardens, where labour power in dressing and keeping is often of the most limited kind.

THE GARDENER'S PATH.—"What a nice thing life must be spent among plants and flowers," is an often-repeated remark, but I notice that it generally comes from people who know but little of what trouble and care even the most common of flowers require in order to induce them to succeed well. In a word, the romance connected with the garden is often more attractive than the reality. At any rate, the gardener's life, as a rule, is not all "cakes and ale." On the contrary, his path often lies over rocks and thorns. No one but a gardener fond of his plants knows what an infinite amount of care they demand, and what to an outside observer might appear a mere trifle is to him a most important thing. Nor is this confined to the mere working gardener. For instance, on the contrary you have only to take up that last work of Loudon's, edited by his wife and entitled "Self Instruction for Young Gardeners." Here was a man of fine thought and great powers of organisation, but his life was dogged by bodily pain and fretted by pecuniary difficulties, and the latter devolved on him (as with Walter Scott) at a time when he was least able to put them right. His powers were great, his industry marvellous, and yet he died by no means a rich man. Loudon's life may have been exceptional, but no one can read it without respecting a man who fought his troubles bravely to the last. After all, a life in gardens is mostly a healthy one, and it may be an intelligent and happy one since the manifold diversity of labour which a garden affords really yields a kind of rest far sweeter than that "laborious rest" which the idle endure; when one thinks for a moment or two of the lives of those who "go down to the sea in ships, or of the labour at the forge or in the mine," one can feel glad that our lot is in a garden, to dress it and keep it from harm.

OLD IRISH GARDENS.--The more I see of these old country-house gardens in Ireland, the more I am impressed by their richness and beauty. Of course a damp, mild climate favours the growth and longevity of many plants which speedily die out under the hotter sunshine of England, but I also believe that a stronger love for hardy flowers existed here formerly than was the case in England and Scotland or Wales. At any rate, Irish gardens were never tormented for the sake of bedding plants to the same extent as in the sister country; hence it comes that we are continually meeting with surprises in these old gardens. Fine old Roses, *Pæonies* (such as *P. Witmanniana*), *Hypericums*, and *Daffodils* long ago vanished from English gardens, even if they were ever grown there, are continually turning up here in abundance. My friend Mr. Barr simply laughed at me when some years ago I told him that Ireland was full of *Daffodils*, and that they grew better there than in England. The fact is, Irish gardens are, like Irish politics, better known now than five or six years ago, and yet the luxuriant vigour and abundance of her garden flora are but imperfectly understood. In the "good old times" the well-to-do people here were all fond of flowers and grew them well, and even now this is to a great extent true. So genial is the soil and climate, that even if a garden is swept away or neglected, such things as white

Daffodils, late *Tulips*, *Colchicums*, and many flowering shrubs do not die out, but struggle on until fashion or favour comes round to reward them for their constancy.

FLOWERY JUNE.—There is warmth in the air at last, and you can see the shimmer of the heat radiating above the soil. There is bird song everywhere, and one can realise that "summer is a-comin' in" as a boon most precious after a most changeful spring. Queen *Daffodil* is again deposed in favour of Queen *Iris*, and there is much promise in the garden, but the rich full flush of summer blossoms always seems as fair maids in waiting on Her Majesty the Rose. The old Hawthorn is again white all over, and the blackbirds sing matins on its topmost boughs, or are they "songs without words" to their mates who have whole nestfuls of cares among the Holly bushes below? There are *Iris* flowers and *Pæonies* on the borders, and great red *Tulips* dancing in the warm breezes, and the shimmer of the first great Oriental *Poppy* flower catches the eye among the soft greenery of many up-rising things. *Laburnum* is like golden rain, and the sunlight comes aslant through the purple Beech leaves morning and evening, giving glints of colouring only to be compared to rich old cathedral windows. *Pansies* and *Violas* are a-blow everywhere, and there is dainty lacework-like tracery of *Stitchwort* and *Cerastium* in the sun and groups of *Bluebells* in the shade. Yesterday I was in the dell at St. Anne's, Clontarf, which has been a blue carpet since February last, blue with *Scilla sibirica*, with *Apennine Anemone* earlier in the year, and blue now with wild *Veronica*, with *Bluebells* of all shades, and with clouds of *Forget-me-not*, and here and there with *Vincas*, both great and small. The warm bright days of June are ever most delightful in gardens.

OLD CHRYSANTHEMUMS.—Several friends have quite recently sent me *Chrysanthemum* flowers showing that these plants will flower in summertime nearly as well as during the winter. The point is, however, that they are wanted during December and January, but now we have many more brilliant and sweeter flowers, for, after all, do what we may, our queen of autumn, the *Chrysanthemum*, can never hope to rival the queen of summer, the Rose. I was amusing myself the other day in a friend's house by turning over the plates in the old "Florist's Journal," published in 1840-46. In the volume for 1843 is a plate of two old kinds now rarely, if ever, to be seen. The one is *Minerva*, an incurved flower of a lilac or bluish-tinted white, and the other, which rejoices in the long name of *Duc de Coniglianeau*, is a fiery red, not unlike, but perhaps brighter than, *Julie Lagravère*. Messrs. Chandler seem at that date to have been the principal trade growers, and a list of kinds is given but few of them are recognised to-day. In an article accompanying this plate some regret is expressed that seed cannot be obtained so readily as in the case of other florists' flowers; but we are now getting into the secret of obtaining seed in England, and even in Ireland, where the climate is too damp for the seeds of many composite plants to ripen as a rule. Single or semi-double kinds will seed freely if planted against sunny walls and sheltered from wet overhead, such as rain or drip, by a coping board. The American growers are a little late in the field, but they can save seed as freely from *Chrysanthemums* as from *Asters*, and they are likely to compete pretty closely with the French growers in the future. I hope we may soon have a conference held in the interest of this popular winter flower, which no wealth of summer blossoms can quite banish from our memories.

ON PAINTING FLOWERS.—"Theta" has missed the central point in my note on p. 473, so that the objections brought forward at p. 505 simply fall to the ground. I am not, as yet, old enough to believe in the word "impracticability" as applied to art, nor even as applied to art-teaching in schools. Students may copy cut flowers for convenience sake, but the best of flower pictures will always be those made from the flowers as they grow. I fully agree that cut flowers are a convenience; but perhaps "Theta" will tell us that they are better than those growing happy and beautiful in the garden, or in the nearest hedge. The observations of Darwin, Lubbock, and others have proved that every toss of a leaf, every turn of a tendril, the boring of root fibres, nay, every wrinkle of petal or bend of flower-cup are not mere accidents, but that they are the sure results of physical laws. If you draw a spray of Beech leaves as they float in the air, every leaflet is arranged to catch its share of sunshine; but if you cut the branch and arrange it in water indoors, you have robbed it of its most subtle charm, the exact rightness of its growth as governed by its position, aspect, and surroundings. Hence your drawing in the first instance may be right, *i.e.*, true to Nature; but in the second case you have destroyed an appreciable amount of Nature to begin with. To paint a few flowers in the open air is child's play as compared with painting a human face in the open air, or a landscape "in verdure clad," or "in a cider country," and neither convenience nor remuneration ever yet made a bad artist a good one. If a living donkey be better than a dead lion, then, believe me, are living growing flowers better than those on which the seal of death is impressed by a steel blade!

FLOWERS AND LEAVES.—We need not ask ourselves whether leaves or flowers are most beautiful, but enjoy both as being better than either alone. Yesterday, in a garden sunny and well sheltered, I saw a group of Ghent *Azaleas*, among which had been planted some of the best Japan Maples, and the combination was a very happy one. These *Azaleas* are of all colours, from milk-white through soft shades of sulphur and yellow, orange, pink, and then comes a series of reds quite unnamable, so softly rich in tone as to remind one of the rosy sky of sunrise or a beautiful sunset on the sea. Each little bush was covered with soft flower clusters, and the bronzy red or finely-cut green foliage of the Maples set off each colour to the best advantage. The group was in a sunny nook, surrounded on all sides but the south by dark Yews, so that when the sun poured its golden light on the *Azaleas*, one had a glimpse of soft rainbow-like colour perfectly undescribable in words. Quite near at hand beside the path were great bushes of Tree *Pæonies*, 6 feet high and covered with their great flowers; and in the Grass also in bloom were groups of *Iris germanica*, with here and there a plant of the white Florentine *Iris* for contrast, and others of *I. Victorine* and *I. pallida* for variety in leafage as well as for later bloom. But in a whole gardenful of early summer beauty naught pleased me better than did this great mass of Maples in leaf and Ghent *Azaleas* in blossom, and wherever these plants will grow it is a combination worth much to secure.

VERONICA.

Allotment gardens.—In reference to the present cry for allotments for the poor, it does not seem to be generally known what the first real requirements of the case are. Some think that allotments should be so large, that crops like those grown by farmers could be raised on them, and others think that ground enough to keep a man employed in his overtime would be sufficient.

To many a man a quarter of an acre would be a boon, while half an acre would be more than he could manage. To work an acre or more properly needs capital, but a small plot only wants a poor man's spare time. Of course, opinions may differ on the point, but facts cannot be altered. Another consideration of some importance is the division or fencing. Are such plots to be properly fenced? Where allotments are really an institution, as they are at Nottingham, for instance, the gardens are private and secure from intrusion. A mere open piece of land worked in patches has many detractions. There is no shelter from cutting winds, no place in which to store tools or crops, no chance for fruit trees, no obstruction to trespassers—all disadvantages, and gardening is one of those things where disadvantage means loss. What would prove of most value for a man's time and money? Decidedly a garden, not fenced merely, but cheaply walled in by the landlord, with fruit trees on the walls if not elsewhere and liberty to erect cheap glass structures; in the end the tenant to be the owner of things which he has grown or erected, so that whether by private sale or by the succeeding tenant buying them he may be recouped for his outlay. A cheap wall may be built with common coke, the lightest and cheapest thing I know of with which to build. A chauldron costing 10s. will build a piece of wall 4 yards long, 7 feet high, and 8½ inches thick. About £12 would wall in each quarter of an acre; so possibly plots an acre in size could be thus walled for from £35 to £40 each and would be well worth £2 a year extra. The bleakest of fields, if divided by walls into quarter acres, half acres, and acres, will at once become valuable for gardening.—A. DAWSON, *The Cedars, Chiswick.*

INDOOR GARDEN.

SUMMER TREATMENT OF CYCLAMEN PERSICUM.

It will be generally admitted that Cyclamens of this class are very serviceable, and I think it will also be conceded that in but few private places are they seen in creditable condition. Trade growers succeed surprisingly well with them, and there is no reason why private growers should not have them in at least something approaching a presentable state. In many instances a bad start first made lays the foundation of almost certain failure. Sometimes the seed is sown in autumn; at others, early in the year; but in either case the seedlings ought to be grown to a useful size the same season. By useful size I mean large enough for each plant to produce from twenty to a hundred blooms, or even more. While the seedlings are in the seed-pans and when first potted off singly into small pots they make satisfactory progress, but, as a rule, it is these small pots that do the mischief. If they could be plunged in Cocoa-nut fibre or set on a moist bottom, and the plants still be kept growing in a gentle heat and shifted before they were root-bound, all would be well; but, instead of this, they oftener than otherwise are set on dry, hot shelves or benches, where they cannot be kept properly supplied with moisture. The consequence, therefore, is, that the bulbs harden and refuse to swell properly. When this happens, no matter how well they may be treated, the chances are that they never attain a presentable size; and nothing looks more miserable than a badly grown Cyclamen. From the first we avoid pots; the seedlings are pricked out either into pans or boxes containing good light soil, and there they remain till early in June.

FRAMES will be now available and also a good heap of partially spent hotbed material. This, with a little fresh manure added in order to warm it up slightly, is formed into beds on the north side of a wall. On these the frames are

set, and if at all deep they are partially filled up with some of the shortest of the hotbed material. On this is put from the Potato frames a layer of good loam, to which is added a liberal quantity of leaf-soil, and a sprinkling of sand is stirred into the surface. The frames are kept close till the soil is somewhat warmed, when the seedlings are at once carefully planted out, about 6 inches apart each way, and watered in with tepid water. They are kept rather close for a time and shaded from bright sunshine. They are syringed overhead in the morning and again in the afternoon; the frames are then closed, and they are further watered when the soil approaches dryness. In this manner they make good progress, and by autumn are touching each other all round, and, what is also satisfactory, are well set with flower-buds. Before the latter are far advanced the plants are placed in clean well-drained pots varying in size according to the balls of soil and roots secured with each bulb. Some of ours go into 4-inch, more into 5-inch, and the remainder into 6-inch pots, and all have a little soil firmly packed around the sides. No fresh soil is needed, as that in the frames is far from being exhausted, but a little partially dried cow manure may with advantage be placed next the Moss over the drainage. After potting they are returned to the frames and slightly shaded, if necessary, but directly they have recovered somewhat from the check just sustained, the best place for them we find to be the slated staging of a moderately warm greenhouse. There they are kept separate from all other plants, and with proper attendance soon furnish an abundance of bloom, which is at its best early in the new year. After the plants have ceased flowering rather less water is given, though nothing in the shape of drying-off is attempted, and these, which may now be termed

OLD PLANTS, may be grown to a still more profitable size for use the following winter, after which they may be thrown away. Our Cyclamens at the present time have still the greater portion of their old leaves attached to the corms, but they are commencing to grow afresh, and are also rooting freely. They will, therefore, be at once planted out in frames situated and prepared as has just been stated. Very little of the old soil will be picked away from the roots, and with good attention they will form plants during the summer large enough for flowering in 6-inch, 7-inch, and even 8-inch pots. They are later in blooming than younger plants, and the blooms are rather smaller, but they are produced in greater profusion and are simply invaluable where many flowers are required for any purpose. The pure white varieties are particularly valuable, and these are included in most packets of seed, or they may be bought separately. Nearly half of our stock consists of these pure white varieties. Those who are unable to plant in frames may try a few

OLD PLANTS IN THE OPEN GROUND, adding plenty of leaf mould to the ordinary garden soil. I have secured fine plants in that way, but frames are most to be relied upon. Those who have seedlings in small pots should, if it is convenient, plant them out in frames, or they may shift them into larger pots and set them in a frame on a slight hotbed if possible; the highest part or back of the frame should face the south, that being necessary where no high north wall is available. Cyclamens ought not to be exposed to much sunshine; nor should they be grown on a dry staging. They like plenty of moisture about them, and frequent overhead syringings greatly benefit them. When in flower or during winter they need less moisture; damp and cold, in fact, induce decay, but in a warm greenhouse they may be watered freely, and when well

rooted ought to receive occasional weak supplies of liquid manure. A little seed may be saved from selected plants, but saving seed indiscriminately both weakens the corms and gradually impairs the quality of the strain. Blooms required for decorative purposes should be pulled clean off the corms, as if cut the portion of the stem left decays, and the decay soon spreads to the rest of the plant.
W. I. M.

IXIAS, TUBEROSES, AND GLOXINIAS.

It is interesting to observe how one cultivator often succeeds in growing plants which puzzle others. Some of your contributors are complaining of the trouble they have in growing Ixias, whereas with me they are flowered as easily as Hyacinths. I have now a splendid show of many colours, with foliage as green as Grass, and I prize the flowers greatly, because they last so well, either in water or as button-holes, and are rarely to be bought, or even seen. The only drawback is that the blooms do not open well in dull weather until they get fully matured. My treatment is to put five or six bulbs in ordinary potting soil, in a 5-inch pot, in autumn, plunge the pots in an old Mushroom bed, or sand, or ashes, and when the shoots appear above the soil, remove the pots to my coldest greenhouse, and place them close to the ventilators. No further care is required. We begin to pot Tuberoses (with which so many fail) about the 1st of February, plunge the pots (one bulb in a 4-inch pot, or two in a 5-inch or 6-inch) in the propagating house, withhold water until the shoot appears, and when the stems begin to show a joint, remove the pots to a warm greenhouse near the ventilators, and give them sometimes a little artificial manure. My first are just now coming into flower. I have had twenty-six blooms upon one stem, and owing to the bulbs of last season being particularly fine, I have two and even three flower-stems this year from one bulb. None answer so well with me as the American roots. Later on in the season they do better (after being started) in a cool house. With respect to Gloxinias generally seen in stoves, avoid great heat and artificial manure, wintering the pots under the stage near the pipes, and from this time until autumn, they will form one of the most attractive ornaments of the greenhouse, giving no trouble, and always free from insect pests. In gathering the flowers for the table, great care must be taken not to bruise them, for they are just as sensitive in this respect as Gardenias. I may add that I shall endeavour to profit by the good advice given by several of your correspondents on the subject of Daphne indica. My plants must have been overwatered and overpotted. Another recent discovery of mine is the ease with which the scarlet Hibiscus can be grown and flowered in a small state. It does not object in the least to the close atmosphere of the propagating house, in this resembling the Euphorbia jacquiniæflora. Three cuttings of the latter in an 8-inch pot give me a fair supply for early winter, and if cut in as soon as the bloom disappears, there will be a second crop of flowers in early spring. I found Deutzia candidissima fl.-pl. the best of all early flowering white pot plants. It should be summered out of doors. One of your correspondents seems fond of crickets. Let him not then grow Gardenias, for crickets certainly, *crede experto*, bite off the flower buds. It is said that sparrows eat Gooseberry caterpillars. They do, from the same laziness which makes them build such slovenly nests, occasionally pop one into the mouth of a greedy youngster in the nest, for I have, through an opera glass, seen it done, but neither young nor old ever help themselves to such a bitter

morsel, which even ducks after the first trial refuse. All hard-billed birds do much more harm than good in gardens.

NORTH-WEST CHESHIRE.

BOUGAINVILLEAS.

THE following account of my experience with Bougainvilleas may be of service to some of your readers while the subject is under discussion. I still subject them to dry treatment for six months or so in winter, but I give plenty of water during the growing and blooming season. I have bloomed five varieties, but in order to obtain the splendid display which we annually get I find that they must be planted out in a warm, dry situation in a winter temperature of about 60°, i.e., with the exception of *glabra*, which will bloom freely in pots. *B. speciosa* we obtained from France in 1857, and bloomed it in great profusion in 1861 and ever since. *B. spectabilis* we received from the late Mr. James Veitch in 1861,

in a strong bottom heat, and in this position it made a large bush by August. It was then removed to a light airy greenhouse, where it showed abundance of bloom in September. It was exhibited at South Kensington and obtained a first-class certificate. Stock from this plant was supplied to the trade, and I believe ours was the first plant of it introduced. It was figured in the *Florist*, and an article on its culture appeared at the same time. In 1862 this was planted out at the cool end of the same house in which we kept *B. speciosa*, the two occupying a space 60 feet long and 18 feet wide. *Speciosa* commenced to bloom in March and *glabra* in May, and the latter continued to produce a magnificent floral display till October, and this it has done for twenty-five years in succession. No one who has not seen Bougainvilleas bloom when planted out could imagine that they produce such a grand display. *B. Warszewiczii* was received by me from Messrs. E. G. Henderson in 1861 and planted out in 1863. It bloomed in 1865. It is a very strong grower ;

of this variety in the country, in the garden of Mr. John Kaye, Clayton, West Huddersfield, has been in full flower. I saw it about the end of April and it was then covered with bloom, and has been so flowered for years, and remains months in that condition. Not only does this plant, like others when well managed, bloom on the strongest shoots, but on the weak ones also, and in abundance on these, although the strong shoots are undoubtedly the most floriferous, thus affording a fine example of the fallacy of "D. T. F.'s" contention that strong shoots flower and fruit least. Indeed, I am pleased to have "T. B.'s" unintentional support on this point. It is the flowering of the small and weaker shoots that gives the plant the appearance of a mass of flowers because they lie close together. It is interesting to note here that in the chapters on stove plants in the "Gardener's Assistant," written and signed by "T. B."—where one would expect him to be accurate—he only distinguishes the two varieties thus: "*B. glabra* is the freest



Winter view at The Dell, Egham, as seen from Windsor Park. (See p. 516.)

and planted it out in 1862. It bloomed in 1864, rather thinly and somewhat scattered. The blossoms resemble blotting-paper in colour, i.e., brick-red, and we did not think it worth growing, there being a scarcity of room, so it was rooted up and destroyed to make way for more showy kinds. *B. splendens* we had from Messrs. E. G. Henderson in 1861. It was planted out in 1862 and bloomed in 1864. This is the best of all the Bougainvilleas, the colour being bright pink and the bracts twice the size of those of any of the others. Such a strong grower as this would not bear stopping, and when in flower its wild growth sets it off to advantage. A plant of this planted out at Killiow, in Cornwall, bloomed beautifully in a large Orchid house, and afforded nice shade to the plants. My plant of it was destroyed through want of room. *B. glabra* was the next to bloom under my care. This was received by a friend from the Mauritius in 1861, and forwarded to me in a 3-inch pot. I shifted it on till it ultimately occupied a 13-inch pot. I plunged it

its bracts are palish pink and not quite so bright as those of *glabra*, but very large. This was also destroyed from want of room, and we now grow only *B. speciosa* and *glabra*, which are the two best bloomers.—J. DANIELLS, *Swyncombe, Henley-on-Thames*.

—There is no need for me to produce an example of *Bougainvillea spectabilis* blooming on the present year's shoots, as "T. B." requests, but if he will produce an example that *does not* flower on the new or current year's shoots, it would be a curiosity indeed. Sometimes *B. spectabilis* and *glabra* flower nearer to the last year's wood and sometimes farther away from it, and sometimes they flower later and sometimes earlier, but both resemble each other in blooming on the young or current year's wood, and I challenge not only "T. B.," but anyone else to produce an example to the contrary. "E. H. W." is also wrong in saying that *B. glabra* "is quite a different thing and blooms in autumn." Since March, if not earlier, one of the finest specimens

flowering sort; *B. spectabilis* is a strong-growing species"—a correct description, and, like my own, indicates no greater difference between the two than there is between two kinds of Apples or Pears.—J. S. W.

Azaleas after blooming.—"J. C. B.'s" advice on this subject (p. 491) is, if we may judge from the specimens of Azaleas generally to be met with in our gardens, much needed. The difference between the beautiful healthy plants that come to us every autumn from Holland and the same plants after a two or three years' existence in our gardens is so great in a downward direction, that we must conclude that our mode of culture must, in the majority of cases, be wrong. If we wish to be successful with these plants the points enumerated by "J. C. B." must be strictly adhered to. There is one point, however, which he omits to mention, viz., the temperature to which he subjects his plants after denuding them of their seed vessels, repotting, &c. My experi-

ence is that an intermediate house in which to make their young growth is the best place for them; afterwards they should be transferred to a cool greenhouse preparatory to being set out of doors in a sunny position. Another point worth attending to is to have the plants turned round occasionally so that all sides may receive during the summer an equal amount of sunshine.—A. DEWAR, *Falkland Palace, Fife-shire.*

GREENHOUSE WALL PLANTS.

THE following are suitable for covering the back wall of a greenhouse. Regarding *Lonicera*, or *Caprifolium sempervirens*, about which "W. J. H." inquires (p. 486), I may say that it is a beautiful climber, hardy in many parts, but well repaying the protection of a greenhouse, in which it will flower throughout the summer months. There are several forms of this Honeysuckle, but that supplied by nurserymen as the scarlet Trumpet is, as a rule, a very good one. *Clematis indivisa*, an evergreen New Zealand species that produces enormous quantities of pure white flowers in early spring, is one of the best of climbing plants; and another climber a little later in blooming than the *Clematis* is the Chinese *Akebia quinata*, a slender twining plant with prettily divided leaves and curious claret-coloured blossoms. The individual blooms are not large, but they are borne in sufficient profusion to be attractive. *Passifloras*, where liberally treated, soon cover a considerable space, and, apart from their handsome blossoms, their foliage is very ornamental. Amongst them the common Passion-flower is the hardiest and most robust in constitution; its white variety (*Constance Elliott*) is quite distinct. Another good greenhouse kind is *P. Impératrice Eugénie*. *Lapagerias* are greenhouse plants, but they are seen to the best advantage when trained close to the roof. A well-drained border consisting of rough peat and sand, with some charcoal mixed with them, just suits both the red and white kinds. *Berberidopsis corollina* is a pretty climber; it has dark coloured evergreen foliage and handsome drooping crimson blossoms. For training on the back wall of a greenhouse there are many suitable plants not strictly climbers. A few of the best are *Habrothamnus elegans*, whose large clusters of crimson blossoms render it just now one of the showiest of indoor plants. Its flowers, too, are succeeded by purplish coloured fruits, each about the size of a small marble, and very handsome. *Cestrum aurantiacum* makes a good companion to this plant; indeed, it is often called the golden *Habrothamnus*, its blossoms being of a deep yellow colour. *Plumbago capensis*, with its myriads of pale porcelain-blue flowers, is very showy in summer, and also supplies a shade of blue not often met with amongst greenhouse plants. The peculiar lobster-claw-shaped blossoms of *Clianthus puniceus* when borne freely are very attractive on account of their bright colour and quaint form. Red spider is the principal enemy to guard against in the case of this plant, as, unless kept down by liberal syringings, it quickly spreads during hot weather, and causes the foliage to assume a sickly tint. *Fuchsias* in such a position as that described by "W. J. H." would flower well during summer, but in winter they would be by no means attractive. *Thibaudia acuminata* has deep green, stout foliage and drooping wax-like reddish blossoms, that are admired by most people; it soon covers a wall with a mass of leaves that are very persistent, and it also flowers freely. This plant is nearly related to the *Azaleas*, *Vacciniums*, and similar handsome subjects. Another plant belonging to the same class, and one seldom used for the purpose indicated, is *Rhododendron fragrantissimum*. In May, when studded with large white highly fragrant blossoms, this *Rhododendron* is a sight to be remembered. *Abutilons* might also be used for the same purpose, and amongst the many sorts now in cultivation the best are the pure white *Boule de Neige* and the beautifully striped *A. striatum*, a very old-fashioned, but most showy kind. The blossoms, which are large, have a yellowish ground colour, conspicuously veined with brownish crimson. Lastly, what better back wall coverers have we than *Camellias*? They are very hardy, and only want glass protection to keep late frosts from destroying their blossoms.

H. P.

Tristania conferta.—This which is more generally called *T. macrophylla*, does not appear to be at present much grown. It is one of those Australian plants which fashion and the influx of other things have relegated to obscurity. It is suitable for conservatory decoration on account of its elegant growth and fine foliage, which is of a deep lustrous blue on the upper surface and pale green beneath. The flowers, which are white, are borne in clusters towards the extremities of the branches. It is easily propagated, and thrives well in fibrous loam, to which is added a little leaf-soil and a goodly addition of white sand. Many plants now grown for decoration have less value than this *Tristania*.—J. C. B.

BECAUSE OF THE GENTIANAS.

Paris, May 16.

THE question is constantly asked, "Why do the English and the French, who every year intermix more and more, apparently understand each other less and less?" The following small anecdote may disclose one of the minor causes of an incompatibility which is undeniable. Two ladies—*ultra-Parisians* both—were seated on a bench in the gardens of the Tuileries; and one, who had just returned, as it seemed, from an excursion of some weeks in Savoy, was entertaining her companion with an account of all she had done and seen in the neighbourhood of Chambéry. "Among other curiosities," said she, "we made quite a friendship with an English *ménage*! Oh, my dear, what wonderful creatures they are, those islanders! One never comes to the end of their oddities. Now only think! Here were a man and his wife, the sweetest old couple you ever saw; nearer seventy than sixty; hair white as snow, cheeks ruddy as cherries; always climbing about—always together; adoring each other; having been everywhere, reading everything, and enjoying life like schoolboys! Fancy, *ils trouvent la vie amusante*!"

"*Ils sont bien bons!*" remarks the other lady, with a genuine Parisian sneer.

"Well!" continues the first speaker, "we saw them perpetually; and they could inform us on almost everything. They had lived off and on at Chambéry for the last ten years!—and oh, what a *bijou* of a home! It was small as a doll's house; but the perfection of the comfort of it! Such nice chairs, and such tables of every kind and sort; and such devices for making life easy—full of flowers and *bibélots*, from all parts of the world the *bibélots*. In short, you know, a *chez-soi* which, if it were only in Paris, one would never stir away from in the entire twelve months. But just imagine this. When I went to say good-bye to the delightful old lady, she told me she and her husband should be also leaving the next week for higher up in the mountains. You know *la montagne* early in May is not warm—it is, to say the truth, very chilly—and this "Philémon et Baucis" certainly both near seventy! Well, I suggested something of this sort, but added that no doubt they had some land, some interests, up on the heights; and the dear old thing said, "Oh, no; it was because of the Gentians!"

"The what?" exclaimed the listener.

"Yes; well you may stare!" rejoined the narrator. "About the end of April or beginning of May takes place on certain parts of the mountains the flowering of the Gentians—great bells big as a wine-glass, I was told, and blue as the Branicki sapphire. She explained to me that it was a sight they never missed when in Savoy at that season. And they were actually going to turn out of that exquisite home of theirs and live for a fortnight or more on a bleak hill-side in a peasant's hut, in order to enjoy the first flowering of these plants."

"Ah bah!" interposed the friend, with an accent of unbelieving astonishment such as only a true Parisienne can display.

"Yes, it is incredible, but it is true. The old lady talked to me of it with positive rapture, and said it was as though the sky of Egypt at its intensest blue had fallen down and covered the earth! But, as I tell you, you never come to the end of the oddities of these English. There they were enjoying the idea of leaving that snug pretty home of theirs for the cold hills; and all because of the Gentians!"—*St. James's Gazette.*

KITCHEN GARDEN.

GOOD HARDY VEGETABLES.

THE winter of 1885 and 1886 proved exceptionally trying to various hardy green vegetables, and the experience gained thereby ought to in some measure guide us in future. In our uncertain climate it is always advisable to prepare for the worst; what, therefore, we find to be of good service during one bad season ought always to be again planted in quantity in anticipation of another severe winter. Never in my experience have green vegetables realised higher prices than during the past winter and up to the present time, this scarcity being due rather to the unfavourable weather which we experienced during the late autumn months, following closely on the heels of a very dry hot time than to anything else, the consequence being a weakly plant of various kinds of green vegetables, more especially of Brussels Sprouts, Broccoli, Cabbage, and Spinach. We lost but few vegetables through frost or cold wind, though in some localities the case was very different.

BRUSSELS SPROUTS.—I mention these first from the fact of their being the most serviceable winter green we have. Those who have a large establishment to supply, or who grow for the provincial markets, ought to plant them in quantity, even if at the expense of Broccoli and Kales. They cannot well be got in too early; ours, in fact, are already well established in their winter quarters. If the planting is delayed till such times as the ground is cleared of early Potatoes, Peas, or other crops, the chances are that they will never attain a size calculated to be at all profitable. Our plants being previously pricked out in an open border are transplanted with a trowel; they therefore receive but little check from the operation. They are firmly planted in drills 3 feet apart, the strongest growers, such as Aigburth, Perfection, and Exhibition, being 30 inches apart in the rows, while *Ne Plus Ultra*, *Paragon*, and imported kinds are only 2 feet asunder. Being on well manured and rather heavy land, they grow strongly and soon meet all round. Before they are far advanced they are well moulded up; this is done either after a soaking rain or if the weather be at all dry after a heavy watering has been given them. This moulding up serves the double purpose of enclosing moisture and steadying the naturally heavy-topped plants. Where the land is naturally light and poor the drills may be filled with liquid manure prior to moulding up, and a mulching of strawy manure or other loose material may subsequently be applied with advantage. The best sort for the markets is the Aigburth, but the quality of this heavy cropper is not first-rate. *Northaw Prize*, recently alluded to in *THE GARDEN*, is only another name for *Ne Plus Ultra*, and this sort fully deserves all the praise that has been bestowed on it. It is one of the best for home use; the sprouts, which are produced abundantly, are of medium size, firm, and good in quality. With us it has superseded *Paragon*.

BROCCOLI.—For early winter supplies none equals Veitch's Autumn Protecting, and so use-

ful do we find it, that fully one-third of our ground available for Broccoli will be planted with it. It is far from being hardy, but if plants of it are lifted and re-planted in pits, vineries, or Peach houses, the supply can easily be maintained from November till late in February. Our earliest are already in their summer quarters, and others will be planted in another fortnight's time. Not a plant of this sort should be wasted. The rows may be 30 inches apart, and the plants 2 feet asunder in the rows. It grows vigorously and produces fine close heads almost equal to those of the Autumn Giant Cauliflower in quality, and sometimes also in size. Exhibitors of collections of vegetables are in the habit of sowing a pinch of seed of this Broccoli along with that of Cauliflower, and grand heads for the late August and September shows are frequently the result. Snow's Winter White Broccoli, sown in April and May and planted in succession to early Peas without digging the ground, proves hardy and useful in February and March. Earlier than that it cannot be depended upon, and, as I have previously remarked, it is a much over-rated variety. Veitch's Spring White Broccoli again did us good service in April, though we have had it fit for use much earlier. It is not so hardy as some, but we plant it on firm high ground, and are in that way rewarded with close white heads of excellent quality. Leamington Broccoli is a general favourite, and if planted in quantity about 30 inches apart each way on firm ground, say in succession to Strawberries, second early Peas or Beans, it will form sturdy hardy growth, and a long succession of good heads will eventually be the result. This season we could have sold our whole breadth of it at 3d. per head, and the retail price would have been much higher. I am aware that many consider late Broccoli unprofitable; but let me advise those who have a good stock of plants of this variety to plant it extensively and mark the result. To succeed the Leamington several good sorts can now be had. Cattell's Eclipse is still a favourite, but I find Late Queen, Model, and Ledsham's Latest of All to be superior to it. Model is the sturdiest, and its close conical heads are well protected. It is a grand sort for home use, but the others are also very good indeed and very hardy. Many are obliged to plant the principal portion of their Broccoli between rows of Potatoes, the ground in this case necessarily being very loose. This and the shelter afforded by the Potato haulm cause a leggy as well as rank growth, the stems becoming too long to be hardy. A certain amount of protection may, however, be given by means of moulding up the soil to the Broccoli after the Potatoes are lifted. We are obliged to plant a quantity among Potatoes, but do not depend upon such plants, some of each sort being also planted on firm undug ground, and these never fail. Crowbar planting does not work well here, our ground usually being too hard for that; our plan is to cut out drills with heavy hoes, to soak them with water if necessary, and to transplant the Broccoli with a good ball of soil about its roots. Unless this is done it starts very badly, and is too late to do good service.

CHOU DE BURGHLEY.—I have at different times pointed out defects in this hybrid, and it is only fair that I should mention the good qualities which with us it has recently developed. Sown, and otherwise treated somewhat similarly to Savoy, the plants, being in rows 2 feet apart and 18 inches asunder, soon covered the ground. From November till the end of December we had plenty of heads, large and good—too large in fact, but during January the later supplies were smaller and more appreciated. The Broccoli head we did not wait for, nor is it wanted when ordinary Broccoli is avail-

able. The stumps were not removed, and from these during the past month we have been gathering good supplies of succulent sprouts, almost equalling in quality good sprouting Broccoli, and there are still more to pick. Now as Cabbage is still very scarce and nearly all other greens exhausted, it must be admitted that Chou de Burghley has done good service. In future more of it will be planted and fewer Savoy.

ASPARAGUS KALE.—We never fail to sow a fairly large breadth of this, but it never proved so remunerative as it has done this spring. There is no necessity to sow the seeds in beds in common with other Kales, a better plan being to sow it Spinach-like among rows of Peas or Beans, or in undug ground in succession to early or second early Potatoes, or after winter Spinach. I would not advise anyone to devote an extra good position to this Kale, owing to the fact that it is a late sort, and ought not to be cleared off before June. Sown in rows any time during June, and eventually thinned out to about 12 inches apart, it will make good progress under almost any circumstances, and in spring will yield a great abundance of succulent greens. If kept closely picked the supply will last till well into June, and at the present time it proves most useful. There are two or three varieties of it, all of which are equally hardy and serviceable; it is also known as Buda Kale.

SPINACH BEET.—Ordinary Spinach in many gardens was a complete failure last winter, and those who, like myself, had a good breadth of Spinach Beet by way of a substitute, had good reasons to congratulate themselves. I do not say it is quite as good as Spinach, especially when the leaves are small and old, but when growing strongly in autumn and again in the spring, it can hardly, when properly cooked, be distinguished from Spinach. We gathered many bushels of it during April and May, and plenty is left yet. It is not, even now, too late to sow it, but as much depends upon having strong roots, it is not advisable to longer defer the operation. Drills for it may be 15 inches apart, and the seedlings should eventually be thinned out to about 12 inches asunder in the drill.

NANTES HORN CARROT.—Few fail to appreciate tender young Carrots, and for maintaining a constant supply I give the preference to the Nantes Horn. Sown during June and July and early in August in frames, abundance of delicious roots will be the result. They will be found to be superior to the coarser older roots of Intermediate and other sorts. A light well worked soil suits Carrots admirably, and a liberal dressing of burnt ashes or burnt soil and refuse from the "smother" serves to keep them clean and free from insect pests; not much thinning out is needed, this being constantly effected as they are drawn out for use.

W. I. M.

White Elephant Potato.—I have read with interest "J. C. B.'s" remarks concerning this Potato. That its great size and hence large cropping qualities should have found favour last season when drought so materially affected the produce of ordinary kinds is not to be wondered at, but should we have rather a moist summer, the quality of White Elephant will be bad and the tubers large and coarse. It is a kind that cannot long endure, for, unlike its American congener, Beauty of Hebron, it has not the merit of earliness. I am of opinion that Magnum Bonum will long outlive White Elephant in popularity.—A. D.

— I was surprised to read "J. C. B.'s" remarks (p. 479) stating that such Potatoes as Champions and Magnum Bonums were less popular than they used to be, and that public favour was being transferred to White Elephant. The last

named Potato, although exceedingly handsome and an excellent cropper, has proved to be, in every case in which I have known it grown, very indifferent in quality. So inferior indeed is it, that no one hereabouts now cultivates it, a fact which shows that soil must influence the quality of Potatoes more than most people are willing to acknowledge. My own opinion of White Elephant is that if it can be grown good in quality, in other respects few sorts can beat it.—J. C. C.

GARDENING IN POOR SOIL.

"We cannot grow vegetables in our garden, owing to the soil being so poor;" or, "Our light, gravelly soil does not suit vegetables;" are remarks by no means uncommon, but how far they are justified one cannot tell without special investigation. In order to maintain a good supply of vegetables all the year round, considerable forethought is necessary. Even where the garden consists of poor, light, gravelly soil, and the rainfall considerably under the average, and where good manure is not plentiful, some would not think about doing anything until the time came to sow or plant. The result of such mismanagement would be in many cases failure, and success would only be attained by chance. The preparation of the ground should begin in autumn, and would necessarily require to be carried on through the winter. There are two kinds of poor or bad soils with which a kitchen gardener has to deal, and I have had considerable experience with both. They may be divided into soils that are too dry and others that are too wet. The last-named type must be drained. Some old gardens have been drained, but it will not do to rest satisfied that the drains are all in good order. They are very often choked up. We found, two years ago, by the waterlogged state of the soil, that one or two of our drains were stopped up, and on digging down to the tiles and taking them out, we found their insides densely packed with roots. The latter were forced out and the tiles relaid; but this will have to be done again in the course of a few years. If either a new or old garden has to be drained, an outfall must be provided. In some cases this requires to be a drain 4 feet deep, consisting of 3-inch tiles. Ordinary drains ought to be 3 feet deep and 15 feet apart, and they should have a slight incline towards the main drain.

PREPARATION FOR THE SUCCEEDING YEAR begins in autumn, by trenching the ground at least two spits deep. My method is this: We take out a trench, 2 feet 6 inches wide, at one end, and wheel the material removed to the other. A spit is first taken out, and also the loose earth, thus giving a depth of nearly a foot; another spit is then taken out and the loose earth removed, thus giving nearly a foot more. We have, therefore, to begin with, a trench 2 feet 6 inches wide and 2 feet deep, the bottom of which is forked up to the depth of 8 inches or 9 inches more. In the bottom we place a good layer of manure or decayed vegetable matter; then, with a line, we mark off a 2 feet space, and proceed to take out two spits and two shovellings of loose earth, casting them into the first trench, and at the same time placing a layer of manure between each foot of soil turned over, and each trench ought to have the bottom stirred up as at first. If manure cannot easily be obtained, decayed vegetables, leaves, and other rubbish, which have been laid up in a heap to rot will do instead; but good stable manure for heavy soils is better than anything else. If the ground is prepared in this way before winter, and the surface left rough, frosty weather will convert a stiff clay into a powdery, easily-worked soil; but in order to keep it in this state, a dressing of lime or mortar rubbish, burnt earth, or road scrapings should be spread over the surface to the depth of a few inches, and be dug in before cropping takes place. Heavy soils ought never to be worked when wet; better wait a week or two than touch ground when in that state. Where heavy soils are thus dealt with, winter rains and melted snow pass through them freely into the drains, and in spring seeds sown

in them vegetate freely, and plants root well and quickly in them; whereas, ground not so treated on being turned up is sodden and lies in hard lumps that are difficult to break up. Seeds in such a soil often die instead of vegetating, and even when plants are got up, they are inferior in quality.

LIGHT SOILS may be treated in the same way as far as preparation is concerned, but even if no preparation takes place seeds will vegetate in them freely, and plants will start into active growth; but if no trenching or manuring has taken place, they will often succumb to hot, dry weather. Cauliflowers will produce buttons. Peas will not produce a continuous crop. Onions will be small, and Carrots, if they grow at all, will scarcely be worth storing for the winter; indeed, nothing will be satisfactory. One important advantage is, however, possessed by owners of light, sandy soils, and that is, they can be cropped without waiting for a dry surface, as has to be done in the case of heavy soils. A mulching of short manure placed on the surface when the crops have advanced somewhat in growth is of the utmost service. It prevents heavy soils from cracking, and retains moisture in light ones; moreover, if a thorough soaking of water can be given in very dry weather, the manure prevents evaporation and encourages root growth near the surface. Many find great difficulty in obtaining manure, the supply frequently falling very far short of the requirements of the garden. A good supply of material of a manurial character may be obtained by collecting all refuse vegetable matter, such as weeds, trimmings from vegetables, tree leaves and mowings. Such matters should be thrown into a heap in some out-of-the-way corner, and if manure can be mixed with them their value will be much increased. A very large accumulation is made in this way in the course of a season. Liquid manure can sometimes be obtained to throw over the heap at intervals; this becomes absorbed by the material. Liquid manure is also a valuable stimulant if diluted with water and poured on the ground when in a dry state. House sewage ought also to be saved and used in the same manner.

THE VALUE OF HOEING amongst growing crops is not so well known as it ought to be. Whenever the ground becomes hard on the surface from rain it ought to be stirred with the hoe. Many have an idea that hoes are only required to cut up large weeds. The fact is, it is much easier and quicker to destroy weeds when young than it is to kill them after they have grown to a large size. In all gardens there is a time when an extra effort must be made to keep the work in a forward state; especially is this necessary in spring and summer, for if the ground is not kept in good condition or the crops are injured by weeds, the results will be manifest all through the season. In most things it is half the battle to make a good start, and the cultivation of the kitchen garden is no exception to this rule. The ground must be kept clean and in good order amongst all crops planted in autumn. If Cabbages, Broccoli, &c., require to be cut, remove the stumps at the same time or with the least delay possible, as they are untidy and exhaust the soil. Peas and Broad Beans must be sown early and in a warm position, and when the time comes to sow other crops rather be too early than too late. J. DOUGLAS.

Sowing Endive.—Early sown Endive often runs prematurely to seed, but plants raised now will stand. Sow in shallow drills 15 inches apart in an open situation, and when large enough to handle, thin them out to 12 inches apart. Some of the thinnings may be planted under a north wall to form a succession. Another sowing should be made in three weeks' time, and seeds should be sown twice in July and once in August. These sowings will give a supply if set out at different times till forced Chicory and forced Lettuces come in after Christmas. There are several ways of blanching the plants, without which they are bitter. The simplest plan is to tie them up when

dry and place a flower-pot saucer on the top of the plant to keep off the wet. Later in the season a covering of dry Oak leaves is an excellent expedient, both to blanch and at the same time to protect them from frost. Sometimes the plants are lifted with balls of earth attached to them and placed in a Mushroom house to blanch. They should be lifted in relays as required. This mode of blanching is carried on chiefly in winter. In summer the plants are best blanched in the open air. E. HOBDAY.

“D.T.F.” on salads.—I fear the above writer's experience of salads out of England is not extensive. Watercress is not used as a salad in France, though extensively as an accompaniment to flesh and fowl. He says, “*The greatest salad-makers care less for the substance of the salad than the sauce or cream! This is a medley of all sorts of sauces, with a base of cream, eggs, vinegar and oil.*” It would not be easy to put so much error as this is into a few sentences. Alas! people will write of things that they have never taken the least notice of. One might travel in France for a lifetime and never see anyone using cream in a salad, or anyone foolish enough to make a “medley of all sorts of sauces for salad.”—J. H. H.

Pea culture on ridges.—I have been more successful in growing my first crop of Peas on ridges than in any other way. I know it is a plan which has met with objection, but situation and the season of year, when it is adopted, have much to do with it. Here the situation is high and cold, so that no very early crops can be grown in the open. The soil is fairly free and rather stony, the subsoil being coral rag. This season I made my first planting (Ringleader) on March 17 on a ridge some 9 inches or 1 foot high. The soil had been previously well manured. I have grown this Pea as a first crop for some time, but it has never progressed so well as when grown in the way I have just indicated. This season it seems to have done especially well, and so far I have not seen any planted under similar conditions as regards soil and exposure which have kept pace with it. Possibly being grown on a ridge may not be the whole reason of its succeeding better than usual, but so far as I know, it is the only difference in treatment from that given to other Peas which I have seen. For main and late crops I do not adopt ridges. For later plantings I prefer to be below the general level rather than above it. In early spring, however, when the soil is cold, I consider that planting on a slight ridge is a decided advantage. Perhaps those who have tried the plan will favour us with the result of their experience. In high and exposed places thick planting is essential, but I like single better than double rows.—D.

Raising Seakale crowns for forcing.—Having this year sown a considerable breadth of Seakale seed for the production in due course of forcing crowns, I am just a little disconcerted at receiving diverse advice as to the course to be adopted next winter. One neighbour strongly advises that the dormant crowns be then cut clean off by running a sharp spade along each row close to the surface, and thus compelling each plant to make a new crown. He says that if not so treated, very many of the yearling crowns will but run off to seed, and thus prove wasteful. On the other hand, I would like to utilise the crowns already formed in the belief that they would be productive of the best results. Under these circumstances I venture to solicit the experience of someone versed in Seakale culture, especially such as grow quantities of strong forcing crowns from seed. Without doubt the usual method of obtaining a stock is to save all the root trimmings, pieces no bigger round than a lead pencil being worth saving, and those of the diameter of a man's finger better still. These pieces, if 4 inches in length, make admirable sets, but to be on the safe side it is a wise plan to set them up carefully on end in shallow boxes and thickly; shake in amongst them some fine soil, and give them a good watering. If placed in a frame or greenhouse, or indeed in any shed where there is light, the top ends of the

sets would soon callus over and produce crowns; rootlets would also break out below. The moment evidence of crowns is assured, the sets may be taken out and dibbled into good deeply worked soil in rows of from 18 inches to 20 inches apart. The crowns should be but just covered. Where the soil is good the finest sets will make strong crowns in one year. Once a good stock of roots is obtained, it is obvious that an ample supply of root-sets can always be had; seed-sowing may thus be to a large extent dispensed with.—GROWER.

GARDEN FLORA.

PLATE 547.

THE PANTHER LILY.*

THE Panther Lily (*Lilium pardalinum*) is one of the best of all North American Lilies, and especially valuable from the fact that it is far less fastidious as regards its requirements than any of the others. It is a native of California, where



The Panther Lily, showing habit of growth.

it spreads over an extensive tract of country, principally in damp ground near streams. A more variable Lily than it is is not in cultivation. Amongst hundreds of plants scarcely any two are in all respects alike; they differ from each other in height, colour, and arrangement of foliage, and also in the size and markings of the flowers. To some of the most distinct have been given varietal names, that of Warei having been bestowed on the one here figured, a kind that differs most widely from the type. The typical *L. pardalinum* has the curious creeping rhizomatous bulbs common to some other North American kinds, but they are less spreading than those of *L. canadense* and *superbum*, the new bulbs of *L. pardalinum* being often formed on

* Drawn in the Hale Farm Nursery, Tottenham, in July.



LILIUM PARDALINUM VAR. WARFELII

the top of the old ones or in close proximity thereto, grown into quite a compact mass, and often attaining in their native country a diameter of several feet. In the case of well-established plants the flower-stems not unfrequently reach a height of from 8 feet to 10 feet. Prominent features of this Lily are its distinctly whorled, sharp-pointed foliage, and gracefully-disposed blossoms, a cluster of which in July is very attractive. Warei differs greatly from the type in colour, and also in being dwarfer, reaching only a height of from 4 feet to 6 feet. It was awarded a first-class certificate by the Royal Horticultural Society in 1883. Of other varieties the best are the following:—

PUBERULUM.—This variety, which is also known as *pallidifolium*, from the pale hue of its leaves and stems, is a free-growing kind, but as a rule the flowers are smaller and not so brightly coloured as those of most varieties, or indeed as those of the type.

ROBINSONI.—This is a tall growing, stately variety, the upper half of the petals of which are bright crimson, and the orange centre sparsely spotted with brown. The blooms of this do not reflex quite so much as in the other varieties.

sparsely marked, while in some the blotches are large, culminating in the dark form known as *Bloomerianum ocellatum*.

THE CULTURE of *L. pardalinum* is easy enough, provided it is so situated that the soil is always fairly moist without being waterlogged. Consistency of soil is not of so much importance; I have seen it doing well in a stiff loam, but as a rule, a light, open compost fairly well mixed with manure will meet its requirements. It delights in a partially shaded spot, that is to say, somewhat protected from the full glare of the sun and also from drying winds; if too much exposed in this way the foliage is apt to turn yellowish. Though its rhizomatous habit of growth is against growing this Lily in pots, it nevertheless can be grown in that way fairly well, provided good-sized pots are used and thorough drainage is ensured.

T.

WORK DONE IN WEEK ENDING JUNE 1.

MAY 26.

SHOWERS in the early morning, but very fine afterwards. Thinned out Onions, Lettuces, and Turnips, and filled up a few gaps in the plots of the former by dibbling in the best of the plants drawn out. We prefer early thinning for all kitchen garden crops,

not be postponed without injury accruing, and this is the reason we disregard pressure of work in other departments, and stick close to this from 5 a.m. to 8 p.m. What a blessing that most of us gardeners have a fair amount of enthusiasm in our nature, for there would be lots of Grapes spoiled were we "nine-hours-a-day men," which we are not, only as regards pay. Putting Chrysanthemums into flowering pots, 10-inch and 11-inch sizes, and tying to stout stakes those that require it. Some few Poinsettias we are this year growing as standards; the stems range from 3 feet to 4 feet high, and have just been pinched or stopped to induce them to branch out, which stopping will be repeated soon as they have made a new growth of from 3 inches to 4 inches.

MAY 27.

Colder, with occasional showers, which, however, have not seriously hindered our outdoor labour. As we have a lot of scythe-mowing round trees and banks that the machine will not take, this has been a most suitable day for getting on with that description of work, and this, with sweeping up of Grass, is about the only outside work we have managed to get through, besides the continuation of laying in of Peach shoots and the completion of pinching cordon Pears. Put in another frameful of *Alternanthera* cuttings; it is a pity they are so tender, as there is no plant more suitable and none so bright for artistic foliage bedding, and particularly for filling in small panels in the design. The several varieties are too dwarf for use in masses except as undergrowth to large plants; and as there are numbers of hardy plants that are just as suitable for that purpose, it is hardly worth while to use tender varieties. Pegged down and top-dressed Cucumbers in frames, and prepared soil and pots for potting on succession Pines, and several plants with ripe fruit have been put in fruit room to retard ripening, or rather to preserve the fruit till required for use.

MAY 28.

More settled weather, but rather cold, and as yet we do not care to risk planting out such tender plants as Coleus, Iresine, Cannas, Ricinus, and the like; but all kinds of Pelargoniums, Fuchsias, and the ordinary run of bedding plants we keep on planting at every opportunity. Gnaphaliums, Violas, and Petunias that, through overcrowding in the frames, had got somewhat lanky, we found it advisable to peg down to prevent their being broken off at the base by the wind. Planted out Celery, and sowed on the ridges formed by making the trenches Lettuces and Turnips, both of which crops will mature and be used before the soil is needed for earthing up. As showing the extreme earliness of Early Munich Turnips, we have to-day pulled for use bulbs of a good size from the open garden; many have seeded prematurely consequent on too early sowing, but not nearly so many as of the Early Six Weeks variety, which was sown the same day, and which as yet does not show any sign of bulbing. This shows what a valuable addition the Early Munich Turnip is. The immense quantity of rain that has lately fallen has been of the greatest service to our Asparagus plots, as the produce has been unusually fine; we have already given two light dressings of salt, and in spite of this there are weeds innumerable now just showing, the seeds, I think, having been brought in the dressing of vegetable soil and manure that was spread over the ground last November, but the third dressing of salt given to-day will, I trust, make an end of them. Late Muscats have passed through the critical ordeal of flowering successfully; not half-a-dozen bunches have failed to set well, and without any artificial aid except a shake of the rods three or four times each day between the hours of ten and two o'clock. We have to-day cut off the surplus bunches, of course leaving the best, or rather those best placed to make a show, as we always pay some regard to appearance, even if it be at the expense of taking off a good bunch that may be out of sight in favour of a smaller that may hang in a conspicuous position. Thinning out of berries will begin soon as another house of mixed varieties that is now being thinned is completed. Peaches now ripening we air very freely, and still syringe stems of trees, walls, and floors, for a moist atmosphere is the only way to keep off spider and thrips. Both borders of this house and of late Muscats



Bulb of *Lilium pardalinum*.

CALIFORNICUM.—The young shoots of this variety when they first appear above ground are of a deeper green than those of any of the others; the upper half of the petals is glowing crimson-scarlet, and the remaining portion orange spotted with large purplish brown dots. This reaches a height of about 5 feet.

ELLACOMBEI, MICHAUXI, or CAROLINIANUM (three names for the same plant), has rather small, brightly-coloured flowers. It is especially valuable owing to its being the latest to bloom of all the varieties of *L. pardalinum*. A distinguishing feature of this Lily is the fact that the whorls of leaves are generally, but not invariably double. It reaches a height of from 4 feet to 5 feet.

PUMILUM.—This is a pretty, brightly-coloured, low-growing form of the Panther Lily, and one of the first to unfold its blossoms.

Though these varieties in their best forms are all sufficiently distinct, yet there are connecting links between all of them (with the exception of Warei), and therefore it is often difficult to class them under any one particular head. Humboldt's Lily (*L. Humboldti*) is also most variable; indeed, out of a hundred spikes it is often difficult to pick out two exactly alike; they vary in height, time of flowering, size, and contour, and, above all, in the markings of the flowers, some being thickly covered with small dots and others but

because the work is more rapidly accomplished while the plants are small, and, what is of some importance, less check is caused to the permanent plants by drawing out the surplus before the roots get entangled together. Planted more Celery, weeded Brussels Sprouts, and filled in to the ground level the drills, in which form we always prefer to plant them, and, indeed, all the Cabbage tribe, as then there is no necessity to ridge or earth up the stems of the plants nearly so high as is generally done, and in our light soil this is a consideration of some importance, as our crops need all the rain that falls to act directly on them, which obviously cannot be the case on the high ridging up system. The plan has also the additional advantage of allowing of the application of manure, either in the form of liquid, soot or artificial manure, which we put in the drills immediately previous to filling them in; thus the soil forms a retentive mulching, that is surety for the full appropriation of the manure by the plants. Wall trees are growing so luxuriantly, that, notwithstanding the great pressure of other work, we have started to pinch back Pears on walls and cordons by walks, and to lay in the shoots of Peaches and thin out the fruits, which are an enormous crop. Pears are moderately good, Plums better, Apples average, and Apricots few indeed. Gathered first Gooseberries; these as well as Currants are a full crop, and Strawberries and Raspberries are equally promising. Grape-thinning as usual; such jobs will

are inside, and they have both had good waterings to-day, the water for Vines being warmed to a temperature of 90°, and for Peaches the chill was taken off by adding a couple of cans of hot water to a large tub of cold water. Picked flowers of tuberous Begonias and arranged them in frames, where it is intended to grow them on for late flowering at the end of summer for room decoration. Double Pelargoniums are being potted and are intended to be grown out of doors during the summer, and will be made to succeed the Begonias for vases and decoration of rooms.

MAY 29.

Barometrical indications are at present in favour of fine weather, and we have therefore continued the planting of flower beds as rapidly as it is safe yet to do. Tender plants and others that have but recently been put in sheltered places to harden will be left there till we feel quite safe from storms of wind and frosts. To-day we have planted in mixture Ageratums, Agathæa celestis, white Violas, and pink-flowered Pelargoniums, with tall Fuchsias as standards, an arrangement that we designate our favourite colour blending, and if others think well to copy the arrangement, they will soon come to regard it in a similar light. High or gaudy colours for variety's sake we must have, but the glare should be toned down by introducing as standards plenty of green foliage, such as that of Grevilleas, Acacia lophantha, or Abutilons. Another feature of arrangement that we have specially to study is that of having sweet-smelling flowers and foliage, so that Heliotropes, scented Pelargoniums, and the Lemon-scented Verbena all find a place in large vases, with here and there a plant of the same in beds of other plants, the scent from which, oftentimes coming as a surprise, is all the more welcome. On Saturdays we have seldom time to do aught else in the houses besides cleaning up and rearrangement of plants, and to-day has been no exception. Ripe Strawberries were shifted from the house to cold frames and others picked over. Not more than six fruits are now left on each pot, but they make up the lack of numbers by size. President is now our only variety. Pinched laterals in early vinery; the Grapes are nearly ripe, and this work has to be done very carefully in order to avoid rubbing the Grapes. We should let them remain were it not that they form convenient means for the suspension of spiders' webs, and therefore tend to the increase of spiders, that crawl over the ripe fruit and spoil its appearance, and that is another reason why once a week at least we insist on a thorough clearance of every nook and cranny in which hangs a spider's web. Arranged the earlier potted Chrysanthemums in their permanent summer quarters, which is an open position facing due south, so that the plants cannot fail to make hard and short-jointed growth, without which fine flowers need not be expected. They are staked separately with stout Hazel rods, and, in addition, they have the support of an espalier fence. The pots are not plunged, but simply stood on ashes that are level with the ground.

MAY 31 AND JUNE 1.

Fine, but dull and cold for the season; and as yet we do not care to risk planting out the more tender bedding plants, but all others are being got out as fast as our limited strength will allow. Calceolarias, Verbenas, Violas, and all others that suffer quickly from drought we mulch with Cocoa fibre soon as planting is finished; this not only prevents the soil from drying up rapidly, it also checks the growth of weeds, and produces a tidy, finished effect to the beds soon as they are planted. Staked Peas and Scarlet Runners, and thinned out dwarf French Beans; the variety Canadian Wonder is the principal kind grown, and as it grows some 2 feet in height, we find it profitable to place short sticks to the plants in the same way as for Peas. Laying in shoots of Peaches and Nectarines on open walls, which soon as completed must have a washing with garden hose, as there is a little greenfly and a lot of dirt, the remains of fallen blossoms and blighted foliage, all of which will get dislodged by a good wash. Before the application of water a little fresh farmyard manure will be spread over the roots, the goodness of which will get washed down by the syringing, and be of great service to the now rapidly swelling fruit. Soiled up auratum

Lilies that are being grown in pots for standing about the flower garden during their blooming season in August and September—at least, that is the season we require them, and so they are treated accordingly, being mainly grown in a northern aspect to retard the period of flowering; Fuchsias we serve in the same way and for the self-same purpose. Potted on Celosias, also Streptocarpuses; this latter is a most useful plant for small vases in rooms, where, if carefully tended, it continues to flower for several weeks. Put in cuttings of zonal Pelargoniums for flowering in small pots, for the purpose of indoor furnishing of vases and baskets in the autumn. The double varieties are specially suited to this kind of work, and that excellent bedding variety, Henri Jacoby, is the best of all the single kinds for autumn and winter flowering in pots. Grape thinning, staking Chrysanthemums, and arranging them in their summer quarters. HANTS.

HARDY FRUITS.

So far our hardy fruit prospects are promising, and we may now reasonably hope we are perfectly secure from injury from frosts. The four seasons have, however, got sadly mixed and muddled together, and we can no longer tell what a day may bring forth. Rain everywhere has been excessive, and come what may there is no immediate danger of fairly managed fruit trees in the most exposed situations suffering from drought; indeed, thousands of acres of land in our fertile valleys a fortnight ago were not only under water, but the boundary fences were washed away. It will be worth while to note the effect of this terrible deluge on cold, heavy and badly-drained soils which certainly cannot become dry before the autumn, and if it is found that they produce good crops of clean, highly-coloured fruit of fair average flavour, Apple growing may be looked upon as a game of chess. Moss and Lichen may hold their own, and renovation may be written off as a superfluity. Some time ago I stated that Apples and Pears as pyramids, espaliers, and bushes were literally white and pink with inflorescence, but large orchard trees were pushing their leaves too fast in advance of the blossoms. Many people assert that these precocious leaves protect the flowers from spring frosts; others say a really good Apple year never follows a leafy flowering time, and close observers of other trees, the Peach, the Apricot, and the Plum, for instance, which come nearer to the eye, will bear them out by explaining that unripe wood rarely produces perfect flowers. Frosts up to the present time have not done any harm, and, assuming that this theory has nothing in it, our Apple crops should be good. One thing, however, is certain: the west midland orchards have not presented the usual brilliant appearance and delicious scent to the traveller, and it is to be feared that heavy storms of hail, rain, and wind have done some damage in exposed situations. Pears have been full of flower, but, like the Apples, thanks to a cold, sunless season, their individual blooms have been deficient in size and wanting in purity. Turning from our main staple or sheet anchor to trees that are pinched and pruned and trained on the restrictive or extension principle in gardens, crops of all kinds are good and well advanced when we take into account the lateness of the season. The trees, moreover, are remarkably clean and healthy, and there is a fair prospect for the consumer, although half crops are most remunerative to the producer.

APRICOTS.

Apricots in Herefordshire are not so good as usual, but this fact will not interfere with the usual routine. Every detail must be attended to just the same as if the trees were loaded with fruit, and we must look forward with hope to another season. Apricots, unlike some other trees, bear well on the well-ripened wood of the preceding year, although spurs are generally depended upon. In either case wood and spurs must be ripe, and the only way in which this surest of all foundations of the much-vaunted fertility can be secured is by timely attention to pinching to form spurs, and keeping the shoots closely trained to let sun heat into the walls. Apricots also require an abundance of moisture about the roots, not cold, stagnant water resting at the bottoms of pits which have been dug out of the solid marl or clay, but

plentiful supplies from the hose when the clouds fail, constantly passing through the mulching, and filtering downwards into the drainage. The past heavy rainfall must have penetrated every border, no matter what its aspect, and the next important point is the application of additional mulching to keep the roots moist and cool throughout the summer. If the final thinning of the fruit has not been brought to a close, no time should be lost, as Apricots swell rapidly, and, independently of unnecessary waste of force, they injure each other where set in clusters.

PEACHES.

Well-managed trees are abundantly set with fruit, and much thinning is needed. This is a very agreeable occupation which can be carried on from day to day as disbudding is proceeded with, but much fruit will be left for the final thinning after the stoning process is complete. Wall Peaches do not often drop to any extent, but it seems a general rule, almost without a reason, to leave more fruits than can possibly swell to maturity. If perfect in form and well placed, I leave as many Peaches as will average one to every foot of wall covered with foliage, and find this quite as much as my trees can carry year after year. Early trees in early gardens will now require looking over for the removal of every superfluous shoot before tying or nailing in is commenced. The greatest wrong a trainer can bring upon himself is a plethora of young wood, especially when his trees are free and not overcropped. Two growths from each shoot that has been shortened back form the regulation number, but we frequently find it necessary to lay in three or four growths, always from the upper sides, of strong extension shoots, and, by allowing not less than 6 inches for each shoot, training is reduced to a very simple operation. It is not a good plan to commence general training too soon, as tender shoots often get injured by the slightest pressure; but the most forward growths in each tree should be heeled down to the main branches with soft matting before there is danger of injury from storms of wind and rain. At the same time gross or watery breast shoots should be pinched and repinched for the present, to prevent them from robbing the weaker parts of the trees. An occasional hosing or washing with the engine will now do good, and an eye must be kept on the foliage for greenfly. If not already done, the coping boards and other protecting contrivances may now be cleared away from the walls and stored for use another year. Some people never protect at all; others go to a coddling extreme; while holding with neither, I am greatly averse to keeping the light and sun and air away from the foliage a day longer than is absolutely essential to the safety of the crop. This work need not be done as a bricklayer would remove a scaffold, but a little here and a chink there will gradually inure the foliage to the change, especially if it can be done in mild, dull weather. If spider or fly have gained ground under the shelter, they must be well washed out with water or soapsuds, and the wall paths top-dressed with old lime rubble and long stable litter.

PEARS.

The pinching of these on forward walls may now be commenced in a moderate way, but not pushed on as though the work had fallen into arrears. All forward breast-shoots likely to rob the weaker parts of the trees by draining the sap on its passage through the main channels should be cut or pinched off first. Some people break them down. Why, I am at a loss to understand, unless it is to give the trees an untidy appearance. Pyramids and bushes may be looked over and robbers checked, but it is yet early for them; not so young trees that are growing fast against walls or trellises. These should be pinched and nailed or tied in to secure the shoots from injury by wind or rain. Grafted trees for the same reason should also be looked to and made safe. If "a stitch in time saves nine," in no department is this adage more applicable than in the nursery, or amongst old trees that force strong growths before the ligatures are loosened. Pears do not often get much artificial washing, but a dash with the engine even in moist seasons clears out the remains of the flowers and breaks up newly formed colonies of insects, which, if not on the Pears, will do mischief somewhere in the fruit garden. Never, perhaps, were Pears so badly infested with green fly as

they were last year, and unless they have had a thorough winter cleansing, any approach to a dry season will surely bring them into existence again. This mishap must therefore be guarded against by timely hosing or syringing. Moreover, thinning in due course must be attended to, and then even when all that can be done has been done, it is a question if our colonial friends will not establish a new Pear season altogether, and the few samples we grow may be tolerated in the absence of better or bigger fruit from the Continent or the colonies. Fortunately, our Pears come in to their best use when all outdoor fruits, Apples excepted, are out of season, and Pears from the antipodes, it may be assumed, will succeed them; but we cannot tell what this momentous year may bring forth. One thing, however, is certain—we must cultivate to the best of our ability; no stone must be left unturned; Moss and Lichen must never reach our Pear trees; and last, but not least, we must mulch well and crop lightly.

PLUMS AND CHERRIES,

like Apricots, soon suffer if the grubs are neglected. Picking this season has been a tedious business, but the crops, so far, appear likely to pay for the extra attention. The next enemy we have to contend with is black fly on the Cherries, and sharply it must be dealt with, otherwise it will become very troublesome. The proper time to weaken, if not annihilate, it is during the winter, when trees and walls can be thoroughly scrubbed and drenched with soapsuds. All readers of THE GARDEN calendar know this, and many, no doubt, have overlooked my advice while their dusky enemies have been up and doing. It is now too late to redeem past neglect, but a visit to a badly infested tree will most likely suggest a note to be attended to when ripe Cherries are out of mind next winter. When the points of the young shoots get badly infested, all that can be spared should be taken off the trees and placed in a box or bag, not on the ground, and conveyed to the nearest fireplace. The points of leaders and other shoots which cannot be spared should then be dipped in strong Tobacco water, or some other insecticide if more convenient. The proper time to dip is on a dry evening after the sun has gone down, and repeat once or twice, when syringing with clean water will be necessary. Black fly being tenacious of life, great perseverance must be brought to bear upon them, otherwise the escape of a few of the insects will soon form a new colony, which will render dessert fruit unfit for use and cripple the trees for the succeeding year.

Early Cherries will soon be changing colour, and will require netting where blackbirds are troublesome. If the trees have been at all touched by green or black fly, the fruit should be carefully syringed with pure water before the nets are placed before them. Once clean and free from honeydew, the Cherries cannot be kept too dry. Late sorts, including Bigarreus, where thickly set, should be well thinned to insure full size. Many of these varieties do not submit to close pruning, but very often gum and die back during the winter. Rich soils and damp situations, in which the wood does not ripen well, also aggravate this worst of all Cherry diseases, from which the trees never recover. Extra care should, therefore, be observed in the formation of the borders upon ample drainage and planting in sound calcareous loam freely intermixed with rough lime rubble. Then, if each tree has plenty of room for extension and the main branches are trained thinly, a large percentage of the summer growths can be laid in full length, much as we lay in Morellos or Peaches. Plums, on the other hand, even on north walls, will live and bear under close summer pruning, but they do best where they can have an abundance of wall space, and pinching to form space is uniformly practised.

STRAWBERRIES.

Next to a few early Cherries, the Strawberry is the first, and decidedly the most useful soft fruit to ripen in our gardens. This season, owing to the wet, and cold, and absence of sun, the crop will be unusually late, but, judging from present appearances and the thoroughly wet condition of the borders, it should be an extremely good one. If littering down is not finished, no time should be lost, as much mischief is often done when the work is delayed, and scapes and

foliage are vigorous. Small beds which can be littered with a few bundles of clean wheat straw may be allowed to stand over, but where a large quantity of litter, which has previously done duty in the stables, is used, it should be put down before the plants come into flower, to allow time for washing and bleaching while the fruit is swelling. If slugs and snails are troublesome, some mode of keeping the fruit clear of the straw must be provided, otherwise they will do much mischief, particularly if the weather continues showery. Strawberry bricks and tiles have been introduced, but owing, probably, to the cost and trouble of storing them away from frost and wet through the winter, they do not appear to have made much headway. They are, however, excellent things, and well worth a trial where neatness and protection from slugs and grit are considered. Where the first outlay prohibits the use of tiles and Birch is plentiful, this material may be taken up in small handfuls, and tucked in beneath the foliage to prevent the fruit from resting on the straw, or each stool can be trussed or tied up to three or four sticks 1 foot or more in height, to which a band of matting should be attached, 6 in. to 9 in. from the ground. Some may think this light is not worth the candle, but it must be borne in mind that there is no direct outlay of money, and the preparation of sticks and ties ready for use gives employment to the men in bad weather; it may be weeks or months before they are wanted. Next to tying up, an operation which I am obliged to perform on our calcareous snail-breeding land, there is protection from feathered friends. I cannot call blackbirds and thrushes enemies, although they are rather grasping and like the best of the fruit. Years ago I used to spread the nets a few inches above the foliage, but I now enclose the beds with small-meshed rabbit wire, 3 feet in height, run a few cords taut across the beds from the tops of the stakes, and enclose the top with ordinary fishing nets. By adopting this plan no part of the net touches the ground; it does not require tying or pegging; it is turned aside in a few seconds, and pickers, whose backs are not too old, can gather without disturbing the net at all.

STOCK PLANTS

Put out last August, and recently deprived of their flower-stalks, will soon be throwing out strong runners, if in warm gardens they have not already done so. These, as I have often pointed out, must be drawn out into every alternate opening and pegged down into pots, large or small, as may be deemed most suitable to the requirements of the grower. If for forcing, early roots may be placed at once on 5-in. or 6-in. pots, as this size fills quickly with roots, the crowns ripen early, and the fruit ripens before the sun necessitates incessant watering. For midseason or late sorts, I give preference to 7-inch pots, well crocked and firmly filled with sound, rich compost, consisting of loam, old lime rubble, soot, and bone-dust, but no manure. For planting out in the open quarters, small pots 3 inches or 4 inches in diameter will be found quite large enough.

Easton Castle, Ladbury.

W. COLEMAN.

Fly on Pansies.—I daresay some of the readers of THE GARDEN who grow Pansies have been troubled with brown fly clustering about their shoots, especially in times of heat and drought. When the shoots are much infested, they become paralysed and flower but sparingly, if at all, and the blooms are poor and unsatisfactory. Waterings at the roots and frequent sprinklings overhead may somewhat improve their appearance, but it needs a more drastic remedy to get rid of the fly, which is most troublesome during June and July. One of the leading growers of Pansies in Scotland recommends the following method of getting rid of this insect. He puts into an ordinary pan or pail 1 pound of soft soap, and then pours on it sufficient warm water to dissolve it; to this he adds 1 gill of tobacco juice, which, he states, can be got from a tobaccoconist, mixes all well together, and strains the liquid through a piece of coarse packsheet. To 1 pint of this he adds 2 gallons of soft water, and when thoroughly mixed, syringes the plants with it, taking advantage of a showery time for doing so. Syringings with this mixture should be given each alternate day until the fly is

got rid of. During a long continuance of dry weather the plants should be well syringed with clean water before using the solution, and syringed again in an hour or two. Occasional sprinklings overhead will greatly help to keep the fly off in the first instance, but when it once gets a firm footing on the plants some such remedy as that just indicated must be employed. R. D.

FLOWER GARDEN.

A PRIMROSE GARDEN.

A PRIMROSE garden amongst Hazels and Birches is a spring resort redolent of beauty, sweetness, and grace. There is much of all these in a Hazel copse, with its drooping grey catkins and its crimson nutlets. Add the silver-stemmed ladies of the wood, with their drooping blooms and tender and fragrant young foliage, an odour as pleasant as it is unique among plants, and the ground all carpeted over with many-coloured and many-foliaged Primroses in the early springtide, and we have indeed a veritable garden of fresh beauty and full fragrance. I desire to thank a writer in THE GARDEN for adding Birch to my favourite background and shelter of Hazel for Primroses. For many years I have noticed how well these two plants have agreed. So much and so generally is this the case, that in not a few parts of East Anglia it is comparatively rare to find a Hazel copse that is not also to a large extent a natural Primrose garden. These are of course chiefly furnished with the common variety, which is after all the most beautiful. Under such conditions the common Primrose varies but little, as a rule, except in its many differing shades of yellow and in the size and form of the eye. In some copses, too, Primroses are so conservative as to type, that each is as like to all the rest as those immortalised by our poets. In other copses, again, greater variations of type are common. Different sites and soils, contiguity to coloured varieties, and even the culture or treatment of the copses, seem to have considerable influence in causing breaks among the common Primroses. Of course all this refers to natural Primrose gardens in woods, where the plants sow and propagate themselves and hold their own without any help from gardener or forester. It seems a pity at times that they do not have some help. The smallest attention to the gathering and sowing of seeds, the forming of new colonies from overcrowded old ones, a few days spent in division and replanting in fresh soil would often extend mere patches into copse gardens of Primroses many acres wide. The beauty of these natural Primrose gardens also ebbs and flows with the growth and clearance of the Hazel copses. As these grow taller and more dense the Primroses wane in vigour and beauty; but so soon as the Hazel is cut for hurdles, hoops, &c., there is a sudden and a glorious resurrection of Primroses, and every rood of ground is verdured or sulphured over with their leaves and flowers. This sudden upspringing of Primroses in newly-cut Hazel copses seems to prove that, however dense the shade of these, it seldom really kills the plants. This no doubt arises from the early growth and maturity of Primroses. Before the Hazel leaves shut out the light the Primrose has already bloomed and partially matured its foliage. No doubt, too, the shade at a later period, if not too dense, is better for the Primrose crowns than the baking heat of unshaded south borders during the summer and autumn months.

But this brings us back to our starting-point—the perfect agreement or vital correlation between these two widely dissimilar plants. For example, it is seldom that we find Primulas so numerous and healthy in Oak, Ash, or any other copse as

in one of Hazel, while in mixed copses or woods they seldom thrive for long, either the roots or the shade proving too much or too dense for their well-being. As a rule, too, the more evergreen shrubs in woods and copses, the worse for the Primroses. The shade of these is so dense, that the Primroses pine and disappear under it. They thrive well, however, among deciduous shrubs, such as Lilacs, Syringas, Spiræas, the common Barberry, &c. It seems singular that the latter is not more planted in pleasure grounds than it is, as hardly any shrub can equal it in the chaste beauty of its foliage, flowers, and pendent bunches of berries. A caution needs to be given against the culture of Primroses among or contiguous to evergreen shrubs. Finding many years since that the shade was too dense as a rule for their well-doing, large masses of Primroses were grouped on the turf that furnished areas of irregular width between the dense shrub masses and a gravel walk that wound in and out among the shrubs. The Primroses did well, but so soon as they showed flowers, the birds picked them bare of bloom before they had time to expand; and this clearance of blossoms has been repeated with more or less thoroughness every spring. The most curious thing about it is the fact that it is almost confined to the immediate proximity of the Evergreens. A Hazel copse within half a mile of the shrubberies virtually escapes, though it also is crowded with birds. Has any reader of THE GARDEN any experience of this fondness of birds for Primroses? I have met with another feature of bird-like or disliking among Primroses which has proved rather inconvenient. In planting distinctly coloured varieties among common strains, and especially pinks or crimsons, the birds have chipped the flowers of these off and left the common strains intact. This circumstance is the more provoking, as the birds do not seem to eat the flowers, but only chip them off and scatter them abroad. Apart from these drawbacks, which may after all be exceptional, as we are overrun with birds in abnormal numbers, there can be no question that an existing Hazel copse, already furnished with common Primroses where it is available, forms the best of all possible foundations for such a charming English Primrose garden as that described in THE GARDEN, for not only are the new strains most effective in contrast with masses of the common type, but the seeds are more plentiful and the seedlings varied almost to infinity. Formality and regularity must be eschewed in such a garden; these would but spoil it. A few narrow footpaths winding in and out among the Hazel shoots and silver stems of the Birches and leading to all the more telling points and favourite groups would really be all the laying out needed. To maintain such a garden of Primroses, however, on any considerable scale at the highest possible pitch of beauty, a small bit of ground in the open, as a nursery for choice strains and a reserve for considerable stock of the most showy varieties, will be found very useful, if not indispensable. Though without any such adjuncts, or even the charm of any considerable variety, I have known a Hazel copse, with a few rough paths cleared through it, preferred by the family and visitors in the spring to a spring garden ambitiously planted and richly furnished. D. T. F.

Centaurea montana is very attractive to queen wasps. I have killed thirteen on two successive days on the white variety, and hope the patch will lure many more to their doom. I have not noticed them on the blue, but of that we have only some small plants here and there; whereas there is a strong clump of the white. The patch will be extended next planting season, in the hope of at-

tracting all our queens. The Mountain Knapweed grows too coarse and rank and with little flower in a rich border, but low, strong, and free-flowering in a sunny place in poor soil.—G. J.

WILD AND GARDEN PRIMROSES.

It is curious how experience differs. "A. D." (p. 504) states that "the wild Primrose takes badly to civilisation, i.e., garden culture. Transplant it from its native habitat into gardens, and unless the natural conditions of its existence are provided, it will soon die; hence it should not be removed from its native woods." I will say nothing about the danger of inculcating a doctrine of this kind, seeing that all our garden flowers have been removed from their native habitats with few or no disadvantages to their full and perfect development, but rather otherwise; but in regard to the wild Primrose, I am of opinion that "A. D." treats a good deal to imagination. I have for years cultivated the wild Primrose in the garden in all sorts of aspects; plants of it have been removed both from their wild habitats and raised from seed by thousands, and the facts that have struck me most in regard to them are that they grow stronger in the garden, flower far more abundantly than in the wild state, live longer, and do best generally in good soil in a border where they have not to fight the wild conditions of existence, but are cultivated like other plants. I do not recommend the practice of keeping old stools; it is far better to sow seed periodically; but how long Primroses would live in a garden under careful culture I would not like to say. Certainly they do not soon die, and I could show excellent proof of the fact if necessary. Nor is it needful to rob our woods of the wild roots in order to fill our garden banks and shrubberies. The right plan is to raise them from seed, and anyone who chooses to sow outdoors in April or May may have thousands of plants ready to remove by October, and which will bloom freely the following season. What has often struck me is that I never come across such large or aged stools of the wild Primrose in woods as we have in the garden, and in reflecting on this subject I have come to the conclusion that the old plants grow weak and soon die in the wild state, and are succeeded by fresh seedlings, which are usually abundant in all stages near old roots. It is only when you transfer the roots to the garden and nurse and care for them, that their age is extended beyond the allotted span; but this is so contrary to "A. D.'s" experience, that it would be interesting to hear the opinions of others on the subject. I do not think there are any grounds whatever for believing that the common Primrose is an exception to every other member of the same family in this respect. J. S. W.

Spiræa opulifolia aurea.—This Spiræa is seen at its best during the early part of the season, and is perhaps most attractive just as the young leaves are unfolding. Then the little tufts of yellow foliage give to a bush of this kind the appearance of being studded with golden blossoms, which the sombre-tinted bark tends to render still more conspicuous. This variety of Spiræa opulifolia is well worth growing even among the most select of plants. It is by no means so vigorous as the type, but forms a neat rounded bush—very effective from a foliage point of view during spring and early summer, but afterwards becoming much greener. It should be planted in a spot well exposed to the sun, as the depth of colouring is by this means much intensified. Another plant to which most of the remarks just made apply is the golden variety of Ribes alpinum, a dwarf bush better fitted for rockwork than the shrubby border. A plant here is just now most attractive.—H. P.

Italian Daffodils from the slopes of the Apennines.—Here is a field of business and pleasure combined for collectors and lovers of Daffodils. Let them take up their abode at Florence or Lucca, and for a couple of seasons enjoy the Italian spring; they could employ the natives to bring in the different

sorts of Daffodils separately, with their blooms attached, and put them in by the heel until June or July, when they could be packed up and exported to England in thousands; the quantity thus got would well repay all expenses, and the blooms could be transmitted by parcels post to South Kensington for naming before the bulbs arrived. The Italians who collect will not keep them distinct—that at least is my experience. W. B. HARTLAND, Temple Hill, Cork.

OPEN-AIR LILY OF THE VALLEY.

OUR principal stock of Valley Lilies is growing on a west border, which they have occupied for a number of years. Here we prepare the clumps for forcing, and to this border the forced plants are brought back when the flowers are gathered, and the leaves hardened off in a cold pit. The soil is light and the position rather shady. All the manure they have is a top-dressing annually of leaf-mould. I do not say the spikes of our forced plants are as fine as those which the Berlin roots produce, but they are good and accompanied by plenty of leaves, which are for decorative purposes only second in importance to the flowers themselves. The oldest plantation is a complete mass at the present time of leaves and flowers. Every year sufficient numbers of clumps for one year's forcing are cut out of this plantation with a spade. They vary from 4 inches to 6 inches in diameter, according to the size of the pot used, and they are planted wide enough apart to allow the leaves to grow and fine buds to develop at their base. They are sometimes forced when only one year transplanted, but they are stronger and finer at the end of the second year. These clumps, thus prepared, force anywhere. They may be packed closely together on a stage and be covered with leaf-mould, or be planted in pots or boxes; or, if the flowers are wanted for sending away, they might be forced wholesale in frames on hotbeds where a genial temperature can be had. I never remember to have seen Valley Lilies flower finer than this year. E. HOBDAY.

Planting out old Fuchsias.—Old Fuchsias not needed in the conservatory often do good service in borders. All plants, Fuchsias included, turned out of pots should have the soil made firm round their roots; and if a spadeful of leaf-mould could be placed on the surface just over the ball, it will be a great help in keeping the soil cool and moist. When one wants a spray of drooping flowers to hang round a vase, a clump of Fuchsias in the open border will often furnish it, and that without doing much harm to the plants.—E. H.

Balsams planted out.—Though pretty enough in the greenhouse or conservatory, Balsams make finer plants in the open air, when planted in good soil, than they do indoors. As this is the season for turning them out, those who have surplus plants might give them a trial. They look well in mixed borders where not crowded, but they are most effective when planted 3 feet apart over a groundwork of low-growing plants. They succeed well in company with Phlox Drummondii pegged down. They also associate well with the variegated Mesembryanthemum, and other combinations will suggest themselves. Their growth is rapid when well supplied with water.—E. H.

Cutting away the foliage of Crocuses, &c.—This is a barbarous practice, done on the score of tidiness, but to the manifest injury of the plants. All bulbous plants appear to be growing freely this season, and the proper maturation of the foliage has a great deal to do with the ripening of the bulbs. To cut it away is to rob the bulbs. If the rank foliage offends the eye, let the old-fashioned method of tying it up into knots be practised; or, failing this, let it be spread out thinly and have some fine soil spread over it. This is not a good practice, but it is better than cutting the leaves quite away close to the ground. We have known many people to plant Crocuses and Snowdrops in Grass, and then wonder why they died away in two or three years. This happened in consequence of the Grass being cut directly the flowering season was over, thus getting rid of the

leaves. It would be better to lift the roots of Hyacinths with soil adhering to them, and plant them in a reserve garden. This must be done carefully, and directly the flowers have faded; cut away the decaying blossom, but leave its stalks; place some fine rich soil about the transplanted roots, and frequently sprinkle them overhead in dry weather, mulching if necessary.—R. D.

THE EDELWEISS.

(LEONTOPODIUM ALPINUM.)

If there is one plant more than another that is sought after by tourists on the Swiss Alps, whether they be plant lovers or not, it is the Edelweiss, a singularly curious plant—so curious, in fact, that no one who once sees it is likely to

those of any other hardy perennial. Even with us the Edelweiss dislikes division, and rarely if ever does well after that operation; the best plan we find is to choose a rather sunny position for it, close to a bog or shallow swamp; give it a good depth of rich peaty soil, and prick out the seedlings as soon as ready to handle. Where the bottom is not cool, a little more shade will be required than where it is so, and if grown close to a wall better success will be attained than elsewhere. The plan of raising plants from seed applies also to most other alpine. The Edelweiss is very plentiful on the Himalayas, at 14,000 feet elevation, in Cashmere, Kurum Valley, and Southern Europe. With us it flowers in July and August. K.

NOTES ON HARDY PLANTS.

Onosma tauricum.—What I said about this plant (p. 443) was not intended to convey an impression that it had all been killed in Yorkshire, nor that it was so much wanting in hardiness that it was not entitled to a place among hardy plants. What I meant was this: that owing to the peculiarities of the plant we could only make sure of its surviving our wet winters by paying special attention to it. As a matter of fact, I have several plants of it strong and vigorous, and not hurt in the least by last winter, but then I had also many killed, and so, I know, had many other

anywhere, and perfectly so if sheltered with glass, as just recommended.

Ranunculus anemonoides.—The rotting of the crown of this plant is, I believe, confined to heavy land, in which it should be planted near the surface. This, however, I do not state from experience, as I have never found the plant to suffer in the way mentioned. What I have found is this, that, like various other fleshy-rooted Ranunculi, the roots are very much eaten by ground pests. When the roots are near the surface they can be easily examined in order to ascertain the nature of any ailments from which they may be suffering. My experience in regard to this plant really is, that it grows equally well, and even better, than some other species. It affords ample material every two years for purposes of division, and yet, singular to say, the plant is scarce.

Anemone vernalis.—Many have been puzzled as to why strong crowns of this and pyrenaica have not made a vigorous start this spring. They have remarkably long black roots, and their retention has everything to do with successful transplantation. Let anyone try a crown, be it ever so strong, with the roots cut off short, and it will be found to make but an indifferent start. Deep planting will be in its favour, but should there be vermin in the soil the result will be doubtful. In the case of hundreds of plants which I have transplanted of the common vernalis, I never yet found any to fail which had been taken up with roots at least 6 inches long. I take it that depth, coolness, and moisture are essential as regards a vigorous start. The tassel-like bunch of thick fleshy roots, if put into the ground without carefully introducing soil amongst them, would be likely to rot. A good way is to shake out the roots straight in water, and whilst wet lay them on the potting table on a layer of dry peat and sand, and with the right hand scatter a portion freely over them. Every root and every fibre will thus become thickly coated with soil, and whilst in that state the plant should be immediately planted. This practically divides every root and every fibre, and to some extent places them in conditions similar to those they were in before removal. This may seem a tedious business, but if faithfully carried out it practically ensures the establishment of many of the more doubtful plants, especially when unseasonably transplanted.

Androsace sarmentosa.—This plant I have found to be the most robust of the family. In cleaning a rough border we have just dug out old plants that have held their own for three winters, and produced offsets in quantity in the way of Strawberry runners. The plant was so shaded in summer by Rose trees, Campanulas, and Day Lilies, that it was lost sight of. But in winter its downy rosettes were found dotted about in numbers. I think a vigorous habit like this in an Androsace is at least worthy of note. This kind, though not one of the most beautiful, is nevertheless one of the most showy. It is not unlikely that the Himalayan species that are now coming to us year after year will better withstand our climate than even the European.

Primula involucrata, or rather a variety at one time supposed to be obtusifolia, is one of the most charming flowers at present open out of doors. In the three or four plants of it which I am growing the distinctions between this variety and the typical form are most marked. It flowers earlier than the type, and the flowers are much larger, prettily tinted with lilac. The eye is almost orange and the calyx reddish brown when compared with that of the type. The leaves, too, are large in proportion to the flowers and closely toothed. Another distinction is that the outsides of the tubes are rosy red on the sunny side, whereas in the type they are canary-yellow. It is in every way a superior form, and equally hardy as the type, and, I may add, as free growing.

Alyssum alpestre.—This ought to be in every rock garden, so charmingly does it adapt itself to such situations, owing to its flat and spreading habit. It keeps close to the ground; every woody shoot extending nearly a foot is tipped with a head of golden blossom; its style and colour, to my thinking, sur-



Edelweiss and alpine Catchflies (Silene).

mistake any other for it. It is the badge of tourists, although, as everybody knows, they often get their badges second-hand, for to get to the haunts of the Edelweiss, is sometimes not an easy matter. There has been—indeed, still is—a good deal of nonsense written about the Edelweiss; some would lead us to believe that some deep secret is connected with its culture, and that it will not succeed except in the temperature of an ice house. As a fact, it is one of the easiest plants to grow if not coddled. Where failure occurs most frequently is in the case of old plants that have been torn up carelessly and sent home, where they, perhaps, arrive half rotten; whereas, if people gathered the seeds and sent them instead of old plants, they would experience no trouble concerning culture, for home-raised seedlings are as easy to grow as

people. All reports agree on one point, viz., that winter shelter from wet ensures its safety, i.e., glass shelters, which just throw off wet and hold off fogs, the sides being open. Thus treated, this Onosma will live through the lowest temperatures. What "F. W. B." says is precisely what I have proved in reference to young plants and the mode of striking them, and it is curious how the strips of old bark which come away with the slips will root stronger often at the very points than elsewhere. I hope "F. H." (p. 504) will not throw away the precious material which he says he will have to cut away from his rampant specimen. As regards young plants, I find these to stand the winters best if well rooted; all depends on this. Young examples badly rooted are sure to die if placed out of doors; such stock ought to be kept rather dry and free from frost. If safely wintered in frames, they may be planted out in March. Strong young plants are as safe in the open ground as

pass by far most of the dwarf *Alyssums* which we cultivate. Moreover, it is suited for positions disliked by most plants, namely, hot and dry ones.

Cytisus Ardoini.—This is a charming prostrate shrub, the flowers of which are abundant, of the clearest pale yellow, and beautifully set amongst the leaves. Its very dwarf habit commends it for rock-work, and its fragrance is most agreeable. I find that it requires sunshine in order to bring out its flowers.

Saxifraga tenella is so amenable to different modes of culture, that its friends hardly know it under certain altered conditions. Doubtless the best way in which to grow this plant is to set little bits of it immediately after the blooming period. Grow them in a sunny place in good soil, and the following spring the tufts may be from 4 inches to 9 inches across, and of a colour peculiar to those of this species. The bristling tufts become crowded with the slender short stems on which the flowers are borne, and look pretty, and even effective, compared with the majority of *Saxifrages*. The whole plant is one of the neatest and sweetest little objects that can be set in the crevices of rockwork. When older, it becomes overgrown, black-patched, and never has that freshness which one sees in younger specimens.

Phlox divaricata.—This is now beautifully in flower. The fashionable soft lilac tint of the somewhat large clusters of blossom is most attractive. It seems to be a favourite with everybody, and the wonder is that everybody does not grow it. It is even freer in growth than the woody creeping section, and certainly as hardy, possibly harder. The only trouble is keeping it from slugs. When the young shoots are appearing, it is not unusual to find them all grazed off in one night; in fact, I never find it safe unless well and frequently supplied with wood-ashes around the collar.

Anemone sulphurea.—This is certainly correctly named sulphurea, but in the Engadine I hear there is a kind much more yellow than sulphurea. If we could have this variety, and if its colour remained permanent in this climate, it would certainly be an acquisition. *Anemone alpina* and its varieties, including sulphurea, would constitute one of the best groups for effect that anyone could have in the month of May.

Comaropsis trifoliata.—This creeping plant was sent to me under this name by the late Mr. H. Harpur Crewe. It is certainly a plant worth growing in any collection, but to see it in full beauty, it should be grown in the form of a broad patch. Its evergreen character strongly commends it for winter effect. It thrives in moderate shade, and also in full sunshine. It is in no way particular as to soil, and its little yellow, Rose-like blossoms are as distinct as they are beautiful. Hundreds of less worthy plants are grown and highly prized. Anyone having rock-work requiring to be covered with what might be termed free-growing material could not employ a better subject than this.

Anemone nemorosa.—A quantity of the soft lilac-coloured variety of this Windflower was sent to me three years ago, and this is the third year of their blooming. The first year I could scarcely trace a tint of purple; in the second year it was more pronounced, and this year it is, I think, equal to that of *A. Robinsoniana*. The foliage, too, has somewhat changed in the same direction as *A. Robinsoniana*, the only difference in some portions being that it is not as dark coloured. I say in some cases studiously, for there are no fewer than four distinct forms in my somewhat large patch. Cup-shaped, star-shaped, narrow-sepaled, and broad overlapping-sepaled constitute some of the flower variations in the way of form. On closely examining two extra strong plants I found that there exists a tendency to produce an inner set of sepals similar to what occurs in the well-known old double white form. All this I mention to show how variable this species is.

Alyssum montanum is a pretty companion to *A. alpestre* mentioned above. It has, however, a more cushion-like habit, and the foliage is greyish green in colour. The little erect flower-spikes, too, are more springly produced than in *A. alpestre*,

somewhat paler in colour, and also more lax in the corymb. It is a plant which should by no means be neglected by those who are seeking for a really reliable hardy creeper. It may be grown in deep soil, either in the upper or lower parts of rockwork, but it should have more moisture than some of the alpine *Crucifers*, and this, I think, it gets if placed in deep soil, even in a sunny aspect.

Alyssum repens is another fine species belonging to what may be termed very dwarf alpine. It has a greyish green leaf, larger than that of *A. montanum*, and it is laxer in habit. It spreads prettily among stones, and the corymbs of flowers, which are very bright yellow, are, compared with the size of the plant, very large. It answers well for decorating old walls, on which it scarcely attains half its usual size.

Polygonum affine.—This very beautiful little plant proves to be perfectly hardy under the most trying conditions. Its beauty is wholly in its flowers, which are produced most freely and for a long time during early summer. They may be said to be somewhat in the way of those of the dwarf and shrubby *P. vacinifolium*. It has the good property of growing remarkably compact, which is more than can be said of some of its family.

Helianthemums.—All the *Cistuses* have been nearly killed this winter, and *Helianthemums*, too, have suffered severely. They are not killed outright, but the damage done is so great, that, for neatness sake, they should be cut back close to the ground. In all cases cuttings put in last summer have proved more enduring than larger plants. Indeed, I always find it best to raise a fresh lot of plants every year. With these, not only can gaps be filled up, but they are practically the only specimens which can be transplanted with certainty. Rarely do strong plants of over a year's growth stand removal, or do any good afterwards.

Ramondia pyrenaica.—It is generally understood, I believe, that this plant should be set facing the north, and in doing this we should remember that the plant in its wild home is found in the crevices on the north side of big, black, damp rocks, and where, in consequence, it is always cool and moist, and in subdued light. What is the northern aspect in which we generally find it on our rockeries? rarely on the north side of a large and naturally damp rock, but often rather than not on that of a single stone, where and when the sun is high and most powerful it can glance down upon the plant, to its manifest disadvantage. This plant, therefore, should be on the north side of somewhat high and steep rockwork, in deep or hollowed recesses; by the side of tall buildings, or on the north of a sharp line of tall trees, but away from drip. This is the sort of sunless and moist aspect, having also a subdued light by reason of its lofty surroundings, which is best adapted for this plant. It should also have a moist, peaty soil. If conditions such as these are provided, it is almost sure to succeed.

J. W.

SPOTTED MIMULUSES.

It is doubtful if one-half of those who have gardens know much about spotted *Mimuluses*, or, at least, about the best strains of them. Their cultivation in pots, although productive of good results, naturally leads many to conclude that pot culture is essential for *Mimuluses*; but that is a mistake, as they will in ordinary seasons thrive admirably in the open ground. From want of frame room and other conveniences enjoyed by large growers, I have to content myself with open-air culture, and I am always satisfied with the results. Moreover, the growth of the plants annually in the open ground tends to harden the strain, a matter of some little importance in connection with plants that are at once so hardy and yet so tender. It is a curious fact that *Mimuluses*, though so soft-wooded, are yet capable of withstanding more frost than perhaps any similar plants. In the case of plants, however, that seem specially worth preserving, it is easy to lift and divide them, and to plant the rooted side shoots in a shallow box, or, better still, into a frame, and thus preserve them through the winter. But few plants seed more readily or are more easily raised from seed than

Mimuluses, so that the trouble involved in the saving of old plants seems superseded by raising seedlings. It is well to understand that exceptionally strong plants can only be obtained in spring by sowing in autumn. I speak of the south, as here the warmth in a cool house or frame in spring tends to drive the seedlings into flower rather rapidly; hence, in order to get specially strong plants if old ones be not saved and divided, it is well to sow seed about the first week in October in a shallow pan and on fine sandy soil. Place the pan in a frame or in a greenhouse near the glass.

Mimulus seed is exceedingly small, and if sown thickly produces such a crowd of seedlings that it is advisable to be self-denying and sow thinly. I have often found 500 or more plants in a 12-inch pan where there should have been but 200. However, having sown in October, the grower will find that by the beginning of December it will be needful to dibble out his plants so as to give them more room; and if a specially beautiful show of early bloom is desired, then prepare a bed in a large frame, bringing the soil up firmly to within 6 inches of the glass. Surface with old potting soil or fine leaf-mould, or with some sifted Cocoa fibre refuse, and then dibble out the seedlings 6 inches apart. It will be needful to water only sparingly during winter, but as spring advances any amount of moisture will be absorbed, and by March the bed will be quite a mass of foliage and flower-stems. All possible air should be given, the lights being tilted a little at top and bottom when the weather is favourable. During April the plants will bloom grandly, and a finer or more beautiful show of wondrously-marked flowers will rarely have been seen if the strain be of the best quality. Of course it is obvious that if some of these autumn-sown plants be also dibbled into pots, shifted on as need demands, and kept in a frame as advised, they will make grand specimens for flowering in a cool greenhouse. It cannot be too well understood that not only does the *Mimulus* abhor heat, but will bloom so early naturally, that heat will be wasted upon it; hence it is peculiarly a plant for the amateur or for those who possess cool houses only.

Seedling plants almost invariably show a tendency to throw up at once a main stem. This of course produces the finest early blooms, but it somewhat exhausts the power of the plant to throw up successful stems. It is therefore wise in all cases to pinch out this main shoot early, and then several others will spring up and furnish more bushy growth. It should be noted that nearly all the finest blooms shown in London and elsewhere are taken from these main stems, and are perhaps the earliest to expand. I have grown a good strain for years, and find from year to year many new and beautiful divergencies in the markings. In nearly all cases the grounds are either rich yellow or white. I have laboured to obtain speckled and spotted markings, and have succeeded. To describe these markings would be impossible, they are so wondrously varied. Some other flowers give reddish grounds, but are attractive only when, as in the case of *Brilliant*, they are dense and rich.

I may add that for later blooming, a sowing made in March will give ample plants to put out now, and these in cool fine soil, a little shaded from the hot summer sun, will flower gloriously for a long period.

A. D.

Solomon's Seal fragrant.—Is anyone acquainted with a sweet-scented variety of *Solomon's Seal*? A correspondent writes to say that he has a variety deliciously fragrant, the perfume being something between that of the Hawthorn and Almond. Others have also tested it, and there seems to be no doubt of the existence of such a plant. The plant referred to grows in peat, but though we know peat alters the colour of some plants, notably the *Hydrangea*, I have never heard of peat having any effect in imparting odour.—D. T. F.

Scented Hose-in-hose Oxlips.—Mr. W. Baylor Hartland, of Cork, has forwarded fine trusses of two varieties of these of yellow shades, one deeper than the other, but both deliciously perfumed. They have now been a week cut, and had to come through the post, but they are almost or quite as fresh as when sent. Larger and finer varieties have been seen, but scarcely anything so sweetly fragrant.—R. D.

TREES AND SHRUBS.

SPRING-FLOWERING SHRUBS.

WHEN they come to be reckoned up, how large is the number of shrubs and small trees which we possess that produce gay, or at all events pleasing, flowers in the earliest days of spring! Not half the use has yet been made of them that might be; the Evergreens have had it almost all their own way, as if there were nothing besides, and everyone, no doubt, is glad to see the Evergreens, shining, as they do, even in the snow of winter; but even they would look the better were early blooming deciduous shrubs intermingled with them deliberately and judiciously. By the exercise of a little skill in planting, the presence of the deciduous shrubs would interfere not in the least, and as soon as in bloom, the Evergreens would receive new beauty from the companionship, at the same time that in reciprocity of good service they helped to bring out the merits of what was leafless. We say "companionship" rather than contrast, for, depend upon it, the *beau-ideal* of horticulture, like that of well-ordered society, comes a vast deal more surely and readily of natural harmonies than of contrasts, let the individual merits of the contrasted things be ever so high; and what we have most energetically to consider is, not how things will best antagonise, but in what way they can be made most exquisitely and unaffectedly to blend. Two, or even three, classes of the early-flowering arborescent plants may be established, but for our present purpose it is unnecessary to speak of any but the first, excepting in simple mention of the principal names. Possibly, even the list of those we omit may have its value, since until someone points it out, even the most ordinary fact now and then eludes our notice. The hardest thing in the world to see most plainly is very often that which lies at our feet.

The early-flowering shrubs, then, which do not belong to the section we purpose speaking of are the self-secluded, through being evergreen as well, the *Laurustinus* to wit, the *Garrya elliptica*, the common *Mahonia*, the *Spurge Laurel*, the early crimson *Rhododendron*, the *Erica carnea* and its varieties (*mediterranea*, &c.), the early blooming varieties (or, perhaps, they are only individuals) of the common *Furze*, and a little later in the season the *Cherry Laurel*. These plants are all intrinsically so good in their flowers, that they ought to appear abundantly in every spacious pleasure ground—the *Spurge Laurel*, if not showy, because of its delicious evening perfume, and the *Garrya* as the best thing Nature ever devised for table epergnes. There is no occasion, however, to dwell upon them, since the greater portion are nearly universal, and need no eulogy, speaking, as the ladies do, for themselves. Nor is there any necessity for more than the bare mention of those charming and mostly old-fashioned things (equally meritorious, if we are sensible enough to take them *per se*) which present their flowers in company with the opening foliage. How beautiful is the *Cydonia japonica*; the Canadian *Amelanchier*, which seems a snow-shower caught *in transitu* and changed to petals; the *Larch*, with that inimitable blending of tenderest green in little sheaves and infant cones of loveliest pink; and though last, not least, the *Apple tree*, the *Garland Crab* (*Pyrus coronaria*), the wild *Cherry*, and several others belonging to the *Pomifera* and the *Drupifera*, those two capital families which seem at a loss whether to prefer poetry in the way of bloom, or substantial prose in the shape of fruit. Not last, after all, for we have skipped that every man's treasure—the *Ribes sanguineum*.

Many who read these lines will remember with ourselves how delighted tree-lovers were when the *Ribes* became properly known, and its hardiness and easiness of multiplication were established. North-west America may have many more admirable contributions awaiting our gardens, but to beat the *Ribes sanguineum* will be hard. It may not be amiss to invite attention, while the plant is before us, to the very curious phenomena observable in the flowers when double.

So, looking to the deciduous early spring-flowering shrubs and trees, let us remark what a pity it is that the *Cornelian Cherry* (*Cornus mas*) is not more frequent. While everything is still bare of foliage, its slender twigs are densely clothed with knots of golden yellow, just about the same size as the flower-knots of the *Eln*, which are themselves no slight ornament to the tree as soon as the anthers have become protruded, giving it, when the sun shines, a shade of purple.

Of the same bright yellow are the flower clusters of the *Hamamelis*, a tree very seldom met with, but eminently deserving, and of the fitness of which for our shrubberies there can be no question, since it endures the severe winters of New Brunswick. The *Paulownia*, unhappily, is too tender for the midland and northern counties of England; but what can be more splendid than the display it makes in April in the south, pouring out grand violet-blue flowers, fashioned like those of a *Foxglove*, aloft among the branches?

It is from the same fertile country which was the birthplace of the *Paulownia* that England originally received that sweet and most dainty thing, the Japanese *Chimonanthus fragrans*, peer of the *Mezereon* in its fragrance, and commencing to bloom in February. The *Mezereon* has the advantage of it in point of colour, and is excellent, as everyone knows, as a little standard; but there is a delicacy about the *Chimonanthus*, although relatively much less hardy, which enables it to hold its own anywhere; and, for minute examination, the amber and chocolate of the blossom are unique.

Need we speak of the *Almond*, the *Plum*, the *Sloe*—one of the whitest flowers in Nature—or of the *Peach*, or of the *Apricot*? Though the rude gusts that toss their blossoms to the *Primrose* render it hazardous to depend upon them as ornamental trees, there is always the chance of fine weather while their flowers are out, and the average of seasons is pretty sure to be not unfavourable. What beautiful plants, again, are the *Forsythia viridissima* and *suspensa*! Like the winter-flowering *Jasmine* (*Jasminum nudiflorum*), they may be everybody's, and against a wall become perfect sheets of brilliant yellow, excelling everything except the *Laburnum*, that in this particular colour is the enrichment of a later season.

The *Almond* has a rival in the *Judas Tree* (*Cercis Siliquastrum*), another of the too-seldom-planted ones, though so splendid in its profusion of rosy flowers, shaped like those of the *Furze*, and springing from the naked old wood. We have seen this tree, when not large, not less completely enveloped in blossom than are the twigs of the *Mezereon*. Finally, there are members of the *Amentifera* that confer surprising beauty on the pleasure ground when carefully placed; not to mention the familiar *Sallows*, loaded with large yellow catkins, and ensuring that pleasant sound, the hum of early bees; and not to mention the *Hazel* and the *Filbert*, dressed all over with these elegant pendants that give their "touch of beauty" even to the hedgerow nuts; there are the *Poplars* in several kinds, and the *Alders* in at least two or three. While the trees

are comparatively young, the catkins of these last are exceedingly conspicuous.

Everyone who has learned to love trees loves the catkin-bearers, and none that grow surpass the *Alders* in power of wooing towards the amiable pastime, to indulge in which, moreover, is a positive benefit to mankind, since demand for handsome trees implies demand for good tree-providers, and good tree-providers have to think steadily before they act.

PINK AND WHITE HAWTHORNS.

THESE are just now in full flower. Of the double white there are but few specimens to be seen near London, but of the double pink many, trees in all probability planted thirty and forty years ago being laden with bloom. There is a marked difference among the double pink varieties; some are pale in tint—blush rather than pink, and some are of so deep a pink as to approach a bright rose. Here and there are a few good specimens of *Paul's Crimson Thorn*, rich and striking in colour when one is near it, but not so conspicuous in the distance as the pink variety. If anyone were to stand two hundred yards from a flowering tree of each, both equally furnished with blossom, and there were a line of green-leaved trees behind them, the pink here would appear much more prominent than that of the crimson. But as definite colours are generally liked, the bright crimson of *Paul's Thorn* is of course much and deservedly admired.

The double white is a charming tree, and I do not think I ever before saw it carrying such a wealth of blossom as it has done during the present spring. It is an excellent tree for a good-sized forecourt garden attached to a villa residence, but it should be so isolated that it cannot be interfered with and hidden by neighbouring trees. The single white *Thorns*, either as isolated specimens or as clumps standing by themselves in the midst of park scenery, are objects of great beauty in spring. Two places, in particular, may be mentioned where they are seen to great advantage, namely, *Strathfieldsaye* and at *Ashton Court*, near *Bristol*. At both places the specimens are large and old, and year after year they produce blossom in profusion. The single pink and single crimson *Thorns* are charming trees also, and both in a young state grow freely until they begin to flower, and then their growth is much less vigorous. Specimens that have grown into a large size, and if at all in the open, are at the proper time loaded with flowers. But these *Thorns* and other flowering trees are subjected to great hardships in the forecourt gardens of many villa residences round London. When first planted, a good selection is often made, but in order to give the garden a furnished appearance as quickly as possible they are planted thickly, and as thinning out rarely follows, they destroy to a great extent each other's individual beauty. The manner even in which some isolated specimens are treated is simply barbarous. Close to where I live there are two forecourt gardens to villa residences, each containing a vigorous specimen of the single crimson *Thorn* and other trees. Late in autumn a jobbing gardener goes over these with a pair of shears and clips them in closely, just as he would a *Privet* hedge. When spring comes there is an abundance of growth, but little bloom, and the residents wonder why their trees do not blossom like the double pink does in a neighbour's garden just beyond. If these trees, instead of being treated in this way, were judiciously thinned in autumn, enough of old wood would be left to produce a fine show of blossom in spring.

I am dealing simply with the varieties of *Crataegus Oxyacantha*. There are other species whose fruit is handsomer even than their flowers; but few of them can compare, as spring-flowering trees, with the varieties of the common *Hawthorn*. The last, too, are accommodating trees, doing well in almost any soil, and flowering to some extent even when they are hemmed in by other trees.

But is when they are isolated somewhat, with the sunlight and air playing freely about them, that they are seen to best advantage. Though not particularly fastidious in the matter of soil, it seems to me that Thorns do best when in a good bed of loam, resting on a gravelly subsoil or bed of sandstone or some such material. Position is, no doubt, of as much, if not more, importance than soil, and in ornamenting the landscape by the introduction of Thorns, they should be employed as isolated specimens in clumps, or as a prominent foreground to groups of taller trees. R. D.

THE AMERICAN LIVE OAK.

(*QUERCUS VIRENS*.)

THIS Evergreen Oak grows wild in various parts of North America, where it forms a handsome and in some cases a majestic tree. It is unfortunately not a good tree for this country, for although it has been introduced for upwards of a century it is not often met with, and at best but in the form of a shrub or small bushy tree. This arises from the fact that it is a native of the warm regions along the southern seaboard of the North American continent; indeed, sea air seems essential to its existence, as it is rarely found more than fifteen or twenty miles from the coast. It is abundant on the shores and creeks of the Southern States, where it becomes covered with Long Moss (*Tillandsia usneoides*), a grey drapery which gives groves of this Oak a peculiar aspect. In the vicinity of Charleston there are some fine planted groves of this tree, some being over a hundred years old. Some of the groves or avenues are a mile long, and the trees, which are planted in four rows, throw out huge limbs widely on all sides. This Oak is considered to be one of the most durable, the wood being almost as hard as *Lignum-vitæ*, and as its trunk sometimes attains from 4 feet to 5 feet in diameter, the timber is highly prized. It rarely reaches above 50 feet or 60 feet in height. We imagine that it would succeed in Devonshire and other south-western parts of this country, but we are not sure. Perhaps some of our readers can enlighten us on this point.

Remarkable Oriental Plane.—All that now remains of Hawstead Place, near Bury St. Edmunds, where Queen Elizabeth was entertained in the year 1578, is the dark, deep moat which surrounded the mansion, the remains of a Lime tree avenue, and three fine examples of the Oriental Plane (*Platanus orientalis*). This tree was introduced from the Levant in 1548, and the specimens alluded to may have been planted here soon after its introduction, to judge by their present dimensions. According to Cullum's "History of Hawstead," the circumference of the largest of the three trees, at 3 feet from the

surface of the soil, was 10 feet. This is just one hundred years ago; and the circumference of the same tree is now 18 feet, and the three trees are now nearly alike in their dimensions. They are still in full vigour, and are objects of great beauty, and apparently as enduring as our English Oak, and, considering the great beauty of the Plane, it may be regretted that it has not been more extensively planted in parks and the vicinity of towns, &c., than appears to be the case.—P. G.

SMOKE-RESISTING TREES AND SHRUBS.

AMONG trees that will endure a smoke-laden atmosphere the first place is generally assigned to the Plane, yet there are others that succeed equally well. The False Acacia, *Robinia Pseud-acacia* and its varieties, are all good trees for this purpose, especially that free-growing form *Decaisneana*, the most ornamental of all of them.



In a wood of American Live Oaks (*Quercus virens*).

Sophora japonica, too, thrives fairly well, and the Laburnums may often be seen lighting up some dull and overshadowed garden with their beautiful golden tresses. The various Poplars and Willows make good town trees, that is where the soil is not very dry, and, as a rule, it is at least fairly moist. Double Cherries and Almonds make a fine display in spring, even in the smoke-laden atmosphere of London. The Bird Cherry (*Cerasus Padus*) also does well under similar conditions. The mountain Ash, the Ailantus, and Catalpa are all good town trees, as are also the *Paulownia imperialis* and the *Salisbury*. Several of the more vigorous Acers may be also planted, the principal thing against them being that they sometimes lose their foliage rather early, an objection which also applies to the Horse Chestnut.

Of evergreen shrubs best suited for positions such as those indicated above, the Aucuba occupies a very prominent place; it may, indeed, be often seen thriving in situations where few other shrubs would even exist. Fortunately, it is a shade-

lover, and besides that it seems to require but a minimum of fresh air. The leaves, too, being smooth and glossy, do not offer such a favourable lodgment for soot and dust as those of some others. Not only is the variegated foliage kind valuable in this respect, but also the various green-leaved varieties. The Japanese *Euonymus* is also a good plant for a smoky spot, but the variegated forms thereof become too much discoloured to be effective, besides which they are not so vigorous in constitution as the green-leaved kind. A pretty little evergreen shrub is *Skimmia oblata*, which, like its relative *S. japonica*, is a shade-lover, but it possesses a more robust constitution than *japonica*, which will not thrive in the smoke. Privets are a valuable class of town shrubs, all except the more delicate variegated kinds being available for that purpose. The oval-leaved kind is but a sub-evergreen, yet it does so well in unfavourable spots that it must not be omitted in a list of town shrubs. Others especially notable

are the Japanese Privet (*Ligustrum japonicum*), the Wax tree (*L. lucidum*), and the curious slow-growing, sturdy-habited *L. coriaceum*, that takes years to attain any considerable size. Nearly allied to the above is the Holly-like *Osmanthus*, that thrives well in smoke, either on its own roots or grafted on the Privet. The most effective is the dark green-leaved form, as the one with paler foliage is apt to get sickly, and the variegated varieties are none too clear in their markings, even in a pure atmosphere; consequently in a smoke-laden one they are liable to get discoloured. Mahonias, from the hard, glossy texture of their foliage, and the fact that they do well in shady spots, are good town shrubs. Not only do the common *M. repens* and *Aquifolium* adapt themselves to adverse circumstances, but the large, stately, pinnate-leaved *M. japonica* will hold its own among the smoke. Hollies, especially the more vigorous kinds, do well in towns; but, as with other shrubs, the variegated-leaved varieties are not so well suited for this purpose as the green-leaved forms. The best Laurel, from a foliage

point of view, is *rotundifolia*, a sturdy-habited kind, with roundish leaves and a bushy style of growth. The small-leaved evergreen *Cotoneasters* are good smoke-resisting plants, and for covering a wall or furnishing a steep sloping bank they are well suited. *C. Simonsi* is a useful winter shrub, but, as a rule, it does not fruit freely, except in a fairly sunny position. The *Laurustinus* forms a good bush apart from its flowers, which in towns are not always seen to advantage. We were agreeably surprised recently to fall in with a good specimen of *Andromeda*, or *Pieris japonica*, as a town plant; and, though it had never bloomed in that position, the red tints of the young growth, in conjunction with its neat foliage, rendered it very attractive. It was especially interesting from the fact that most of the *Ericaceæ* make but indifferent town plants. The pretty little *Perpetuas* are, next to this *Andromeda*, about the best smoke-resisting shrubs of this class. *Escallonia macrantha* forms a good bush, and, if the situation be fairly sunny, it will, as a rule, flower

well. The *Pyracantha* and its more vigorous variety *Laelandi* will thrive on a sunny wall. *Aralia Sieboldi* is also a good town plant, its large leathery leaves resisting well the effects of smoke. No notice of town plants would be complete without mentioning the *Yucas*, of which fine examples are often seen in the little pent-up inclosures where few shrubs would live, much less thrive. *Ivies* make the best of town plants, and the tree forms assume the character of neat little bushes, that retain their colour despite smoke and dirt. Although scarcely reaching the dignity of shrubs, the *Periwinkles* likewise do well in towns, and are valuable for many purposes.

Climbing plants of a ligneous character are represented in the first place by *Ivies*, that resist almost any amount of smoke and dirt, and are consequently planted frequently in large towns. Besides their value for covering walls or unsightly buildings, they quickly furnish a heap of old roots, bricks, or any such material with foliage, and for festooning balconies, hanging baskets, or forming screens, they are much employed. The *Virginian Creeper* is another London plant, but where employed for covering walls it needs to be nailed thereto, and does not attach itself like *Ivy*. *Veitch's Ampelopsis*, however, will stick firmly to nearly everything. In neither of these are the autumn tints so bright when grown in towns as in the clear pure air of the country. The *Dutchman's Pipe* (*Aristolochia Siphon*) is another showy climber, as are also some of the large-leaved strong-growing *Vines*. The beautiful garden varieties of *Clematis* are scarcely vigorous enough for smoky towns, the best for this purpose being *C. Flammula* and *Vitalba*, both strong-growing plants. The *Wistaria*, where conditions are at least moderately favourable, will do pretty well in the smoke, as will also the common white *Jessamine*. Both species of *Stauntonia*—*latifolia* and *hexaphylla*—are good free-growing climbers, the latter especially being suited for a town. The common *Passiflora caerulea* is a good smoke-resisting plant, scarcely so hardy as most of the others, but it is so vigorous in growth that, even if injured severely by the frost, it, as a rule, quickly recovers. T.

The Bird Cherry.—Permit me to endorse "G. S. S.'s" high recommendation of this fast-growing and beautiful tree (p. 464). Its quick growth, slender and semi-drooping habit in its young state, and long drooping branchlets of bloom, quite different, though equally beautiful, from the wild *Cherry* or *Gean*, give it a graceful character and a beauty almost unique among trees or shrubs. It looks well in almost any site or position, but probably it is never more effective than when rising up at the back of mixed shrubberies largely composed of *Laurels*, *Yews*, and *Hollies*. The pure white of the *Bird Cherry* and here and there a golden and purple *Laburnum* impart a richness and elegance to such masses that we look in vain for at any other season. The long racemes of black berries and the peculiar colour of the *Bird Cherry* foliage in the autumn are other recommendations of this extremely beautiful spring-flowering tree. The open flowers smell strongly of prussic acid, and it is not well to plant it too plentifully in the immediate vicinity of living or sleeping rooms.—D. T. F.

Wood of Pinus insignis.—"J. B. W." is doubtless right in his opinion (p. 512) respecting the quality of the timber of this otherwise remarkable *Pine*. In California, twenty years ago, the only use to which it was put was firewood, and the demand for it, owing to the abundance of superior hardwoods, such as *Oak*, was not great. It was shipped from Monterey to San Francisco, a distance of 100 miles. The timber of mature trees is coarse-grained and very resinous. One of the objectionable features of the forest in the neighbourhood of Monterey was the way in which the boles of many standing trees were disfigured by having been hacked for chips for torches and firewood. This fast-growing and beautiful *Pine* should do well in sheltered localities in the southern counties of England, more especially where the soil is light and even dry

Although large trees are sometimes injured or killed outright in exceptionally severe winters, this fact need not be urged against planting again and again this highly ornamental tree, individuals of which under favourable conditions attain in a comparatively short space of time a large size.—GEO. SYME.

HARDY HEATHS IN FLOWER.

The pretty *Erica carnea* or herbacea has just passed out of flower after being in great beauty for a long time. The blooming season of *E. codonodes* is also over, but the *Mediterranean Heath* (*E. mediterranea*) is now at its best, and very bright and effective it is, especially when seen in a mass. It is a free-growing kind, forming dense clumps, and flowering most profusely when about 18 inches high. The individual blooms are small, of a pleasing reddish tint, with black anthers. There is a variety not so much grown as the type in which the flowers are pure white in colour. These hardy *Heaths* are a very beautiful class of plants, and yield a display of bloom throughout the greater part of the year, as soon after Christmas *E. carnea* and its white variety will be in flower, then the larger growing pure white arborea and *codonodes* are at their best, to be soon succeeded by the reddish blooms of *E. australis*. Unfortunately, these last three are rather tender, that is to say, they suffer during exceptionally severe winters. At the present *E. mediterranea* is the best, but from the early part of July till the autumn must be regarded as the principal season for these *Heaths*. Then *E. cinerea* with its numerous varieties, affording a wide range of colour, and other particulars contribute to the display, as does also *E. tetralix*, *E. ciliaris*, and its variety *Mawana*. This last-named is a most beautiful *Heath*, and when to these are added the common *Ling* or *Heath* (*Calluna vulgaris*) in its almost endless forms, some dense and Moss-like, some loose and straggling, some deep green in hue, while others are of a golden tint. The flowers, too, vary greatly, especially distinct being *Searlei* with white blossoms; *Alporti*, purple; *coccinea*, deep reddish purple; *alba minor*, white; and *flore-plena*, with reddish coloured double blossoms. The *Cornish Moor Heath* (*Erica* or *Gypsocalis vagans*) also flowers about the same time, and forms a very free bushy growing specimen a foot or two high, bearing densely packed spikes of purplish red blossoms. Of this there is also a variety in which the blooms are pure white. *St. Dabeoc's Heath* (*Dabeocia polifolia*) is another beautiful shrub. Generally the colour of its flowers is a pleasing shade of purple, but there is also a pure white kind, and yet a third in which some of the blooms are purple and others white. Not only does this occur on the same plant, but frequently the individual blooms on the same spike show that peculiarity. Apart from its beauty, this *Heath* is also especially valuable from the fact that its blooming season is spread over a very long period, as it will commence flowering in June and continue till autumn. For this reason it is well suited for planting in a bed or mass, as it will then yield a display as showy as the summer bedding plants without one tithe of the trouble that they give. *Erica multiflora* is a free-growing kind, reaching a height of 2 feet, and flowering most profusely, but the blossoms are not large, and their pale reddish colour does not render them so showy as some of the others. One distinguishing feature, and a valuable one, is that it will continue to flower till all the others are past, as it frequently blooms till the commencement of winter. H. P.

SHORT NOTES.—TREES AND SHRUBS.

True Service Tree.—We have received from Painshill, Surrey, some flower-sprays of this tree (*Pyrus domestica*), of which there are some grand examples at that place. The flowers somewhat resemble those of the *Mountain Ash*, and trees laden with them, as the specimens sent show they are, must be interesting features in the landscape.

Amelanchier Botryapium (the *Snowy Mespilus*).—What a beautiful hardy white flowering tree this is for the month of May. It can now be seen in beautiful form in the Sydney Gardens, Bath, the specimens of it there are of large size and laden with blossoms. Perhaps the sheltered position which it occupies helps it, but there it appears to be much more floriferous than usual. Its leaves, too, in autumn assume a fine reddish yellow tint.—R. D.

GARDEN DESTROYERS.

MOLES.

I NOTICE that "G. S. S." puts forth another plea in favour of moles in gardens (p. 483). In meadows and in arable fields probably the mole does as much or more good than harm, but in the garden his presence is chiefly evil, and that continually. Possibly he might not come into the garden, however ardently wished by "G. S. S. and others, unless there was something in the garden larder for him to eat. I also grant that he does not eat plants. So far he may seem harmless, but he is not. True, too, as "G. S. S." says, the garden is not all seed beds. But the whole garden is or ought to be a root bed, and it is physically impossible for the mole to prosecute his natural labours of worm-hunting without wounding, bruising, upheaving, or cutting asunder roots in the most wholesale manner. For example, let a mole start his grub hunt at one end of a drill of Onions, Carrots, or Parsnips, and conclude at the other, and what is the result? The entire row of plants is ruined. Or take another example—a bed of Carnations. It is well known that if there is a wireworm in the garden it will be found in that; hence many besides "G. S. S." and I first amongst them at one time, welcomed moles among Carnations. Here, if anywhere in the garden, the mole was the proper garden insect destroyer in the right place. Presently, however, the plants progressed downwards from bad to worse. Those that had been yellow before became more and yet more jaundiced, and the sickly ones before the mole came quickly died off. The advocates of the mole claimed more time for him. There were doubtless so many wireworms, that, voracious and gluttonous as the moles were, one or a brace could hardly be expected to eat a bed full of wireworms in a week. Time was granted, and still the plants waxed more yellow, and died more rapidly and by wholesale. Patience was at last exhausted; the mole was caught, killed, and dissected. His stomach was full of fat earthworms, with never a scrap of the wireworm. He had bored his way in all directions—through, among, and under the roots; so loosened their hold and burrowed under them, that those that were not cut through were detached from the earth. And thus the cure of moles proved a failure. Had they eaten the wireworms, one might have tried them again; but to pass these by in their raids after earthworms and rupture the roots in the pursuit of the latter was more than enough for me, and since then they have had a short shrift within the precincts of the garden. Within this phrase I include the lawn. Surely Mr. Webster and "G. S. S." must use the word "lawn" in some special sense, for they can hardly mean that if the molehills were knocked to pieces on an ordinary short Grass closely shaven lawn, the lawn would not suffer in smoothness of pile or enjoyability, or that it would be improved by the loose litter of scattered molehills. D. T. F.

Vine insects (*Geo. Cane*).—The insects on your Vine are the *Vine scale* (*Pulvinaria vitis*). They are very injurious to the Vines. The insects are apparently just beginning to lay their eggs, which you will find among the cottony down which proceeds from them. Each scale lays a large number of eggs, from which young scales will in due course be hatched; these will spread over the Vines, and each having found a suitable position will insert its proboscis into the wood, and commence sucking the juices of the Vine. At this time of year this pest is much more difficult to deal with than before the Vines have started into growth. The insects are not easy to kill, and many insecticides, if used of sufficient strength, might injure the young shoots. Looking carefully over the Vine, and dabbing each scale with a camel's-hair brush dipped in methylated spirits of wine diluted with 1-20th of water is a tedious, but very effective remedy. Painting the affected parts with paper-hanger's paste or starch is recommended; it can be washed off with a syringe in the course of a

week or so. One part of paraffin oil and two parts of soft soap mixed together in warm water and kept well stirred make a good wash. As soon as the leaves are down, dress the Vines with one part gas tar and four parts clay, mixed with enough water to make a thickish paint. Nearly all scale insects and aphides give out a sweetish secretion, which ants are very fond of. When you find a plant overrun by ants you may be certain it is attacked by one of these insects. The spots on the bark are a fungus; if it only attacks the dead bark it will do no harm. I should recommend two books published by the Christian Knowledge Society, "Our Insect Friends" and "Our Insect Enemies," and "A Manual of Injurious Insects," by Miss Ormerod, published by Swan and Sonnenschein, Paternoster Square.—G. S. S.

Larch aphid.—Last year I bought some young Larches, of one of which the enclosed is a twig. Hitherto we have been free from any mortality among Larches owing to disease, but I notice on these last that they are affected with some sort of blight. I should be much obliged if you would tell me whether it is of any serious consequence, as if so, I should have them taken up and burnt. —C. R. S. D.

* * Your Larches are attacked by the Larch aphid (*Chermes laricis*). This insect sometimes injures Larches very considerably, and, again, I have seen trees attacked which have hardly suffered at all. If the trees in question are not too large, water them overhead with 1 wineglassful of paraffin to 3 gallons of water, kept well mixed, or 14 lbs. of lime placed in 10 gallons of water and allowed to stand for a week; then use the clear liquid to syringe with.—G. S. S.

ORCHIDS AT CHELSEA.

THE flowering Orchids at the Royal Exotic Nursery must be looked upon as a great "Orchid show," although no special attempt has been made to create a display; yet if all the Orchids now to be found in bloom in the numerous houses were gathered into one place what a magnificent exhibition Messrs. Veitch could make! As it is, the visitor must be content to make the round of the labyrinth of houses in order to see the Orchids, an agreeable course to many, as the exhibition is thus presented gradually. There is no need to dwell upon commonplace Orchids, of which there are crowds to be seen in every house, because there are many new, rare, or out-of-the-common kinds which we are sure would interest those who look beyond a dazzling effect. But before we allude to these choice things we must say a word about the great *Cattleya* house (a span-roofed structure 132 feet long), which looks brighter than ever we have seen it before. We need only mention that there were no fewer than a thousand gorgeous *Cattleya* and *Lælia* spikes open on the morning we saw it, and one can imagine what a splendid effect they created. You see endless forms of *C. Mossiae*, not two alike in fact, also of *C. Mendeli* and *Warneri*, of both of which there are superb varieties open, also grand specimens of *C. Skinneri*, while presently these will give place to the later flowering *Gastelliana*, *C. gigas* with its varieties, *Sanderiana*, *imperialis*, and others. Besides the *Cattleyas*, *Lælia purpurata* asserts itself, and of this unrivalled Orchid there are numerous forms. Two of the most noteworthy varieties in this house were *C. Morganæ*, a white form of *C. Mendeli* with a purple-tinged lip, and a pink-flushed variety of *C. intermedia*, as beautiful as it is rare.

THE *CYPRIPEDIUMS* have here a house to themselves, and the flowering plants include some that are thought highly of by orchidists. Among hybrids—one of the specialties of this nursery—may be seen such superb kinds as *C. Schröderæ* and *C. Sedeni cardinalium*, and it is difficult to say which is the greatest favourite. The *Schröderæ* has a large bold flower, with long tails and a big pouch and of a delicate rose-pink, while the pale *Sedeni* is suffused with delicate blush-pink. We still adhere to what we have long said, that this and *C. cardinale* are the finest of the coloured hybrid *Lady's Slippers*. *C. porphyreum*, a near relation of *cardinale*, is in bloom in company with other hybrids, such as *superciliare*, *selligerum*

and its major form, and *Dominii*. Of the pretty *C. Warneri* there is a fine specimen, as also of other fine species, like *Stonei*, *lævigatum*, *barbatum nigrum* (the darkest of all *Lady's Slippers*), *Dayanum*, *Hookeræ*, *niveum*, and others of lesser note.

THE *DENDROBIUM* house having long been gay with bloom is made attractive even now by a few of the later plants of *D. thyrsiflorum* and *nobile*, but the finest *Dendrobium* out is *D. Jamesianum*, whose great white flowers, with orange throats, have few equals among Orchids. Its close neighbour, *D. infundibulum*, shares the same praise. The charming *D. Bensonæ* has its stout stems completely wreathed with bloom, and among the forms of it there is one almost pure white, the blotch being very faint. *D. Parishii*, *crystallinum*, *tortile roseum*, *Draconis*, and *albo-sanguineum*, *barbatulum*, and *Cambridgeanum* are among those to which the attention of the visitor may be directed, and especially to *D. Falconeri*, which is represented by an entangled mass having flowers some 4 inches across.

The miscellaneous Orchids comprise many that would interest an orchidist, among them being the following: *Angræcum Chailleanum*, one of the African species with long racemes of waxy white flowers of curious shape; *Camarotis purpurea*, an old Orchid not often seen now, but an extremely pretty one; it reminds one of an *Aerides* or *Saccolabium*, yet it is different from either, being more slender in growth, and it bears small, drooping spikes of purple flowers. *Epidendrum Frederici Guilielmi* is a long name for a pretty species having tall stems surmounted by a dense cluster of rose-pink flowers. *E. falcatum* or *Parkinsonianum*, as it is also called, is quite a feature in the *Cattleya* house, one of the plants being a large hanging mass carrying several flowers, the peculiarity of which is the ivory-white lips which remind one of miniature skate-fish. It is deliciously scented, particularly at night. *E. macrochilum* is also an Orchid that deserves notice on account of its perfume. *Broughtonia sanguinea* is a plant not often seen in bloom now, and here one may single it out from a host of others, it being so different from most Orchids. It has rather large violet-purple flowers set on slender stems proceeding from flattened bulbs. *Phalenopsis Marieæ* is the gem of the *Phalenopsis* house; there is a plant bearing a five-flowered spike, each bloom being white, with chestnut-brown blotches and a violet-purple lip. *P. sumatrana* is also a pretty species in bloom. It has larger flowers than *P. Marieæ*—as large as those of *P. violacea*. They are whitish, and handsomely blotched with a coffee-brown colour. There are also plants of *P. speciosa* in bloom, one representing a variety with white sepals, which is unusual; and those who are partial to miniature Orchids would be charmed with the tiny *P. Parishii*, the smallest of the genus and extremely pretty, the blooms being only half an inch across, with white sepals and claret lips. Among the *Vandas* the most conspicuous is *V. teres* and its variety *Andersoni*, remarkable for the deeper colour of its flowers. The *Odontoglossums* form an exhibition in themselves, as they are arranged in a charming way with other cool Orchids like *Masdevallias*. You see crowds of spikes of all the popular species, like *Alexandræ* and *Pescatorei*, with exceptional varieties of both, and these and other species, among which are such choice things as *O. polyanthum*, *nebulosum*, *pardinum*, *cordatum superbum*, and *gloriosum*, the latter with widely-branched spikes show the natural habit of growth to perfection. The house is also enlivened by various *Oncidiums*, none being brighter than *concolor*, and none so choice as the new *O. Jonesianum*, than which there is not a more beautiful or distinct species in the genus.

Maxillaria Sanderiana—This extraordinary new Orchid is now flowering for the second time in this country since its introduction. The flower is large and very beautiful, having clear white sepals and petals, the centre of flower and lip being of a deep maroon-crimson colour. The sepals and petals recurve, thereby showing the throat of the labellum. What this *Maxillaria* will be when plants of it reach in size plants we often see of the old *M. grandiflora* remains to be seen, but such a gigantic flower from a

small plant is remarkable. It is now in bloom in Mr. Dorman's collection at Lawrie Park, Sydenham.

Odontoglossum Pescatorei.—A variety of this Orchid has been sent to us by Mr. Marcus Voss from his garden at De Montfort House, Streatham, which is different from any other which we have seen. The remarkable point is the lip of the flower, which, instead of being sparsely blotched, is beautifully bordered with plum-purple, and in the centre are a few heavy blotches. The crest is bright yellow, as in the ordinary form, and the petals and sepals broad and wholly white. Such a variety as this could perhaps be singled out from amongst a thousand plants; therefore its distinctness may be imagined.

The Flamingo plant, as the *Anthurium Scherzerianum* is popularly called, is now one of the chief features of interest in Messrs. Veitch's nursery at Chelsea. There may be seen a houseful of this plant all flowering in the greatest profusion, and the brilliant effect made by them may be better imagined than described. No plant with which we are acquainted is capable of producing such a grand display of colour as this Flamingo, and equally few plants produce flowers which endure such a long time in perfection. Amongst the most noteworthy forms is undoubtedly the variety called *Wardi*, a kind with very large spathes, but another called *Cypheri* is a dangerous rival to it; the latter, however, loses a point on account of the propensity which the spathes have to curl; whereas in *Wardi* they hold themselves as flat as a banner. Other named varieties, such as *Palmeri* and *pygmaeum*, are not so remarkable, but peculiar interest attaches to the new spotted-spathed section, of which *A. Rothschildianum* may be looked upon as the type. These have been produced by intercrossing the white-spathed variety (*album*) and the typical red-spathed form, the result being that the spathes are spotted and blotched with red on a white ground. These spotted spathes look as if splashed with blood and are highly attractive, though some might not think them beautiful. The curious point in all the forms yet raised is, that the markings of the spathes are not of equal density on each side, the front side being, as a rule, the lightest. The spotted hybrids now number several so-called varieties, though in some instances it is difficult to see how they differ from each other. There are now in flower the following sorts: *Rothschildianum*, *Devansayanum*, *Mundy-anum*, *rubro-punctatum*, and *nanum*, so that a good opportunity is afforded of judging of their respective merits.

QUESTIONS.

5496. **Vines.**—Will some practical Grape grower kindly say if the Gros Colmar Vine would succeed grafted on the Muscat of Alexandria, and if the Alicante would do well on the Muscat Hamburg?—E. J. W.

5497. **Wallflowers.**—My Wallflowers, both single and double, blight; the leaves of seedlings when about three months old turn grey, curl and die. Can any of your readers kindly tell me what is the cause of this disaster, and if there is any cure for it?—AMATEUR.

LATE NOTES.

Pelargoniums at South Kensington.—Mr. Wiggins, gardener to Mr. Clay, at Kensington, writes to say that he did not exhibit *Pelargoniums* for competition at South Kensington last week, as was stated in our report. The exhibitor of the plants in question, was Mr. Little's gardener, Mr. Hill, of The Barrons, Twickenham.

Rose shoots and leaves (*J. P.*).—The Rose shoots sent seem to be those of the true *Mme. Berard*, a Rose which flowers well in autumn on the second growth, and if the old wood is ripe and uninjured by frost also on it—if left its full length. The leaves sent are affected by black Rose mildew, an enemy due in most cases to cold draughts.

Roses.—I have found it very difficult to preserve Rose trees in good health, beyond two years, in the outskirts of Dublin. I am recommended to try the old Rose *Celeste*, as one that grows freely anywhere and everywhere; in fact, the vitality of this Rose is said to be remarkable. Will some rosarian kindly say if this is the case?—R. K.

Names of plants.—*H. R.*—1, *Polygonatum multiflorum*; 2, *P. officinale*; 4, *P. multiflorum*; 4, *Valeriana dioica*.—*G. B.*—Bird Cherry (*Prunus Padus*), common Dogwood (*Cornus sanguinea*).—*J. G. (Chelsea)*.—*Celsia Acturum*.—*J. K.*—*Amelanchier canadensis*.—*H. Scott*.—Double white variety of *Aquilegia vulgaris* (common Columbine).—*W. Sutton*.—*Veronica gentianoides*.

WOODS & FORESTS.

CLASSIFYING TIMBER FOR SALE.

THE classification of timber for sale after it has been felled is a thing which has to be done to a greater or less extent whether it goes as a whole to a single buyer, or whether it is arranged to suit various customers. On the whole, I agree with "Y." (p. 512) that where there is a lot of stuff to be sold it is best, if circumstances permit it, to sell as it stands or lies in bulk, and by private treaty. This practice is not, however, always carried out. When it is not, and tender or auction is resorted to, a greater degree of care and judgment is necessary in classification and arrangement. The only purpose of tender or auction naturally is to induce competition, and instead of the timber going through so many hands to place it more within reach of the consumer. This purpose is often defeated by the bad arrangement or want of arrangement of the different kinds and qualities of timber. In lotting for tender or auction the wants of the district should be as much as possible understood. One class of customers will want one description of wood and another class something else, the details varying according to the nature of the work mostly carried on in the locality. As a general principle, several species of trees should not be mixed in the same lot. Oak, Ash, Elm, Beech, Fir, &c., should each be lotted by itself. Sometimes when there are only small quantities of each kind growing on a particular spot it may be found necessary to make up a mixed lot, but when it can be conveniently done the separate plan is much the best. It very often happens that a buyer of Oak is not a buyer of Beech, and *vice versa*. If the two woods are mixed the one not required represents dead stock. Where they are separate a higher figure will be likely to be reached, as each buyer is supplying his own particular purpose. This principle of arrangement can be carried to advantage much beyond the mere division of kinds of wood. Indeed, the necessity of arranging by qualities is very little behind the separation of the species. It is a thing requiring some tact, and experience as well. If we take a fall of Oak, although it is composed of one sort of wood, it will be adapted for a variety of purposes. If a proportion of it happens to be of a good girth, long length, clean, sound, and straight, it should never be placed in the same lot as short and thick hedgerow trees, and which are, moreover, generally knotty above the first few feet from the ground. These trees have their uses, but not those of a navy contractor, who, if the two descriptions were separately placed, would give a good price for the long and clean stuff, but would look upon the other as a drug. The same would be true of the Elm, though in a lesser degree, and to some extent of the other hardwoods. With the Firs, again, Larch should be lotted by itself, and poles which are large enough for sawing should not be mixed with such as do not exceed the size of a Hop pole. It may be said that such a classification is more the work of the merchant than the forester. I have remarked that when it can be done I agree with disposing of falls of timber as a whole. The intelligent appreciation of the wants of the consumer, however, should be the forester's aim, and the way in which woodland produce should be classified to produce the best result a constant study. A great deal of this may often be learnt from observing the way in which the work is carried out on estates where sales are periodically held, and noting the results. If such knowledge serves no other purpose, it will place the seller to more advantage in bargaining with the merchant,

if he knows the various purpose to which the wood is suited. The wide difference which is sometimes seen in prices in the sale reports from various districts can be to a great extent accounted for by the system of classification. Where good, bad, and indifferent goes together it is certain no very high figure will be seen, but where it is carefully classified, even in this day of low prices, some very respectable totals are occasionally reached for prime lots.

D. J. YEO.

GRUBBING V. SAWING TREES.

"YORKSHIREMAN" (p. 512) misapprehends what I said on this subject. I stated "that for cheapness, felling by the saw is to be preferred. In some cases it answers as well as any other system; in others it does not. . . . Whether sawing or grubbing is decided on for the hedgerows must be regulated by the exigencies of the case; but for open fields, whether pasture or arable, no tree should ever be sawn down." I do not think there is anything very heterodox in this. Assuming, however, that I did advocate grubbing in hedges under all circumstances, "Yorkshireman" would scarcely improve his position by exaggerating the cost in the way he does. To pretend that it would cost as much to grub the 1000 trees to which he refers as the sum they would fetch in the market is a manifest absurdity. At any rate, although the description he gives of them is not very encouraging, I could, off-hand, undertake to send a customer who would give something for them and bear the expense of grubbing and removal. I should put it that on an average the trees of which "Yorkshireman" speaks would total up to something like 20 cubic feet. If so, the extra cost of grubbing would be nearer 1s. to 1s. 6d. per tree extra than 10s. I have paid for sawing down thousands of trees and also for grubbing no small number. To hear of ordinary hedgerow trees costing 6d. per foot for grubbing is so repugnant to common sense, that it scarcely deserves dwelling upon. "Yorkshireman" says that when a fall takes place, the right is reserved to the farmers of grubbing what trees they like at their own cost. I suppose no one wishes to deny them this privilege when they like to avail themselves of it. It is not to be expected they will adopt it very largely, as it is virtually doing the owner's or the merchant's work free of charge. The value of wood in a district has considerable weight in deciding the matter. Hereabouts, when work is short in the winter time, it is not uncommon for men to remove tree stumps for the sake of the wood, either for their own use, or for sale. As I pointed out in my previous remarks (p. 487), such a system involves a great waste of labour, as a tree stump could be much more easily rooted out when attached to the bole, with the advantage of the immense leverage of the tree in falling, than would be the case with mere manual force.

I do not quite see the drift of what "Yorkshireman" says when he speaks about the spreading trees killing the hedges and there being no difficulty when the tops are removed. With us when a tree is sawn down, it is customary to get as near the level of the ground or the bank as may be, and consequently there is a gap in the hedge corresponding to the thickness of the trunk of the tree, with the flat surface of the stump at the bottom of the gap, into which nothing can be planted or any stake driven. If one may judge from "Yorkshireman's" remarks about the tops being removed, it would appear that the butts are left hedge high. As a matter of fact we know it is not so, but where the stump remains there certainly is a difficulty in filling the gap without the aid of posts and rails. There are farms and farms, and farmers and farmers. Some of my acquaintances, as "Yorkshireman" says, will do nothing when a fall of trees takes place beyond making a shift for the moment, and filling the gaps in a way which will need constant attention and repair. Others, if the trees are grubbed, say, by the purchaser, when the tree and its roots have been removed, will undertake to repair the bank and scour the ditch, for the sake of having the opportunity of planting the gap with Quick. These may be few in comparison to the numbers who choose to let matters take their chance, but

where they are to be found, they certainly deserve what encouragement the landlord is able to afford them in the way of young plants and the like.

D. J. Y.

ROTATION OF LARCH CROPS.

It has been often asserted by some of our most distinguished foresters that Larch will not grow well on old forest land, and particularly where the preceding crops have been Larch or Scotch Fir, and to attempt to do so in such places would be to court failure and disappointment. I am not prepared to say how far the advice should be followed, but I think it should be very frequently disregarded in Ireland.

It is a well-known fact that there are hillsides of considerable extent in this country which have produced two excellent crops of Larch in succession, the second crop equalling, and in some instances surpassing, the first, but whether those results are entirely due to the quality of the soil is a question that has yet to be decided. Climatic influences play a most important part in everything relating to arboriculture, and, according to the opinions of some of your correspondents, the results referred to may be more or less attributed to the climate.

Be that as it may, the quality of the soil is of primary importance to the successful cultivation of the Larch, and to plant it indiscriminately on every kind of soil, as I have seen on many estates in Scotland, is a mistake which cannot be too strongly condemned. The soils and subsoils on most of our hillsides in Ireland are, as a rule, admirably adapted for the requirements of the Larch, and are much better than anything of the kind that could be met with in similar situations in Scotland, and are also immeasurably superior to the stiff retentive soils which constitute almost the whole of the immense breadths of moorland in that country. To the superiority of the soils and subsoils, therefore, I attribute in a great measure the high vitality of the Larch and its almost complete exemption from disease in Ireland.

I recently sold a Larch plantation on this estate which is, or rather was, a complete contradiction of the views of many foresters on this question. The plantation referred to was planted about thirty-two years ago immediately after the previous crop, which was Larch, had been cleared away, so that in this instance the land had no time to recuperate before it was replanted. The amount realised per acre for it was something over £48, or about £1 10s. per acre per annum during the time it occupied the ground—a truly remarkable return from land which has been since let for 4s. an acre for grazing purposes. The land in this plantation, as may be inferred from its letting value, is not of an extraordinary high character. It is, however, admirably situated in addition to having an unrivalled natural drainage; it is also completely sheltered from the prevailing winds which sweep in here with terrific force from the west and south-west.

A plantation, consisting almost wholly of Larch, adjoining the one to which I have just alluded also illustrates very forcibly the mistake in rigidly adhering to any fixed rule. It was planted by one of the most eminent foresters in Britain, and is but one of the many magnificent testimonies of his skill and success as an arboriculturist which are to be seen in almost every county in Ireland. The ground in this plantation in question was occupied by an exceedingly heavy crop of Scotch Fir previous to its being planted the second time; and though a comparatively short time elapsed between clearing and replanting it, we have a plantation on it to-day which, for its age, is perhaps without a

rival in the British islands. The soil in this plantation is good, and the situation is exactly the same as the preceding one. I quite anticipate that this plantation, when about thirty-eight or forty years old, will be worth from £80 to £100 per acre. Many plantations of the kind, such as the two I have adduced, exist in this neighbourhood, but the two I have given are quite sufficient to show that there are soils covering a wide area in this country which can and have produced two crops of Larch in succession, and that, too, without appreciably diminishing their productive power. Whether it would be advisable to plant such soils as I have alluded to for the third time in succession with Larch without allowing them some time to recuperate is doubtful, but my own impression is that if they were allowed to remain idle, say for eight or ten years, replanting then could be successfully carried out.

I am not, however, one of those who believe that rotation in cropping can be altogether dispensed with. On the contrary, I believe it to be in some cases as indispensable to success in arboriculture as it is in agriculture, but comparatively few foresters in Ireland are in a position to carry out any system of rotation at all. Their choice of trees is practically limited to two kinds, viz., the Larch and Scotch Fir, the only two trees in my opinion worth planting in Ireland, with perhaps the exception of the Ash. The Ash, however, requires a good soil to grow it to perfection, and would be quite out of place on most of our mountain tracts. It would, however, pay well to plant it in good soils and in sheltered situations. Spruce Fir on most properties in Ireland at this moment is not worth as much per ton as would convey it to the nearest railway station. Silver Fir is perhaps of even less value. It will be seen from the foregoing remarks how very difficult it is for the Irish forester to change his crop in planting old woodland. IRISH FORESTER.

VALUE OF THE SPRUCE.

THIS tree is looked at from different points of view. Judging by what is stated on page 512, "P. G." commences by an unqualified condemnation of it, and winds up by showing that it is a very useful tree. Really all that has hitherto been proved about it in this discussion is that it will not succeed in every position. If it did, it would be different to most other trees. Low-lying and, as "P. G." expresses it, somewhat damp situations seem to suit it best. In introducing the question, in the first instance, my idea rather was to find an outlet for existing supplies than to advocate its being more extensively planted. If there are more suitable trees, by all means plant them; but when there is a quantity of a certain wood available, it seems rather a queer policy to shut one's eyes to any value it may have because it is not the best which can be grown. This, however, is the plan which seems to be pursued with regard to the Spruce. "Yorkshireman," I see, even wishes to retract the admission he made in its favour. In speaking of comparative prices I do not see that he has shaken the position I took. In the first place, he says that Spruce and red deal do not compete with each other in the market at all. This I cannot accept. The better qualities of red and white deal may not be used indiscriminately, but the lower qualities, which would answer to the price and to the purposes for which home-grown Spruce could be used, are very often employed without reference to their being red or white. The next thing "Yorkshireman" says is that it costs as much to fell Spruce as it does Oak. In the column preceding that in which this remark appears there is a list of prices supplied by someone who writes from "Yorkshireman's" county. His figures are a striking commentary. Larch and Scotch (and Spruce of course amounts to the same thing) costs

less than half the sum paid for hardwoods. The prices I named are stated to be fanciful. I think a little analysis of "Yorkshireman's" price list will show to what extent. To begin with, Norway poles are out of any comparison with sawn timber, as there is nothing in common between the two. Next we get partly square Norway timber, 6 inches to 9 inches square, at 8d. per foot. To anyone who understands what this means, it is quite clear that by the time waste and cost of resawing has been paid, the figure I mentioned—viz., 1s. per foot—would be reached. The Swedish timber amounts to practically the same thing, as if it is better than the last named, the prices run from 10½d. to 12½d., and no allowance for sawing. In addition to this, wood of this sort would not be delivered into the ordinary estate yard at the price, as if the railway carriage from the port was met by the seller, who defrays the cost from the station to the yard. From this it is clear that in mentioning 1s. per foot, or £8 5s. per P. S. H., delivered into the yard, for the commoner classes of sawn wood, I have rather under than overstated the figure. D. J. YEO.

EVERGREEN OAKS FOR SHELTER.

FEW parts of our coast are better planted with the Ilex of Holm Oak than parts of Devonshire, around Dawlish and the neighbourhood of Powderham Castle, the residence of Lord Devon. The tree will grow freely to the water's edge if it be sheltered from the prevailing south-west wind by the natural slope of the ground, or by beltings and groups of suitable trees, including itself. It prefers rich land and warm sheltered vales, but it is a hardy seaside tree, and is found on many soils and flourishing in various aspects along the coast from St. Michael's Mount to Hawick, and further north to Falloden. The Holm Oak will grow on almost all kinds of dry lands, but it is never found in a flourishing state on wet soils. It does very well on a thinly covered chalk, as at Goodwood, and is found in numerous places on poor dry loams. On deeper and more fertile soils it will grow into a timber tree 70 feet or 80 feet high.

The rich alluvial district of West Sussex between Worthing and Chichester is greatly ornamented and relieved of its flatness by the Holm Oak, and at Goodwood, on the hill above Chichester, where a beautiful park of 1700 acres, enriched with shrubberies and timber, has replaced a barren down, the Duke of Richmond used the Ilex as his shelter fence. The wind, blowing off the Channel across a flat coast, had previously shaved the hill as smooth as with a razor; and when the duke, a hundred years ago or more, determined to win this site for timber and a residence, he found it absolutely necessary to break its strength. It was a task requiring judgment; but it was accomplished most skilfully and effectually, and by means of numerous beltings of the Ilex and of other wind-defying ramparts, Goodwood was converted into a favourable site for the growth of a great variety of fine timber trees, including an avenue in Harker Park of the largest Sweet Chestnuts in the country. Such walls of Evergreens, thick and pleasing to the eye at all times, can hardly be seen elsewhere. Many of them have attained a height of not less than 70 feet, and they block out the wind entirely. J. R.

Exotic trees.—There may be some truth in what "Wood Agent" says regarding the practice of toying with exotic trees in gardens. On the other hand, when a person pays a high price for a tree of recent introduction, and of which he knows little or nothing about its hardiness and requirements, we cannot blame him for planting it at the outset under favourable conditions as regards soil and shelter until he sees how it will behave. As soon as these trees produce seed, the progeny raised from them should be planted in groups, or here and there throughout the woodlands, and it often occurs that some of the species thrive better under such conditions than the mother tree that had been grown under what was considered more favourable circumstances. But all this had to be

tried, and we had to gather our experience step by step. One would naturally suppose that a tender Conifer, liable to be cut down by late spring and early autumn frosts, would require a sheltered warm situation at a low elevation; but such is not the case, but often the reverse, as I have found in many cases that trees that all but refused to grow into anything like fair-sized specimens at a low sheltered elevation were quite at home when planted on the top of a hill where the wind swept the situation from all quarters. These are all points of importance, and I trust "Wood Agent" will not take it amiss when I tell him that we have all yet to learn much regarding tree culture. —J. B. WEBSTER.

AGE OF TREES FOR FELLING.

TIMBER trees are planted with the view of profit being derived either directly from the sale of the timber, or indirectly by giving shelter to stock and crops, and increasing the value of an estate by adding to its amenity. But in this short account I shall confine my remarks to trees yielding profit from the sale of their timber, as trees grown for shelter and ornament, or partly for both, are generally allowed to grow beyond maturity before being felled. At the outset it may be observed that much depends on management whether the planting of trees will turn out a profitable or a losing investment; and whatever may be the kind of trees or the soil in which they grow, their general management in judicious pruning and thinning on the one hand, or total or partial neglect on the other, will have much to do with the age at which they can be most profitably cut down. When trees neglected in their youth are drawn up and branchless, except within a few feet of the top in consequence of overcrowding and want of judicious thinning, they become prematurely ripe before reaching half the normal age and size. In such cases the most profitable system would be to fell the whole at once, and replant the land, as after trees pass a certain stage thinning is of little avail, and a loss and waste of time results from any attempt to thin them by changing the management. But even with careful treatment and thinning from the first the results are different as regards the age at which trees should be felled, the quantity and quality of the timber, and the revenue to be derived by the proprietor therefrom. Thus it occasionally happens that trees in the same plantation and in the same soil do not arrive at maturity simultaneously—one tree becoming mature, it may be, when eighty years planted, while another close by may not reach the same stage before one hundred years; but such is the exception and not the rule, as in well-managed plantations trees in the same kind of soil generally attain maturity about the same time, although they may vary much in size.

SCOTCH PINE, LARCH, AND SPRUCE.

It is stated by some that these can be most profitably cut at from twenty to thirty years of age when growing in a locality where they can be disposed of for mining purposes, but I have not found this to be the case in my experience in the management of plantations within fifteen miles of large coal mines. In such a locality, when the price of propwood is high, it will almost invariably be found that proportionally high prices will be obtained for larger timber; while if the plantations be far from a market or a railway station or seaport, the crop at that age would not be worth the planting, cutting, and removing, and would, therefore, be a dead loss to the grower of from twenty to thirty years' rent of the land. Further, it would not pay to cut down trees of the above description for fencing and estate purposes, because these can easily be supplied from the thinnings of well-managed plantations. It has already been remarked that as a rule, timber trees should be allowed to grow to large dimensions before being cut, but the situation in which they grow often necessitates a different course. For instance, in glens and mountainous districts, and in places inaccessible to horses, the most profitable management would be to cut them down before they arrive at a size too large to be removed in entire lengths by manual labour. At that early stage Fir trees would be valuable for propwood, fencing, and other estate purposes, Ash for handle-wood, and

Birch or Alder for charcoal or bobbin-wood, &c.; whereas, if allowed to grow to a large size, they would have to be cross-cut in lengths to admit of their removal by men, and this would, in the first place, make the timber useless for many purposes for which it might otherwise have been valuable; and, secondly, the expense of removal by manual labour might equal, or even exceed, the value of the timber itself. When Scotch Fir, Larch, or Spruce have been planted as nurses for hardwood trees, they should be thinned out as soon as they begin to encroach on the trees intended for the main crop, as this is necessary for the welfare of the plantation, irrespective of the value of the thinnings. But when such trees are planted as the future crop on suitable ground, it will almost always be found most profitable to allow them to attain timber size. The Larch being of fast growth, and useful for various purposes at an early age, can be cut down profitably much sooner than the Scotch Fir.

THE OAK.

Oak is extensively used for boat and ship-building purposes, furniture, agricultural implements, &c., and is longer than any of our forest trees in arriving at maturity. It can never be cut down so profitably when small as when well matured and having plenty of hard-wood. When young, and with little heart-wood, and a large proportion of sapwood, the timber is of comparatively little value per cubic foot, so that it can seldom be cut down profitably, especially if thriving on soil suitable to its growth, until it reaches a hundred years old. Of course, when grown as copse-wood, it ought to be cut young; but even under the most favourable circumstances in Scotland copse-wood is less profitable to the proprietor than a crop of timber, and Larch can be grown more profitably in most situations. The Oak is of slow growth when young, but on suitable ground it increases rapidly after about thirty years. It sometimes happens that Oak, planted in good soil and in a sheltered position, attains a large size, but has little matured heartwood at sixty or seventy years old, and in such a case it would be better to allow it to remain till fully matured, when the value of the timber per cubic foot would be materially enhanced.

THE ASH,

Although capable of growing to large dimensions, can be cut down more profitably in its young state than other hard-wood trees. When clean grown, and from thirty to forty years of age, it is in great demand for handle-wood and for agricultural implements; but in a rich loam, with dry subsoil, it would be more profitable to allow it to grow to double that age.

THE ALDER.

Alder is generally in good demand at all stages of its growth, after arriving at sizes suitable for the clogger, and for turnery or charcoal, and is seldom grown up to very large dimensions. Thriving best in damp soil, it can be profitably cut down at forty years' growth, making way for a second crop, which springs up rapidly from the stools. The Beech is of little value in its young state, and is seldom cut till well grown. Birch, like the Alder, can be cut down profitably at about forty years old, being then in good demand for cloggers, charring, and turnery purposes, and when of large size and of good quality it is extensively used for furniture. Horse Chestnut is seldom planted for profit, but is valuable as an ornamental park tree. When grown on a good soil and in a sheltered situation, however, it can be profitably cut down when it attains large dimensions. Spanish Chestnut is of most value when of large size, and is in many cases used for the same purposes as Oak. It is most profitably cut down when about a hundred years old.

THE ELM AND OTHER TREES.

Elms (Scotch and English) are of little value until they have arrived at timber size, and should, therefore, never be cut as a crop until they are from eighty to 100 years old. When on good soil, the English Elm will, when matured, be of large dimensions. The Scotch Elm seldom attains so large a size as the English Elm, but its timber is of more value when matured and forms heartwood sooner. The Lime

tree, like the Horse Chestnut, is seldom planted for profit, but when of large size it is in great demand for brake blocks for railway purposes, &c. It is, however, of little value before it is sixty years old. Poplars can generally be most profitably sold when about fifty years old. Being very fast growers, they arrive at timber size sooner than most of our timber trees, and the wood is then much used for brake blocks, boarding, &c. When of small dimensions the wood of this tree is of little value. Sycamore and Norway Maple, although in demand for turnery purposes when of small size, can seldom be cut down to full profit until they have arrived at maturity and attained large dimensions, when high prices are obtained for them for printing blocks, &c., and larger timber becomes proportionately more valuable. When the Sycamore is planted in a good soil, well drained and sheltered, it may be profitably cut down when it is about 100 years old. The Willow, like the Poplar, is a fast grower on suitable soil, and can be cut down profitably when about sixty years old, and for its timber there is a good demand. Gean tree or wild Cherry, Holly, and Laburnum are grown more for ornament than for profit, though in some instances good prices can be obtained for their timber. The two latter seldom attain a large size, and may be felled at any time when in demand after attaining a size suitable for turnery. In consequence of its hardness and susceptibility to receive a fine polish, the wood of these trees is much sought after. The Walnut, when matured, is much esteemed for furniture, &c., but is of little value in its young state, and is generally planted for its fruit or as an ornamental tree. —*Arboricultural Society's Proceedings.*

TREES FOR SEASIDE PLANTATIONS.

In a report on seaside planting, for which the Highland and Agricultural Society awarded their gold medal, special reference is made to plantations that have been formed on the northern extremity of the county of Norfolk, at an altitude of from 200 feet to 500 feet above the level of the sea. The surface is reported as generally being poor, and the subsoil a hard ferruginous gravel. The plants used were Goat Willow, Alder, Birch, Sycamore, Scotch Elm, and two varieties of the Pinus Pinaster. The formation of the plantation, including planting and fencing, is reported as having cost upwards of £10 per acre. The success of the undertaking is attributed to the preparation of the ground by trenching 18 inches deep; erecting screen-fences of brushwood, &c., 6 feet high; carefully preparing the plants, having them well furnished with fibrous roots before planting; and having the ground cleaned by hoeing for the first two years after planting. The cost of the formation of these plantations appears to be very high when compared with plantations formed on the north coast of Morayshire by Mr. Grigor, and reported by him as having cost £232 18s. 7d. for 298 acres, or on an average, rather less than 16s. per acre. The plants used were Scotch Pine and Larch. However, the writer states that the unusual small expense of these plantations was owing to "the ground being soft, with little or no surface herbage, rendered it suitable for small plants, which were planted by the hand-iron by people in the vicinity much practised in the work, and who could plant an acre each daily on such ground without difficulty. The plantations were also made at a time when the price of nursery plants was under the usual rate," and also that "the expense of fencing these plantations was very small." In specifying the kinds of trees and underwood best suited for planting within the influence of the sea-breeze, our remarks must be understood as being chiefly applicable to the west coast of Scotland, and none will be recommended but what have been thoroughly tested, either along the Ayrshire coast, the shores of Campbeltown, or on the islands of Arran and Bute; and first among these, the palm of

honour must be awarded to the Pinus Pinaster and its varieties. This tree was introduced in 1596, and is common throughout Europe and the shores of the Mediterranean. It is generally found in plains near to the sea and on sandy soils of the poorest description. It has been successfully grown on the coast of Galloway, and on the northern coast of the county of Norfolk, where, as Mr. Grigor, in his "Arboriculture," states, "some of the best specimens of the tree in Britain are to be found standing nearly 80 feet high, with trunks 12 feet in girth. Many such trees stand at Westwick Park, where few other species of trees would become timber." It has also been most extensively used by our Continental neighbours in the successful formation of plantations on the sea-coast and on large barren tracts of drift-sand, where, previous to its cultivation, scarcely any plants of a ligneous nature could be found to grow. Its accommodating nature in regard to soil and situation was also distinctly proved in the success that has attended its introduction to some of the islands of the Hebrides, where, under very adverse circumstances, and in soil entirely uncongenial to its nature, or, at best, very different from that of its native habitats, it has shown such symptoms of success as will ensure its further introduction at no distant period. On the continent of Europe its wood is principally used for the production of resin, tar, and turpentine, and for the ordinary kinds of carpentry and fuel. The Pinaster has a very strong tap-root, which, in loose, dry, sandy soils, descends perpendicularly into the ground, seeking its nourishment and fixing its anchor or stronghold in a strata that is not reached except by some of the broad-leaved trees. This is a peculiarity which makes it, unless frequently removed in the nursery lines, very difficult to transplant successfully; but this very peculiarity is what makes it, above all others of the Pine tribe, a suitable plant for barren sands and seaside planting. It grows very fast, but is rather loose in its habit, and is very often "kneed," or blown a little to the one side; but it very rarely occurs that any of them are uprooted by the storm. One of the varieties of this tree—Pinus Pinaster minor, or P. P. maritima—is said to be hardier than the species. It is chiefly distinguished by the smallness of its cones and the shortness of its leaves, as compared with the other. It is found growing on the Continent along with the P. Pinaster. The next in order of rank amongst the Pine tribe are the Pinus montana or Pumilio, P. sylvestris, P. austriaca, and P. Laricio. The P. montana is of a low-spreading bushy habit; a native of Europe; abounds on the Alps, Pyrenees, and other high mountains; was introduced in 1779. It stands the exposure of the sea breeze, but is of little use except to cover the ground so as to produce shelter for the more useful plants. It prefers a dry soil and a high altitude, but will grow on Moss, or on calcareous or chalky soils, and at a higher and more exposed altitude than any of the other Pines.

The Scotch Pine (P. sylvestris) is also very accommodating as to soil and altitude. The merits of the Scotch Pine are so well known amongst arboriculturists, that they do not require to be set forth in a paper of this kind. The P. austriaca, while growing freely on light sand or gravelly soils, will also grow better on wet or heavier soils than either the Scotch Pine or the Pinaster. However, it prefers a deep, dry, calcareous sand and a southern exposure. The austriaca was introduced from the Brema Forest of Austria in 1835, and is a free-growing, noble tree. It grows freely along the shores of the Firth of Clyde, and many noble specimens of it are to be seen throughout England. For

producing shelter or forming a dark background in the landscape, it is unsurpassed. When allowed to grow in an open situation, its branches are wide-spreading and very picturesque. Its timber is strong, tough, and resinous, and in its native country is said to be valuable for resisting the effects of change from moisture to dryness. If this characteristic holds good of its timber grown in this country, it may yet come to be valuable as material for railway sleepers, &c. But for this purpose it is said to be surpassed by the *Pinus Laricio*, one of the most valuable and fast-growing Pines that has yet been introduced. Although introduced in 1759, it has not been so thoroughly tested on the sea coast as the other Pines we have already mentioned; but wherever it has been carefully planted there it has given satisfaction. Being a native of the island of Corsica, where it frequently attains the height of 140 feet, it will, in course of time, be regarded as one of our best maritime plants. It is very difficult to transplant, and requires a good, open, loamy soil to ensure success. The wood of it is soft and easily wrought, of a whitish colour; the heart-wood is darker, and is found to be of very great duration. It is used by the French Government for ship-building, and under favourable circumstances is fit for masts for the navy in thirty or forty years. I have not seen the Corsican Pine planted to any extent along the sea-coast, but specimen plants of it are to be found growing within the influence of the sea-breeze in different parts of the Ayrshire and Wigtownshire coasts, and also on the shores of Campbeltown.

The Larch (*Larix europæa*), Silver Fir (*Picea pectinata*), and Norway Spruce (*Abies excelsa*) are sometimes found growing remarkably well within the influence of the sea-breeze, but they cannot be relied upon unless sheltered by other trees. In fact, the Spruce, though growing within the influence of the sea in its native country, seldom attains even to mediocrity in the west of Scotland when exposed to the sea blast. The American Spruces, *A. nigra* and *A. alba*, are more to be depended on, but they do not come to be so useful timber trees. Where the soil is suitable for hard-woods, the Larch may be grown profitably amongst them; but on exposed sandy soils it will not succeed. The same may be said of the Silver Fir, but wherever a suitable situation for either of them can be got they should be introduced, as there are some fine specimens of them along the Firth of Clyde, and they soon come to be profitable trees when grown in a suitable situation. We have given the preference to the Pines for planting within the influence of the sea-breeze both for shelter and profit; but it cannot fail to be observed that the broad-leaved or hardwood varieties of trees form the greater part of the plantations along the west coast of Scotland and the islands we have mentioned. Conspicuous amongst these, and growing where their roots are sometimes submerged in salt water, are the Sycamore (*Acer pseudo-Platanus*), a native of Switzerland, which withstands the sea-breeze better than most trees. It is rarely known to grow one-sided, even in the most exposed situations, where it is often seen standing alone. The Norway Maple (*A. platanoides*) is a native of the west coast of Norway and the shores of the Baltic, where it attains large dimensions, growing close to the sea-shore. The Scotch Elm (*Ulmus montana*) when exposed to the sea-breeze becomes a low-spreading tree, of little value for timber, but produces good shelter, and will thrive in almost any sort of soil that is not water-logged. The Alder (*Alnus glutinosa*) is specially adapted for growing in the wet and marshy places along the

shore. It stands the sea breeze well, and has been used as a nurse in dry situations; but for this purpose it is surpassed by *A. incana*, the hoary-leaved Alder, which forms a very handsome tree, and will grow in either dry or moist soils.

The Birch (*Betula alba*) is one of the most useful trees for growing in exposed situations, but when grown fully exposed to the sea-breeze it seldom attains that graceful weeping form which makes it such a general favourite in landscape scenery. As a maritime plant it is most useful for planting in a dry peaty soil with a rocky bottom. On the island of Scurba, Birches are growing out of the rocks, where they are fully exposed to the ocean blast. The foregoing (with the exception of *A. incana*, which has been recently introduced) are what we have found to be the healthiest and most suitable trees for growing on the west coast of Scotland in situations where they are fully exposed to the influence of the sea-breeze; but there are others that are found growing freely in some of the more sheltered nooks. Amongst these are the Beech (*Fagus sylvatica*), common Hornbeam (*Carpinus Betulus*), Ash (*Fraxinus excelsior*), and Oak (*Quercus pedunculata* and *sessiliflora*). The two former are well suited for planting in a mass or forming hedges, but I have not seen them succeed as timber trees when fully exposed to the sea blast. They are, however, useful for planting as a mixture with other hardwood trees for shelter, as they retain (when young) their leaves during winter. The Ash, when grown in good soil and a little sheltered, forms good timber trees, and ought to be cultivated wherever the situation is suitable. The Oak will grow exposed to the sea breeze; but unless in very favourable situations, it becomes very "scraggy," and assumes a dwarf habit. If the soil is suitable, it may be cultivated profitably as copse-wood.

The Willows also grow remarkably well on some parts of the sea-coast; in fact, they are so tenacious of life, that they will grow almost anywhere; but they never succeed and become timber trees on the coast, except when grown in hollow places by the side of running water. These water "rills" are very common on some parts of the coast, and where they occur, no better situation can be got for the Willows. The sorts best suited for timber trees near to the coast are the Bedford Willow (*Salix Russelliana*), Huntingdon Willow (*S. alba*), and the Goat Willow (*S. caprea*). Besides these, a great many of the dwarf varieties of the *Salix* are suitable for growing as underwood, and some of the Poplars are said to grow well on the sea-coast.

UNDERWOOD.

Amongst the underwood best suited for planting within the influence of the sea-breeze must be enumerated a number of the semi-dwarf trees. They may be divided into two classes, viz., those suited for the general formation of plantations, and those that, though hardy, are by the price that is still charged for them, only suitable for ornamental planting. In the first class may be included the Laburnums (*Cytisus Laburnum* and *C. alpinus*). Mountain Ash (*Pyrus Aucuparia*) is one of the most admirable trees for planting as a nurse in exposed plantations; it will grow in any soil and in the most exposed situations, is a free grower, and forms excellent copse-wood. Common Elder (*Sambucus nigra*), Black or Sloe Thorn (*Prunus spinosa*), Sea Buckthorn (*Hippophaë rhamnoides*), which is the best of all deciduous shrubs for standing the sea-breeze; it seems quite at home on the shore, and will grow in pure gravel, throwing out its

branches to the sea; the Hazel (*Corylus Avelana*), common Whin or Furze (*Ulex europæa*), and the Privet (*Ligustrum vulgare*). These, along with the dwarf Pines we have mentioned, will produce sufficient shelter and give a very pleasing appearance to a plantation, as compared with the bare-stemmed and stunted-looking trees that are so often to be seen along our shores. The ornamental shrubs for sea-side planting are the Bird Cherry (*Cerasus Mahaleb*), the Tamarisk (*Tamarix*), French Tamarisk (*T. gallica*), common Lilac (*Syringa vulgaris*), evergreen Oak (*Quercus Ilex*), Snowberry (*Symphoricarpos racemosus*), common Holly (*Ilex Aquifolium*), Laurustinus (*Viburnum Tinus*), red-flowering Currant (*Ribes sanguineum*), the common Arbor-vitæ (*Thuja occidentalis* and *T. Warreana*). Besides these, specimens of the *Araucaria imbricata*, *Cedrus Deodara*, *Wellingtonia gigantea*, *Cupressus Lawsoniana* and *nutkaensis*, and others of the same class, are occasionally to be met with growing freely on the sea-coast; but they cannot be recommended except where shelter is provided, either natural or artificial. The Portugal and common Laurel, *Rhododendrum ponticum* and its varieties, are often planted, but do not succeed unless sheltered.

Abies Douglasi for timber.—In my opinion this Conifer, owing to its quick growth, would doubtless make a valuable forest tree, especially as it can now be procured in quantities at a cheap rate. I have a tree which has been planted, as near as I can ascertain, about forty-five years. It is now over 90 feet high, and more than 10 feet in circumference at 3 feet from the ground, and it has a spread of branches 50 feet in diameter on the surface of the ground. It is growing on a strong hazely loam, in which *Rhododendrons*, and in fact nearly all sorts of shrubs do well. Near it are growing some very fine Silver and Spruce Firs, some of the former being over 100 feet in height, and 10 feet in circumference above the ground level, and one specimen of the latter is the same height, and 16 feet in circumference at 4 feet from the ground. During the time I have owned the place, viz., six and a half years, the Douglas Fir has increased 16 inches in girth.—SOUTH HANTS.

Woodmen in Ireland and England.—It is interesting to know that an Irish nobleman had applied to "Yorkshireman" for a head woodman, and that the wages offered were less than ordinary foremen get hereabouts and hardly exceeded labourers' wages, so that he could not offer the place to anyone worthy of the name. But if "Yorkshireman" would read "Wood Agent's" letter (p. 461) regarding the acquirements of woodmen in the midlands and north of England, it may be of use in the way of affording an explanation, at any rate to a certain extent. I regret to say that labourers' wages in Ireland are small—much too small, but as a general rule head men that know their business are well paid, and in many cases have a better position than many woodmen across the water, and in saying so I speak from personal experience. There are some places in England and Ireland where the agent or bailiff undertakes the management of the plantations, and in such cases the head woodman is merely a man of the spade, saw, and hatchet; consequently such men cannot expect to be paid at a high rate of wages; but in all cases where a properly trained forester is employed, and who is also capable of carrying out general estate improvements in addition to his other duties, the case is quite different. Noblemen and gentlemen who employ their agent or bailiff to look after their plantations, and then engage a woodman at a low rate of wages on the score of saving expense, stand greatly in their own light, for, in place of saving expense, the fact is that in many cases the prospective value of their plantations is irretrievably ruined within a short space of time under such a system of management.—J. B. W.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

FRUIT GARDEN.

TO FRUIT GROWERS.

FOR some years past we have published reports on the state of the fruit crops generally, and of the sorts that did best in particular localities. This last question has been so often and so well answered, that we see no good reason for continuing it this year. A few words on the general state of the fruit crops would, however, as usual, be of interest, but instead of dealing with them collectively we would prefer taking each fruit singly in its season as it becomes ripe. We would therefore direct our readers' attention in the first place to treating in detail one important and early fruit—the Strawberry. This beautiful, and for our country in all parts important, fruit is, like everything else that is cultivated, capable of affording an infinite variety of results, not always satisfactory. Among the great advantages of markets, shows, and even periodicals, there are certain disadvantages, one of which is that an undue prominence is given by them to certain varieties that happen to look well and to "travel" well. There is also the fact that numbers of persons who send out new things pay much less attention to the most important subject of all—flavour—than to such things as size, shape, vigour, and bearing.

Some of these qualities are, no doubt, important, especially to those who have to supply the market and to fill their baskets regularly and send them a long way; but by all those who have the privilege, and, as we think, the great advantage, of having their own gardens, an entirely different standard should be set up. People should try kinds for themselves, and not accept anybody's opinion as to what the best Strawberry is; they should find out the kinds which they like best, and those that have a delicate and wholesome flavour. For it must be understood that in the opinion of some of the best doctors of our day the Strawberry, as commonly grown, has often too much of an acid that is considered far from wholesome. We think it would be possible to get kinds free from this defect, and we think, too, that some of the kinds that we already have are so. In short, we wish that all growers should judge for themselves and find out the best flavoured sorts utterly without regard to the market or the show standard.

We would, therefore, like our readers to tell us what they consider the best flavoured Strawberries as grown in their own district and tested by themselves. That is the most important question of all, and such of our readers as have extended their observation to the growing of kinds other than our popular ones, would help us all very much by telling us all about them. We fancy there must be a great many Continental kinds worth looking up, and then there are the races that are neglected in England, such as the *Quatre Saisons* and others. Possibly also the American kinds may be worth trying, although they are generally supposed to be too sour in our climate.

In addition to these, perhaps, the varieties most suitable for forcing would be important, a selection of the best sorts in the order of their ripening, and, lastly, an enumeration of kinds that

do fairly well on light soils on which the Strawberry does not generally thrive. Any observations on these or other points which our readers may think important will be welcome, and if possible they would further oblige by letting us have them not later than the 1st of July.

NOTES ON MELON CULTURE.

ONLY those who have good, well-heated houses have been able this year to cut ripe Melons anywhere near the usual date, and, in addition to their lateness, a difficulty has been experienced both in setting a good crop and also in preventing the loss of plants from canker. A long continuance of cold winds, very cold nights, and dull weather has had the effect of greatly weakening Melons; then when a change occurred and more heat could be given the plants grew as much too strongly as they were too weakly before. It appears to me that either extreme is fatal to a good set. When very weakly they seldom perfect fruit; and over-luxuriance, in our case at least, has resulted in a very poor set. The remedy is not difficult to find. It consists in a reduction of the water supply to the roots, though care should be taken not to allow them to become very dry; less moisture, too, should be maintained in the atmosphere; rather more air should be given, and if the night temperatures have been high these should be reduced to about 66°, either by means of less fire-heat, or, if the nights are warm, by the admittance of a little air at the top ventilators. Changes such as these in the treatment will result in the formation of harder growth and abundance of well-formed flowers, which rarely fail to set freely. About 11 a.m. is a good time to fertilise all the female blossoms expanded, and if a sufficient number can be done in one day, the better will be the prospects of a good crop. Plants fruited directly they are large enough for bearing, either on the first laterals produced or on an unstopped leader, or laterals formed on several leaders obtained by stopping when they reach the trellis, usually perfect a simultaneous crop, and refuse to swell off fruit set a day or two later. It will thus be seen that it is better to wait till a good number of blooms are open than allow the strength of the plant to be concentrated on one or two large fruits that may be found taking the lead at the expense of the rest, and which will only perhaps reach the size of Plums and then turn yellow and fail. Rather than allow this to occur, we would remove them and make a second attempt to secure a good crop. By a good crop I mean about six fruits, each ranging say from 2 pounds to 4 pounds in weight, on a plant occupying a roof-space of about 4 feet by 3 feet. Directly it is seen that a good crop is set, the old conditions may again be resorted to, viz., plenty of heat and moisture both at the roots and in the atmosphere, so as to cause the Melons to swell rapidly, when there need be little fear of any further gross growth. Plants much restricted both at the top and at the root seldom perfect more than one good crop, and successional plantings have to be made if an unbroken supply is needed. I have on different occasions advocated the plan of growing Melons on the

EXTENSION SYSTEM, but this does not meet with much favour. One of the arguments against it is the assumed fact that it is impossible to obtain a good succession of fruit, but this is mere supposition, and altogether at variance with the actual results. If one plant were grown in the space usually occupied by three or four, say on a roof area 12 feet by 10 feet, this would with ordinarily good treatment produce nearly or quite as many fruit as the three or four plants, and these would also be heavier, better in quality, and

perfected in succession. Plenty of root room should be given, or, say, a solid heap of good loam with a sprinkling of lime added, enclosed with a loose brick pit 4 feet square or less and about 2 feet in depth; this insures a healthy and not too vigorous growth, and the fruit will set in succession. I have recently seen plants thus treated with fruit on them in four different stages of growth, some being nearly ripe and others about a fortnight old; here we have them in three different stages, some being already about 3 lbs. in weight, and others one-third that age and size. More flowers have since been fertilised, and some of these will, I believe, swell off fruit. One advantage of the extension system is the certainty of having fruits of the best quality, as they ripen on plants in full vigour, a very different matter from the drying-off system still practised by some growers. Thousands of plants are annually unintentionally dried off owing to their being planted on mounds of poor and much-rammed soil, which when once it gets dry is not easily moistened again. By all means plant on mounds, but to these should be added more soil, so as to form a good square heap, which should be kept in position either with a turf wall or a wall of loose bricks. This renders watering an easy matter, but little, comparatively speaking, sufficing to keep the soil moist, and an improved and extended root action naturally puts new life into the plants and encourages them to perfect second and even third crops. The new variety Longleaf Perfection will, I am afraid, be found to be a shy bearer on the restricted system, but if encouraged to extend in the way just described it will be more fruitful. The same remarks apply to one of its parents, viz., Meredith's Cashmere, and both varieties, when properly ripened being of first-class quality, well repay any little extra trouble bestowed on their production.

CANKER IN MELONS is rather prevalent this season, and will always be found to be so when we experience long spells of cold sunless weather. This liability of Melons to canker is often put forth as a sufficient reason why several plants should be grown in a house in preference to two or three, and if there were no preventives of canker, no better argument against the extension system could be found. In old, badly heated structures, frames, and pits it is a difficult matter to prevent the loss of a few plants from canker, but those who have charge of modern well-constructed and well-heated houses ought not to be troubled with it. It usually happens when the plants are in full vigour and during a dull period, following, perhaps, a spell of bright weather. The sudden fall in temperature, with, perhaps, no great diminution of moisture about the plants, naturally arrests evaporation, and the excess sap must go somewhere. It usually breaks out on the lower part or least exposed portion of the stems, sometimes near the ground and sometimes many inches from the soil. Planting on tiny mounds, as practised with every success by Mr. Ward at Longford Castle, may and does prevent an excess of moisture accumulating near the stems, but this dryness, if it prevents canker close to the ground, would not stop it higher up—at least if he had our houses to deal with. We have lost one plant this season, but it was only occupying a limited space, and its removal quickly improved the condition of those adjoining. The greatest risk is run when the old leaves on the main stem commence to decay, as they invariably do when much overshadowed, the decay reaching the stem, and soon affecting that, too, unless arrested in time. When we see a leaf failing our plan is to cut it clean away nearly close to the stem, and at once apply a pinch of newly slaked lime or

scraped unslaked lime, a few applications of which soon dries up and heals the wound. Portland cement answers equally well, and is sometimes more easily procured than good lime. Heaps of sand or sulphur which we sometimes see placed round cankered stems, or by way of preventing that disease, are worse than useless; both soon become saturated, and aggravate rather than lessen the evil. In every case it is best to anticipate the disease, as it is almost useless to attempt saving a stem when badly affected. Directly viscid matter is seen to ooze out from the stem or the stalk of a stem, or a lateral is decaying dangerously near the main stem, the preventives just named ought at once to be resorted to. In the first place, it is advisable to carefully scrape the wound and then apply the lime or cement, and the latter proceeding should be frequently repeated till the wounds are healed. In dull weather very little moisture should be distributed about the house, and at the same time much less water should be given to the roots; this, with plenty of fire-heat, so as to keep the temperature up to 70° by night and 10° higher in the daytime, will certainly prevent canker. In unheated pits and frames it is frequently difficult to keep Melons healthy, but much may be done by renewing the linings, so as to maintain a good bottom heat. When bottom heat fails the plants also fail, and this sometimes in spite of very careful treatment of the top growth. Damp and cold soon kill Melons.

RED SPIDER AND APHIS.—Red spider, when once established, is very difficult to check and almost indestructible, unless the plants are also destroyed. Frequent syringings are of no avail, not even, I believe, if repeated six times daily, and this excess of moisture may easily do more harm than good. Flowers of sulphur well worked through a muslin bag into the water used for syringing (a way by which it can be most easily mixed with the water) is the only safe remedy for red spider known to me. A very thin coating is sufficient to check it and in time to destroy it, and, moreover, the plant is not injured by it in the least. Black fly is our worst enemy; do what we will, it annually finds its way on to the Melons, and spreads at an astonishing rate. Fumigation with Tobacco is not so effective as an occasional dose of Tobacco water applied in the evening and washed off with the syringe in the morning. The quantity necessary is best determined by those who try it, as it varies in strength considerably. If the fly is discovered in good time, a dusting of Tobacco powder will destroy it; this we also apply in the evening and syringe it off in the morning. W. I. M.

Cordon fruit trees.—I am glad to see "J. C. C." advocating this form of training (p. 495). For Apples and Plums I have found it unequalled. I cannot write so favourably of Pears for two reasons, that the only fair trial I ever gave it on a wall I never saw after planting, and that in East Anglia I did not find it near so successful as Apples on common espalier wires, and Pears did so indifferently as ground cordons, that they were done away with. I also tried cordon Apricots on walls as a cure for branch perishing, or rather a means of reducing its evils and losses to the lowest possible limits. But the cordons perished even faster than the old trees. So much for partial failures; now for complete successes. I believe I was the first—still possibly almost the only one—to try Plums as ground cordons. We have had a row for about fifteen years, a miscellaneous collection of most of the best varieties, and these have scarcely once missed a crop. Again and again they have been our only Plums in the garden, where wall trees and pyramids alike have failed; while as for Apples, we have cordons in all directions and of nearly all forms—

diagonal on an espalier running the entire length of the garden, ground cordons as edgings, zigzag on walls, spiral on herb beds, &c.—and all have done remarkably well. Our largest mass of cordons on the long espalier has never lost a crop. Again and again, when we have hardly had an Apple in orchard or garden, this espalier has carried us through the season. These are worked on the English Paradise stock. Many of the ground and other cordons are worked on the French Paradise. On the whole, I prefer the former for vigour of growth and quantity of fruit. For precocity and very small trees, where the space is limited, the French Paradise is to be preferred. Like "J. C. C.," the more one knows of cordons the less they seem disposed to pinch and worry them. So I quite agree with "J. C. C." that two stoppings a year—the end of June or early in July and the end of August—are mostly sufficient. I quite believe, however, in pruning as an aid to fruitfulness, and that, as I have often shown in THE GARDEN, root-pruning is by far the most potent of all forms of pruning for that purpose. The latter may be more needful with us than with "J. C. C.," who finds it necessary to feed his tree roots with rotten manure; whereas we have given ours no assistance of any sort. For the last ten years or so they have been in bearing to such good purpose as already described. The chief thing we have had to contend against is an excess of vigour, which has been held in check by heavy cropping and an occasional touch of the knife on their roots.—D. T. F.

EFFECTS OF MULCHING STRAWBERRIES.

There can be little doubt, says a report from the Ohio Agricultural Experiment Station, that the temperature is lower and frost is more likely to occur where the ground is mulched than where it is left uncovered. This principle has long been known and applied in India. Pits are there dug and filled with straw to the depth of about 2 feet. Basins filled with water are placed on the straw in the evening, when the wind is from a northerly direction. The cold produced in this manner is sufficient to form ice when the conditions are favourable. It seems that the same principle holds good upon ground mulched with straw, although the cold produced is by no means as great as over greater depths of straw. The object of the observations was to ascertain if the increased danger from mulching was sufficient to warrant the removal of the material during the time of bloom. The data obtained are insufficient to answer this question, but the indications are that the danger of frost is only slightly greater over mulched than over unmulched areas, and that only in exceptional cases would it pay to remove the mulch; nor would it be advisable to refrain from mulching because fears of frost are entertained. When the temperature is rising or stationary, the thermometer over bare ground often reads as low or lower than the one over straw. It is only when the temperature is falling that the one over straw records the lower temperature; such at least has been the fact thus far. This being the case, it is possible to obtain data that bear upon the question only when a frost is likely to occur. From the few observations that have been made it is not possible to deduce a law. The increased security from mulching, as a protection against drought and winter killing, would, probably in almost all cases, more than counterbalance the increased danger from frost caused by mulching. For the purpose of testing the value of mulch for winter protection, a strip through the middle of a large bed was left uncovered. The winter was unusually severe, killing nearly all the wheat in the neighbourhood. The mulched portions of the bed wintered well and bore a good crop. The unprotected plants were seriously injured, and in consequence the crop on this portion of the bed was greatly lessened. As compared with the same varieties in other parts, the result shows the loss sustained by not mulching. The mulched plants bore a full crop, but those unprotected yielded as follows: Sharpless, 25 to 50 per cent. of a

full crop; Crescent, 75 per cent. of a full crop; Cumberland, 75 per cent. of a full crop; Downing, 50 to 75 per cent. of a full crop; Windsor Chief, 75 per cent. of a full crop. Had this experiment been tried the previous season, the winter killing would have been less, but the drought would probably have occasioned nearly as great a shrinkage in the crop. The plan was tried of removing the mulch in the spring, cultivating the ground lightly between the rows and then replacing the material, and this was found to be very advantageous where weeds were abundant, as they were much more easily subdued than by pulling or cutting off with a hoe. Further than this there was no marked advantage. Indeed, where the straw was removed and applied again after cultivation, the plants suffered more from drought than where the mulch was undisturbed. Hence, it seems safe to conclude that where the soil is weedy, or where there is weed seed in the straw, it is advisable to practise spring cultivation, but if weeds are not abundant, the operation will not pay, and may, if dry weather follows, be attended with loss.

Fruit houses.—Marshall P. Wilder, in his excellent address on the ripening and preservation of fruits, before the Massachusetts Horticultural Society, after describing the expensive and large structures in which a low temperature is secured by the use of ice, mentions the fruit house of M. Piquet, in Paris, built with double walls, so arranged as to maintain a temperature a little below 40° without ice, and keeping fruit in perfect condition till June. In such houses the Anjou Pear has been kept, and exhibited as late as the month of May.—Country Gentleman.

Fruit prospects in Suffolk.—I am afraid that many fruit growers in East Anglia will not be able to report so cheerfully of their prospects of a good fruit year as "D. T. F." (p. 497). Here (North-east Suffolk) I have some doubts of our fruit crop being even an average one. Apples at the best will be thin. Many of the orchard trees did not show a trues of bloom. Of Apricots we have none. Pears on walls are a failure; pyramids bloomed profusely and apparently have set well. Peaches and Nectarines will require plenty of thinning. All kinds of Plums and Cherries are a thin crop. Gooseberries and Currants are plentiful, and at present free from caterpillar and aphides. Raspberries and Strawberries are also looking very promising.—H. F.

SHORT NOTES.—FRUIT.

5496.—Stocks for Vines.—A healthy Muscat of Alexandria planted inside the house will make an excellent stock for Gros Colmar, and the quality of the fruit will be improved thereby. I have not tried Alicante or Muscat Hamburg, but Gros Colmar does well upon it, and I have no doubt that Alicante would prove equally satisfactory. Much, however, depends upon the healthy condition or otherwise of the stocks. If sound and vigorous, you may inarch at any time during the free flow of the sap. The period for grafting has gone by.—W. COLEMAN.

Vigour & fertility in Strawberries.—If Mr. Cornhill (whose Strawberry plants are, it now appears, 1 of three, but six years old) can persuade any Strawberry grower that his aged plants failed from being over-vigorous, I would advise him to make a note of it, for few will accept his conclusions as they stand. It is asking practical men too much to believe that six-year-old Strawberries failed from over-luxuriance.—J. S. W.

Effects of extension training.—Not many days since I was in a house a hundred feet long filled with Peaches and Nectarines planted a few years ago, with their strong shoots laid in as recommended by "J. S. W.," and there is not a tree in the house that does not show the baneful effects of the system, two or three branches in the centre of each having monopolised all the strength of the trees; the lower branches therefore occupying about one-fourth the space already carry no fruit, and are being gradually starved out of existence by the upper branches. For obvious reasons I cannot name places in which such failures occur.—T. B.

—Allow me to inform "T. B." that the remarks which I made in my two previous communications on this subject are substantially correct. The way in which "T. B." would deal with strong shoots is to cut them back to within a few buds of their bases, a proceeding which would result in the production of two or three equally strong shoots; the would-be remedy would therefore be worse than the disease.—W. W. H.

Green Gooseberries.—There is such an abundance of Gooseberries in the metropolitan market gardens this year, that large quantities were gathered and sent into market even before they were one-third grown, as much as 2s. per bushel being paid for gathering them. To many it may seem wasteful to gather the fruits when so small, but, on the other hand, when the crop is heavy the bushes find great relief when perhaps one-third of it is thus early removed. Of course there is little flavour in such early Gooseberries, but though no larger than wren's eggs they find a market, and that is enough for the grower if the price be a profitable one. The fact that growers find it needful to begin disposing of their fruit thus early is a practical reply to those who cry out that we do not grow fruit enough for home consumption. That very much more fruit should be consumed is admitted, and that such is not the case is to be deplored, because with such an enormous population, it should be in ordinary seasons difficult to provide enough to satisfy all demands. Still, such poor food as immature Gooseberries can hardly be wholesome. Be that as it may, in seasons of plenty did not growers begin to dispose of their fruit in this fashion, they would later find the market so glutted that the returns would create despair. Happily, our methods of cooking and otherwise disposing of green Gooseberries enable us to utilise even more than one-half, perhaps two-thirds, of the crop in a green state, and thus a long season and fair profits are ensured. Of course, only large-fruited, early and prolific kinds are found profitable for such purposes, and the most favoured of all known kinds so far seems to be Lancashire Lad. If there is any sort which for endurance, size of fruit, prolificacy, and general good qualities can excel this one, the sooner it is made known the better.—A. D.

Strawberries for forcing.—Much has been said about the preparation of Strawberries for forcing. Some layer the runners in 6-inch pots; others in 3-inch and 4-inch pots, and shift them on when rooted. I was rather tied for time last year, and the runners had got a good root-hold before I could get anything done with them. On July 16 I lifted them carefully and put them in a nursery-bed in good loamy soil, mixed with a little old Mushroom manure, and they commenced to root freely and to make good stubby foliage. On August 17 I lifted them from the nursery bed with good balls, and potted them in 6-inch pots, which the balls nearly filled. The check thus sustained was so slight that they never flagged. I put them in a bed of ashes, in which they grew and ripened their crowns well. I then wintered them in a cold frame, and they have proved to be the best Strawberry plants I have ever had. All who have seen them say that better fruited Strawberries in pots could not be, both as regards quality and quantity. Therefore, in future I will always put my Strawberry plants in nursery beds. Thus treated, they are less apt to get dry than in pots, and a great deal of labour as regards watering is saved. The varieties consisted of Vicomtesse Hortart de Thury, President, and Sir C. Napier.—ALEXANDER TRAIL.

Bluebells at Glendalough House.—Last week I paid a visit to Glendalough House, Co. Wicklow, invited thither by the owner, Mr. Charles W. Barton, to see his Bluebells, and they were certainly well worth a journey to see. The drive thither from Rathdrum Station, on the D., W., and W. Railway, through the Vale of Clara, is a very picturesque one, hill and moor, water and woodland diversifying the view. Near the house are extensive natural woods, which, on the more open and dryer spots, are literally carpeted for many square perches at a time with *Scilla nutans*—the total space occupied by it amounting upwards of an acre. The effect at a little distance off was that of a sheet of water mirroring an unusually bright sky. Strolling through these woods, mass after mass of blue meets the eye, varied here and there with equally vivid masses of yellow Primroses, which are crushed at every step, so thickly do they grow. Of the Bluebells, many of the spikes are very fine; indeed, unusually so, from six to ten flowers on a stem being not uncommon. Continuing our stroll,

several charming peeps at Lough Dan—the largest of the Co. Wicklow lakes—are obtained through the trees, while nearer the house is an extensive rockery, or rather rookery, made only a year or two ago, but on which many interesting plants seem quite at home. In shady nooks the Oak, Beech, and limestone Polypods remind one of a lawn in Wales or Scotland; while near by, on a grassy bank, the stems and leaves of a grove of Daffodils bear witness to what a wealth of beauty had been there a few weeks ago. The garden proper is also interesting, and contains a good range of houses.—GREENWOOD.

NOTES OF THE WEEK.

Pentstemon Lewisii.—Of this beautiful and rare Californian plant, Messrs. Backhouse, of York, send us some fine flower-sprays, which remind one of *P. Scouleri*. The flowers are over an inch long, borne on the ends of the slender twigs in clusters of about half-a-dozen. The colour is a bright mauve-purple. Mr. Potter states that it is a free flowerer if treated as he described in THE GARDEN a short time since.

Show of Orchids.—Messrs. F. and A. Dickson, of Chester, exhibited during the yeomanry week at Chester a magnificent selection of Orchids from the well-known collection of Mr. Arthur Potts, Hoole Hall, Chester. The specimens included many rare varieties, and all were admirably grown and furnished with a wonderful profusion of bloom. Mr. Potts has opened his gardens to visitors who may be in that neighbourhood during the summer.

Calceolaria Kellyana.—Mr. Kingsmill writes to say that he finds this beautiful plant perfectly hardy, and sends us a flower from a good specimen of it which is now a mass of bloom. The flowers are bright yellow and minutely spotted, and are about half the size of the ordinary greenhouse *Calceolaria*. Mr. Kingsmill says also that that pretty shrub, *Jamesia americana*, is absolutely hardy with him, and is flowering profusely in his garden at Eastcott, Pinner.

A beautiful alpine plant.—A plant of one of the most beautiful gems of the alpine region lying to the north of the Adriatic has been sent by Messrs. Backhouse, of York. It is called *Edraianthus serpyllifolius* var. *atropurpureus*, a near ally of, if not actually a *Campanula*. It is a dwarf plant with slender trailing shoots, not straggling, but growing in tufts. The flowers are 1 inch across, erect, and of a deep rich purple. There are over a dozen large flowers on the small plant sent, so we can imagine what a mass of it would be like in a rock garden. It grows well, Messrs. Backhouse say, in the rock garden in rich calcareous loam.

Eremurus himalaicus.—Of this beautiful plant, the New Plant and Bulb Company, Colchester, send us a fine flower-spike, finer than we have hitherto seen it. It measures 16 inches long, and is crowded its whole length with flowers, the majority expanded, and numbers in a bud state. The open flowers are pure white and at first the anthers are reddish yellow; afterwards there is no colour at all to mar the purity of the flowers. It is a poor comparison to say that such a lovely plant is most like a great white Lupine. It is more like that plant than any other, but more graceful and interesting.

White Orchises.—A friend has sent me a parcel of *Orchis mascula* in blossom, several pure white, others light pink, and I myself the other day met with numerous specimens of *O. Morio*, also pure white and some pink; in both the green veins were very conspicuous. Hooker says *mascula* is "rarely white," Bentham says "... flesh colour, or even white;" neither allude to *Morio* as occurring in a white state. The latter is very common about here (Co. Dublin). The white *mascula* came from Enniskerry, *Morio* from near Leixlip.—T. P.

Manettias.—Treated liberally as regards soil and moisture, and grown in a light position in an intermediate temperature, the several species of *Manettia* cultivated in gardens form handsome little specimens in about a year from cuttings. They are best when trained upon a few twigs, something like

Pea-sticks, which should be stuck in the soil about the plants so that the shoots can cling to them and cover them with stems and foliage. If grown upon a pillar or along a rafter the shoots soon become thickly matted together and almost strangle each other. Several species are grown in one of the stoves at Kew, and these are trained over twigs as above suggested; they are now in flower and very pretty. *M. bicolor* has lance-shaped leaves and tubular Cuphea-like flowers, bright scarlet in colour with a yellow mouth. *M. cordifolia* is a stout-growing kind, with heart-shaped pubescent foliage and bright scarlet tubular flowers; and *M. micans* has small cordate leaves on thin branches, and flowers of a rich orange colour with canary yellow near the top. There are blue-flowered species of *Manettia* as well as these here described, but none of them have been introduced into English gardens. The genus is closely related to *Bouvardia*, and is found chiefly in Tropical America.

Streptocarpus Dunni.—We learn that the gigantic *Streptocarpus* from the Transvaal now in flower at Kew, and which was described in THE GARDEN a short time ago, is to be named *S. Dunni*, after the gentleman who sent seeds of it to Kew. The flowers of this plant are now much finer than when it was noted by us, one of the Kew specimens having no less than a hundred flowers all open together, each of them $1\frac{1}{2}$ inches long and coloured salmon-red. The leaf also is larger than when it was last noted. It is a strange and very beautiful plant.

Gardenia Stanleyana.—This plant represents a widely different group of *Gardenias* from that to which *G. florida* and *G. radicans* belong, its flowers being trumpet-shaped, 6 inches long, the lower part of the tube black, whilst the spreading upper part is cream-yellow thickly mottled and lined with purplish brown. It forms an erect stem, from which the branches are borne horizontally, and the flowers are produced on their ends. A specimen of this singular, and to some tastes beautiful, plant is now in flower in the T range at Kew.

Coburghia incarnata.—The genus to which this belongs is exceptionally rich in handsome flowered greenhouse bulbous plants, though they are rarely met with in gardens now-a-days. The late Mr. Wilson Saunders, in his garden at Reigate, and Mr. Joad, in his fine collection of rare plants got together by him at Wimbledon, both paid special attention to *Coburghias*, and reaped a rich reward in their beautiful flowers. A specimen of *C. incarnata* now in flower in the Heath house at Kew affords a good idea of the value of these plants. It has numerous *Amaryllis*-like leaves and tall scapes, bearing umbels of long tubular flowers, the colour a bright orange-scarlet tipped with green and yellow.

Roscoea purpurea.—The large purple *O. chlid*-like flowers of this plant are pretty enough to gain for it general favour if it were once properly known. It is easily grown if kept in a greenhouse whilst in flower and leaf, and afterwards placed in a cool frame, or beneath a stage to winter. Its stems are pushed up in spring from a cluster of tuberous roots, and they grow to a height of about 15 inches before flowering. The flowers are terminal and open in succession, each stem continuing to flower for about a month. There is a curious arrangement to aid in the fertilisation of these flowers, the curved anther swinging on a kind of hinge, and having at its base two horns, which on being touched cause the pollen-bearing part and stigma to descend and strike whatever object has touched them. There is a group of this plant now in flower in the Heath house at Kew.

Hoya bella.—This charming little stove plant is the prettiest flowered of all the Hoyas, although amongst the fifty species already known there are some exceptionally handsome ones, such as, for instance, *H. campanulata*, the cream-yellow Bell-flowered species; *H. imperialis*, whose large reddish brown, waxy flowers are both beautiful and singular in shape; *H. multiflora*, better known in gardens as *Cyrtoceras reflexum*; and the old favourite, *H. carnosa*, which possesses the robust nature of a *Stephanotis*, growing and flowering in any corner where moisture, shade, and a little heat can be afforded it. *H. bella*

is not quite so accommodating, and it is only rarely that good healthy specimens of it may be seen. A happy plan for its culture is that of attaching it to a piece of *Dicksonia* stem, with soft, peat-like roots upon it, into which the aerial roots of the *Hoya* will easily penetrate and find nourishment. A specimen treated in this way is now in flower in the stove at Kew; it is established on a pyramidal Fern-like stem 18 inches high, and this is covered with branches; whilst hanging gracefully about it are fourteen flowering shoots, each bearing from four to six umbels of beautiful white wax-like flowers with pale pink eyes. *H. imperialis* is also in flower in the same house.

***Medinilla amabilis*.**—We lately described a large well-flowered specimen of *M. magnifica* which was on view in the Victoria house at Kew, and there is now in the same house a specimen in flower of *M. amabilis* which is very much like the former in foliage and general habit, but differs markedly in the disposition of the flower racemes. These in *M. magnifica* are always pendulous, but in *M. amabilis* they are quite erect. The flowers, too, in the latter are larger and deeper in colour than in the other. Of course the erect racemes are less graceful, and lose much of the attraction which belongs to *M. magnifica*, whose large bunches of flowers hanging from the ends of the branches, and also from the ripened wood, render it one of the very noblest of stove-flowering plants. We do not know what *M. amabilis* would be if grown into a large specimen, as it has not been in cultivation very long; at present, however, we should place it second to *M. magnifica* as an ornamental plant. There is so close a resemblance between these two when not in flower, that we should advise would-be purchasers of *M. magnifica* to see that they get it and not the other.

GARDENS AROUND NICE.

THE development of the gardener's art depends, within certain limits, almost wholly upon the difficulties which he is called upon to overcome, and the more profuse Nature is in her gifts the less perfect is his work. On the Riviera the truth of this axiom is constantly impressed upon the critical visitor, accustomed to the victories achieved almost as a matter of daily routine, where artificial heat and glasshouses are necessary during three-fourths of the year, and familiar with the trim flower-beds and well-ordered paths and lawns which are the leading characteristics of an English garden. Necessity has not taught the Riviera gardener a thousand little devices, which she has enforced upon his fellow-worker in more northern latitudes, while the luxuriant growth and rapid development engendered by the pure air and brilliant sunshine of the Mediterranean seaboard, have certain disadvantages that can scarcely be overcome. For example, the choicer varieties of Rose trees, which depend for their vigour upon the salutary hardening effects of winter, rapidly degenerate towards the coarser sorts which are grown in such profusion both for cutting purposes and for distillation. Camellias, again, which attain a size and luxuriance unknown in this country, have their beauty marred by the constant presence during the flowering season of blooms in various stages of decay. In order to appreciate to the fullest extent the beauty of vegetation in the Riviera, the visitor must dismiss from his mind the higher stages of flower culture to which he may have been accustomed; he must not institute comparisons, and must accept, in place of the fresh and glorious foliage of the English garden and forest trees, the sad-toned leafage of the Olive, the feathery curve of the Palm, and the dark varnished hue of the formal Orange tree. But all these subdued tones form the proper contrast to the indescribable blue of sky and sea, the whiteness of the roads, and the greyness of the hills.

Probably the most beautifully ordered gardens are to be found at Cannes, where English taste has regulated almost unlimited expenditure, but

the surroundings of Nice are made lovely beyond description by the numerous gardens with villas standing in their midst. Take, for example, the steep road winding round Montboron to Villefranche, or the Route Forestière nearer the summit of the same hill, which, winding through Pine woods, lead here and there to less pretentious, but not less beautiful, gardens than those which line the more fashionable road below. The engravings which have been published in THE GARDEN during the last three or four weeks give a fair idea of the character of these gardens, in which almost every plant which flourishes in this climate, and not a few that prefer harder surroundings, are to be found. But it is not only in this fashionable suburb that beautiful gardens exist, for in all directions the land around Nice has been laid out with a profusion and extravagance more pleasing to the visitor than to the speculator, who has suffered from the exaggerated movement in building operations that received a severe check some three or four years since, and from which it is not likely soon to recover.

As a matter of course, there is a great variety of non-indigenous plants, which, under the exceptional climate of the Riviera, especially between Nice and Mentone, flourish without care, in spite of sandy arid soil and great drought. Such are the Agaves and Aloes, the flowering spikes of which give in their abundance a distinct characteristic to the landscape. Numerous kinds of Irises, Scillas, Carnations, Silenes, Primulas, Wallflowers, Mignonette of truly gigantic proportions, Daphnes, Petunias, Cyclamens, Aralias, Ageratums, Wigandias, Asters, and Verbenas make the country gay with bloom before Crocuses and Snowdrops are able to dot our borders with specks of colour. A little later, and the country-side as well as the gardens is ablaze with bloom. Almost endless fields of Roses, Violets, and Narcissi fill the air with perfume, to be imprisoned later on by the curious processes of the scent manufacturer. The hedges of Pelargoniums throw a mantle of pink and white and scarlet over their broad and massive leaves; tracts of sandy waste are carpeted and walls are festooned with the fleshy foliage and great brilliant flowers of the larger Mesembryanthemums; while the Banksian Roses, that grow with feverish haste to develop their beauty before the drought and scorching sun shall wither them, smother in their embraces Palm tree and Olive, Eucalyptus and Fig. One of the glories of the Riviera gardens is the Bougainvillea, introduced from India not many years ago, and which, notwithstanding the fact that from time to time it is destroyed by the slight (and sometimes comparatively hard) frosts that visit the region, flourishes exceedingly in sheltered sunny places. The *Chrysanthemum fruticosum* (the white and yellow Marguerite) is strikingly ornamental in winter and early spring. The scorching summer sun and autumn droughts cut it down and wither it, but with the first rains it strikes into a vigorous growth, and by the middle of February the massive bushes, 4 feet or 5 feet high and 6 feet through, are covered with a mass of blossom that hides the leaves. In the same manner the various *Salvia* attain a proportion, vigour, and brilliancy wholly unknown here. Of the larger trees that add to the beauty of the Riviera gardens, there is a very wide variety. Conifers, Cypress, Juniper, *Araucaria excelsa*, *Ceratonia*, the Olive, the Fig, Lemon, Orange, *Pistacia Lentiscus*, *P. Terebinthus*, the Eucalyptus, which attains grand proportions, Tamarisk, Almond, Oleander, and many others flourish exceedingly. Nor are familiar English trees wanting; the Plane, the Oak (on a small scale) and the Willow take kindly to the climate, while retaining conservative ideas as to the proper time of putting forth

their verdure in the spring. Bananas (*Musa sinensis*) grow in great beauty, and in favoured spots ripen their fruit; while of Palms, many varieties arrive at great perfection. Of these may be named the *Chamaerops humilis*, the *Phoenix dactylifera*, the *Chamaerops Palmetto*, &c. Hyères, not far from Toulon, is famous for its avenues of Palms, and Bordighera, near the Italian frontier, is a veritable Palm forest. Ferns, it is needless to say, abound wherever chance or cultivation favours them; the most ordinary, perhaps, are *Ceterach officinalis*, *Asplenium Trichomanes*, *Adiantum-nigrum*, and *A. Capillus-veneris*. The *Pteris aquilina* is abundant, but less plentiful are the *Scolopendrium*, *Polypodium vulgare*, *Asplenium Ruta-muraria*, *Cheilanthes odora*, *Gymnogramma leptophylla*, &c.

A few words should be added about the market gardens of Nice. The most important lie just beyond the city in the valley of the Paillon, and on the banks of that generally waterless river. Here are Orange and Lemon orchards; flower culture, which has of late years been widely extended to meet the demands of the export trade, is carried on, and early vegetables are cultivated on a very large scale. The valley is peculiarly well adapted for the purpose, being partly protected from the intense heat of the sun, while water is found at a moderate depth, and is raised by old-fashioned appliances, at the joint expense of the cultivators, and is distributed amongst them in proportion to their contributions. On the hills, which form an amphitheatre round the city, the natural conditions are not so favourable, for here the cultivator has to contend against great heat and a poor soil. The small patches of garden ground into which the properties are chiefly divided are utilised to the utmost by the hard-working and almost universally poor cultivator, who, in many cases, has only a limited area of steep hillside at his disposal, which is laboriously cut into steps or narrow terraces. Until lately the lack of water almost paralysed the efforts of the cultivator, although here and there ancient and primitive aqueducts convey a limited quantity of the precious fluid, which is moreover stored in tanks during the rainy period for summer use. Since 1883, however, all this has been changed, and an ample supply is at the disposal of the cultivator, who, however, has not fully realised the value of the blessing now brought to his doors. In 1878 the General Water Company of France obtained a concession, by which they agreed to undertake the necessary work for bringing water from the Vesubie, an ample mountain stream, down to Nice, and to provide a constant flow of 140 cubic feet of water per second, most of which was to be placed at the disposal of cultivators and landowners in and around Nice for irrigation purposes. The balance was to be poured into the Paillon, to maintain a small flow in the usually dry bed of that river. These very extensive works, which were completed at the beginning of 1884 at a cost of 15 millions of francs, bring down from the mountains a constant supply of 3,000,000 gallons an hour to the cultivated land around Nice—sufficient to make some 35,000 or 40,000 acres independent of all other means of irrigation, and thus supply the one thing needful to convert the scorched hillsides and sandy soil into a region of perpetual beauty and fertility.

***Iris orientalis*.**—This beautiful Iris belongs to the Siberian group, and is peculiar in many respects. It is perfectly hardy and very useful for cutting. Unlike *I. susiana*, it dislikes being baked in the sun. Nor must it be planted in a marsh, like the *germanica* or *Kempferi* group, but under intermediate treatment it will bloom freely. The foliage is broad and grassy, not unlike that of *Schizostylis coccinea*, and both do well side by side in the border. I have it now in bloom, and if the long flower stems are cut when the blooms are commencing to open and thinned occasionally, they will keep fresh for several weeks. —W. J. MURRAY.

TREES AND SHRUBS.

SUMMER BLOOMING TREES AND SHRUBS.

THE flowering time of shrubs generally is spring and early summer, but there are a few which, blooming when the great display of flowers in shrubberies is over, should be more largely planted than they are. Foremost amongst these is *Spiræa ariæfolia*, one of the handsomest flowering shrubs in cultivation when in the enjoyment of suitable conditions. These seem to be a free soil, of the two, rather light, and shelter and a slight screen from the sun during the hottest portion of the day. This *Spiræa* does not thrive at all well in a sun-exposed, windy place. In such a situation it is seldom seen in thoroughly good health; on the contrary, the only really good specimens that have come under my notice were perfectly screened from rough and cutting winds, and did not get the sun after midday. It is probably through a want of knowledge of the needs of this shrub that it is not so much appreciated as one would think it ought to be. It has, when soil and situation are not to its liking, a particularly stunted and miserable appearance, and is therefore often discarded for subjects not its equal in decorative value. A large well-formed specimen of it, some 15 feet high, and having a hundred or more large clusters of blooms, has a most attractive appearance, especially when in the close proximity of Evergreens, the deep green of which shows up the *Spiræa* to much advantage.

A shrub not much known is *Cytisus nigricans*, a free, but not strong growing species, having deep green foliage and bearing a profusion of bright yellow blooms, which, where the plants get plenty of room, are produced quite down to the ground. This *Cytisus* deserves a good position in the shrubbery, where it cannot get partially choked by rank growing things. It is by no means particular as regards soil, but likes good loam best; it, however, thrives well in very light soils if well deepened. *Althæa frutex* is so well known as to scarcely need recommendation, but many do not seem to be aware that amongst the numerous varieties of it that exist the majority are superior to the typical form. Few things are so indifferent to soil as this *Althæa*; it thrives in almost pure sand and loam of the heaviest description, but it must get plenty of light, and be placed where the sun shines on it during the greater portion of the day, the amount of bloom produced being in proportion to the more or less perfect maturation of the wood. During the hottest and driest months of the year the blooms are freely produced, and a collection of the best varieties forms at that period an interesting and cheerful feature. There is a good variegated form of this shrub, which is rarely seen in this country, although in Germany it is a favourite with planters. Perhaps our climate does not suit it so well, and, owing to the comparative absence of solar heat, the wood does not become so fully ripened as is necessary to endow it with sufficient vitality and powers of resistance. Except in very favoured spots in this

country, trees or shrubs having an element of tenderness are sure to be so permanently weakened when a damp, sunless summer is followed by an exceptionally hard winter, as to lose those features which render them so pleasing when in perfect health. Perhaps some reader of THE GARDEN having experience of this variegated shrub will state whether it is really reliable, as, if so, it is a pity not to utilise it more freely, the variegation being clear, and, so far as our experience goes, constant. Some do not care for variegated trees and shrubs, but when not overdone they add a charm to the outdoor garden, giving just that variety of tint which seems desirable where there is a considerable extent of shrubberies.

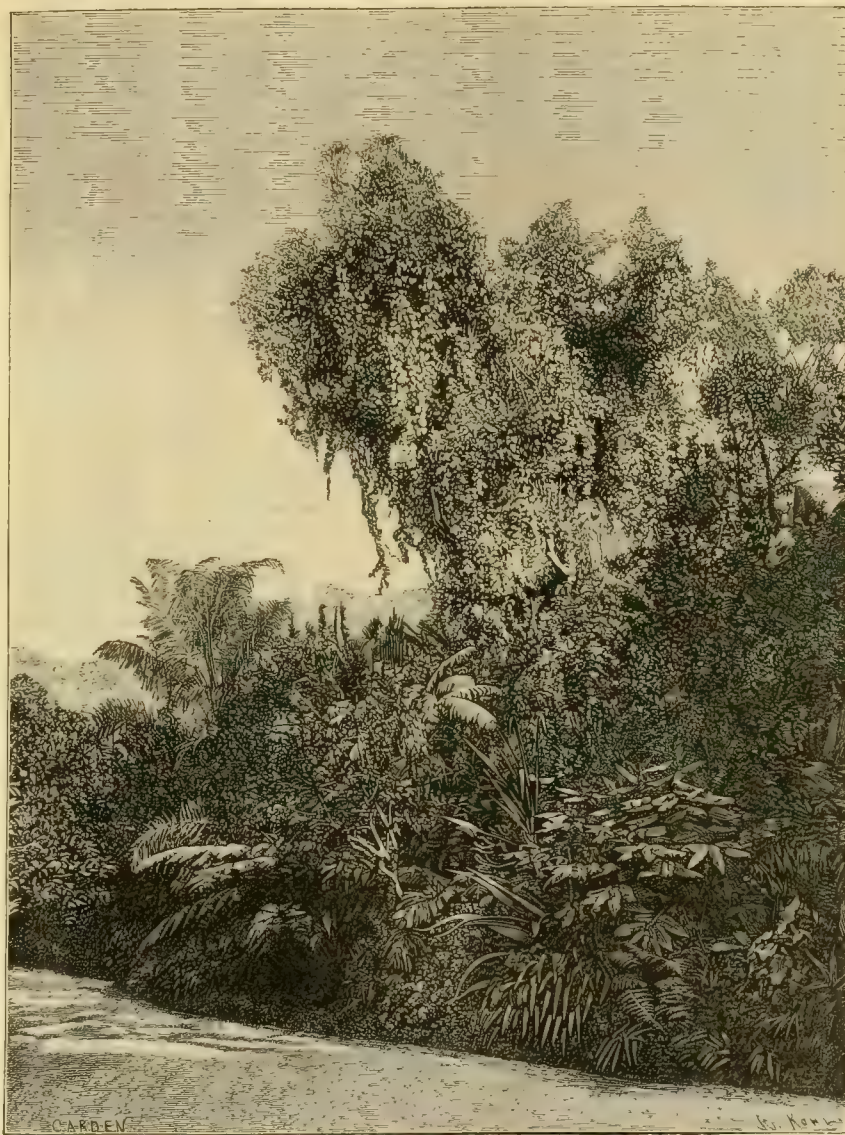
Andromeda, or rather *Zenobia*, *pulverulenta* is

exceed 40 feet in height, forming a spreading crown of much-divided clear green foliage, from which are thrown up dense panicles of bright green flowers, which by autumn change into bleached capsules, almost as ornamental as the flowers. This tree should never be planted amongst other strong growing kinds; it cannot show itself to advantage thus placed, but should be so situated that the head of foliage rises clear and distinct from a lower growth of some kind. This is a good tree for places where no great depth of fairly good soil rests on chalk. The finest trees which I have seen of it were growing in 2 feet of loam on a deep bed of chalk. *Paulownia imperialis* is liable to be killed off by frost, a circumstance which can only be attributed to the wood not ripening well.

Yet in Germany it blossoms well, and there it has to bear an average amount of cold much higher than that to which it is exposed in this country. A useful hint to intending planters may be found in the fact that the strongest and most floriferous trees always stand on the upper slope of a hill, freely exposed to the sun, but screened from easterly winds. Planted in rich soil and in a low situation, a strong and rather sappy growth is made, which often fails to ripen; whereas when so situated as to be roasted by the sun and swept by the breeze, and where the soil is not of too fertile a nature, a short-jointed growth is made, which possesses great powers of resistance to cold and damp.

The Chinese Privet is an admirable late-blooming shrub, delighting both by its purity and its delicate fragrance. It is a plant for every garden, for it succeeds in any soil, and will bloom with more or less freedom in almost any situation. Being of rather loose growth, it looks best in close association with other shrubs, and it belongs to that vigorous class of things which bear crowding with comparative indifference. The Chinese Privet should find a home in every shrubbery large enough to give it a fair chance to develop freely. Its near relative, the Japan Privet, is also very ornamental, but is a shrub of a more dwarf compact habit, and should therefore get a front position when grouped with strong-habited things. Any list, however short of summer-blooming plants, should include *Hydrangea paniculata grandiflora*, which must be considered as one of the very finest of garden shrubs. It blooms so late as to belong quite as much to autumn as to summer, and affords welcome variety at a time when the great beauty and freshness of the majority of summer flowers are waning.

By reason of its moderate growth, it may be accommodated in the smallest garden, and is so floriferous that a plant a yard through will bear a score of immense heads of bloom, which for a time are snowy white, and which, as the season advances, change through pink to a deep coppery hue, in which condition they remain through the autumn, seemingly but little affected by cold and wet. The long duration of the blooms of this handsome shrub enhances its value, especially where the space is so limited as not to admit of securing very much variety. Those who would like to grow this *Hydrangea* in a very restricted man-



View in the garden of the Villa Monteboron. Old Olive tree 15 feet high, covered with Passion flowers, Tropæolums, and Roses. Engraved for THE GARDEN.

quite a charming and distinct, as well as a little known, shrub. It is probably but a form of *speciosa*, and, as the name implies, the foliage is as if dusted with fine powder. When covered with its little white bell-like flowers it presents quite an attractive appearance, and is very unlike any other flowering shrub. This *Andromeda* is, however, not in all situations quite hardy, but is trustworthy in the warmer countries. *Kœlreuteria paniculata* has so many claims to admiration, that one wonders not to see it in the majority of gardens; it is beautiful alike in growth, foliage, flowers, and fruit. It does not, as a rule,

ner may do so without in any way lessening the quality of the blooms; indeed, the way to obtain very large heads of bloom is to annually prune back the growths of the preceding season to about two eyes. Wherever there is room for six flowering shrubs, this should be one of them, and in large gardens advantage should be taken of its capabilities to form groups of it more or less large. I have never yet seen fifty or more good plants together, but I should think that the effect of such a mass of colour would be grand. One does not often see *Magnolia grandiflora* grouped in this way in this country, but in the north of France it is thus employed with the happiest effect. In one garden there, with which I am well acquainted, there is one plantation consisting of nearly half a hundred trees, some twenty years old, of the true Exmouth kind. They are in perfect health, and as they bloom with great freedom, they form, during the flowering season, quite a striking feature.

J. C. B.

The smooth Sumach.—Although *Rhus glabra* does not attain so large a size as the common Stag's-horn Sumach (*R. typhina*), it makes a very ornamental bush or small-sized tree. The leaflets, numbering from eleven to thirteen, are deep glossy green above and whitish beneath. Both sexes are well worth growing, but the female tree is the more handsome of the two on account of the panicles of scarlet flowers. In some catalogues this goes under the name of *Rhus coccinea*. The male tree has greenish yellow flowers, but, with the exception of this difference, both are alike in habit and in every other particular.—R.

New varieties of trees.—All who raise trees or shrubs from seeds should look over their beds of seedlings before they are transplanted, with a view to discovering pendulous varieties or fastigiate varieties, which, probably, every tree in existence is liable to sport into. We have, within the present century, found both of them in the common Oak, the Scotch Elm, and the common Hawthorn; and one sport in several species, such as the pendulous common Ash, *Sophora*, &c. They should also, in the leafing season, look after varieties that come early into leaf, such as the Glastonbury Thorn; in summer, those that sport in their foliage, such as the one-leaved Ash, the Eagle's-claw Maple, and the Fern-leaved Oak; and, in autumn and winter, those that retain their leaves longer than usual, such as the Evergreen Privet. The time will probably one day come when every species will have its fastigiate, its pendulous, its early, its late, its variegated-leaved, and its abnormal leaved varieties.—R.

The Colchic Laurel is distinguished from the common kind by its larger leaves, which are thinner in texture and paler green in colour, by the more horizontal arrangement of the branches, which are generally disposed more or less in a tier-like manner, and, as above stated, by the extra profusion of its blossoms. With us it is less liable to be injured during severe winters than the ordinary form. Another variety of the common Laurel, and a very desirable one, is *rotundifolia*, which is of vigorous, yet sturdy, growth, with large broad leaves (so broad indeed as to suggest its varietal name) deep green in colour. It is in the way of the common kind, but superior to it as an ornamental shrub. The variegated Laurel seldom retains its colour, as the stronger growing green portion quickly obtains the mastery, while a couple of varieties (*angustifolia* and *camelliaefolia*) are interesting more as curiosities than from their ornamental qualities.—T.

Pavia macrostachya.—Amongst the most ornamental Buck-eyes, as the Pavia is called, is this species, which is also known under the name of *Æsculus parviflora*. It assumes the shape of a spreading bush with leaves similar to those of the Horse Chestnut, but smaller and bearing reddish brown stalks. Its flowers, which are white, are borne in long, erect spikes, to which the prominent stamens impart a feathery appearance. Additional interest also attaches to this kind on account of its flowering in July, and often also in

August, after the beauty of most flowering shrubs is over. On a moist, somewhat shaded, spot it grows freely and throws up suckers in such quantities as to soon form a dense mass; indeed, it pushes up shoots so freely from the base, that when in bad condition it should be cut down to the ground in spring. Thus treated, it will push up afresh from the base and grow and flower freely.—A.

— ORNAMENTAL TREE PLANTING.

ONE object in ornamental planting is artistic effect, which such plantations should clearly indicate. Suppose it were intended to form a pleasure ground, or even a shrubbery, in a district where the common Oak, Elm, Ash, Birch, Poplar, Scotch Pine, common Thorn, Holly, Spindle tree, Elder, &c., were common in the woods and roadside plantations, not one of these trees and shrubs, according to our principle of the recognition of art, and more especially of high art, ought to be introduced in the shrubbery; but, according to the same principle, variegated-leaved, double-flowered, or other artificial varieties of all these species might be introduced. In a botanic garden or arboretum, of course the principle will not apply, because the object there is not to produce a work of elegant art, but one of botanical interest. Cases may occur in which it is desirable to imitate a plantation already existing; for example, where two estates join and both parties are desirous of disguising their boundary. In this case the trees in the plantations on the margin of the one estate must be imitated in the plantations on the margin of the other, without reference to the trees being either indigenous or foreign. Cases of this kind, however, and other cases that might be mentioned have nothing to do with planting as an elegant art, or with reference to landscape gardening as an art of taste. The choice of soils and situations best suited for the healthy development of the different kinds of trees is even more important in ornamental than in economic planting. Further, in ornamental planting, a knowledge of the wind-resisting powers of the different kinds of trees is specially needful in order to arrange them so that the stronger may shelter the weaker, and prevent the one-sided appearance that, although prized by artists in depicting wind-beaten scenery, is looked upon by tree-admirers with feelings of unpleasantness.

G.

The Cockspur Thorn (*C. Crus-galli*) is one of the handsomest and most distinct of all the American kinds, and most frequently planted. In the typical form the leaves are bluntly ovate, of a bright shining green, and the whole aspect of the tree low and spreading. Of this there are many varieties, of which the principal are—*arbutifolia*, a kind in which the leaves are larger and the whole plant more vigorous than the species; *linearis*, *salicifolia*, and *pyracanthefolia*, small growing forms with narrow leaves, and when on their own roots spreading bushes, but, as usually seen, viz., grafted at 4 feet or 5 feet from the ground, the branches spread out horizontally all round in such a way that, although they form a large, flat head, the plant increases but little in height. These varieties are well adapted for planting in confined spaces; or, indeed, a suitable spot can easily be found for them in any garden. The flat tabular form shape that they assume is very different from that of most of the other inmates of our shrubberies, and as the foliage is bright and glossy and almost evergreen, they are very desirable white-flowered kinds. *C. Crus-galli ovalifolia* and *prunifolia* are two large-growing varieties, the former being loose and spreading, the latter more upright.—A.

Weigela rosea and its variegated variety.—These are two of the most attractive flowering shrubs which we have at the present time. They are extremely hardy, will grow anywhere, and they never fail to blossom profusely. Their habit of growth is exceedingly good; their long branches arch gracefully and form a bush very pleasing in

outline. Many of the branches are clothed with flowers for a distance of 5 feet. The blooms individually are not unlike those of the Foxglove in form, but smaller. *W. rosea* has green leaves and bright pinkish white flowers. Those of its variegated variety are pale, but its foliage is highly attractive, being light in colour and beautifully variegated. It is a very ornamental shrub even when out of flower, and when in blossom it is altogether unique. Our largest plants of these Weigelas are about 10 feet high, the same, or a little more, in diameter, and as May and June flowering bushes they are grand and should be universally grown. The smallest sized plants, too, bloom as freely as the large ones.—J. Muir.

Propagating Thorns.—The propagation of Thorns is in most cases simple enough, seeds being produced in such quantities, but of course these can only be used in the case of well-marked species; the different varieties must be increased by grafting or budding. Grafting is done, as in the case of fruit trees, in spring, and budding whenever the bark and buds are in a fit condition for the purpose—generally about the time when Roses are budded. As several seeds are contained in each fruit, they must be separated before sowing; this can easily be done with the fingers if few in number, but when in quantity they should be placed in a heap out of doors and covered with sand or soil till the pulpy matter rots off, and then sown in the ensuing spring in the open ground, or if choice and in small quantities, pots or pans may be used; in the latter case they should be kept in a pit till the seedlings have made a few leaves, as if set outside they may perhaps get dry just as germination commences, and thereby lost. Individual characteristics are not, as a rule, reproduced in the case of seedlings, but still by careful selection unlooked-for properties may be secured.—A.

Double white Chinese Plum.—This pretty little Plum is a most desirable low-growing shrub, beautiful when in bloom either as an open bush in a somewhat sheltered spot, on a low wall, or grown in pots and flowered under glass. Its habit of growth is that of a rather upright shrub, with very dense, slender branches, that before the expansion of the foliage become wreathed with blossoms, each a pure white rosette an inch in diameter. There is also a variety in which the blooms are tinged with pink. It is generally grafted or budded on Plum or Cherry stocks, sometimes close to the ground, and occasionally as standards. Grown in this latter way, it forms a dense compact head; but it is as dwarf bushes that it is seen to best advantage. When grown for forcing, it may be either planted out or confined in pots. In either case a good sunny position must be accorded it during the summer, in order to thoroughly ripen the wood. If lifted from the open ground for forcing, it is best potted in the autumn just before the leaves fall.—T.

Choisya ternata.—At Rood Ashton, Trowbridge, Wilts, a very fine specimen of this lovely Evergreen is growing in one of the shrubberies. It is 7 feet high and 8 feet through, and annually blooms splendidly; it was at its best this year late in May. It has been planted nine years, and is growing in ordinary garden soil, the position being sheltered from easterly winds. During the winter of 1879 and 1880, many of the *Laurustinuses* and Sweet Bays were cut down to the ground by the severe frosts, but this *Choisya* escaped with a "scorching" only. It may therefore be classed as a hardy plant, in the southern counties at any rate. In the open the trusses of bloom are quite as white as those produced on pot plants, and they are durable, too, for I have had some of the blooms from Rood Ashton in a glass of water for several days. It has a neat, bushy habit, and is altogether a desirable plant for shrubberies, or somewhat sheltered outdoor positions.—W. L.

—As an additional proof of the hardiness of the pretty Mexican *Choisya*, I may mention that during the severe winters of half-a-dozen years ago a bush of it here was not cut so

severely as the Laurels which were near it, and since that time, with the exception of a few of the more tender leaves being seared by the frost, it has not been injured in any way. My situation is not far from London, so it may be said that the above trial does not show that it is hardy in the colder parts of England, but it certainly proves that the *Choisya* is fully as hardy as the common Laurel which is so extensively planted. The Mexican Orange flower, as the *Choisya* is sometimes called, is fortunately not a difficult plant to increase, for cuttings of the young shoots, taken during the summer just as they commence to acquire a woody texture, will strike root readily enough if kept in a close frame till that takes place. The frame must be quite close and shaded whenever required, for if the cuttings flag they seldom recover, but with ordinary attention this can be guarded against. Well-drained pots, filled with open sandy soil, pressed down firmly, will suit the cuttings perfectly, and when rooted they can be either potted off or planted out. The advantage of potting, then, is that they can be protected till the roots are in active operation, and when such is the case they can then be planted. In returning once more to its hardiness, I note that, when it has been treated as a greenhouse plant for some time and afterwards turned out of doors, it is scarcely a fair test of their hardiness, as it will naturally suffer more than if exposed during its earlier stages.—T.

Wistarias.—The white *Wistaria* is a counterpart, except in colour, of the blue kind, and, as far as I am in a position to judge from young plants, equally free flowering. It forms a good companion to the type, and suggests what an attractive floral picture would result from allowing the two to intertwine, and disport themselves among the branches of some sombre-hued tree, such as the Spruce. There is also a double-flowered variety of the common *Wistaria*, but I can never get its blooms to open in a satisfactory manner, though, judging by the descriptions of it circulated at one time, it should be a valuable climber. There is a North American representative of this genus, viz., *W. frutescens*, deeper in colour than the last named (being of a bluish purple hue), and otherwise valuable from flowering after the common *Wistaria* is over. Its flowers, too, instead of drooping, are borne in erect racemes. It is much less vigorous than the type, but may be employed for just the same purposes. *W. frutescens* is spread over a considerable tract of country in Virginia and Carolina, and according to Loudon was introduced in 1724; but at the present day it is far from being common. *W. multijuga* is said to bear very long racemes of blossoms, but I have not yet succeeded in flowering it, for though one plant of it grows freely, it shows no signs of bloom, and as others elsewhere are in the same condition, it would seem to be a shy-blooming kind. There is a white-flowered variety of this announced in some nurserymen's catalogues.—ALPHA.

Weeping Willows in America.—An American correspondent writes: "The Weeping Willow (*S. babylonica*) is in England a far handsomer tree than it is with us—at least in the Middle and Northern States. It is not quite hardy in this climate (New York)—not perhaps owing to the severity and extremes of weather alone, but because it is often weakened by various insects or their larvae, that infest and sometimes girdle the stem. Thus, if not killed outright, it is often so injured by the frosts of winter as to present anything but a pleasing appearance the following summer. Hence we seldom see it in its full size and beauty; besides, it is not, like the *S. laurifolia*, at home in sandy, dry situations. In view of this, as also of the fact that I have never known the stems of *S. laurifolia* to be injured by insects, I attempted last summer to bud the one upon the other. The bud of *S. laurifolia* upon the *S. babylonica* lived, and is now growing vigorously; the bud of the *S. babylonica* upon the *S. laurifolia* perished. Doubtless, however, the rule would work both ways, and thus the insect and drought-resisting *S. laurifolia*

could be made the stock of the Weeping Willow, which cannot so well endure drought, and is so often at the mercy of insect depredations."

Thuja Standishi.—By some authorities the species of *Thuja* are limited to three, of which this is one, the other two being both North American, viz., *T. gigantea* and *occidentalis*. The general appearance of this plant reminds one in some respects of the American *Arbor-vita*, yet it bears a still stronger resemblance to the Japanese *Thujopsis dolabrata*. So much indeed does it resemble this latter, that it is quite as frequently met with under the generic name of *Thujopsis* as under that of *Thuja*. It is a free-growing kind, more sparsely branched than *T. occidentalis*, but with stouter and more drooping branchlets than is to be met with in the ordinary form of that species. The colour of the plant when growing is of a pale yellowish green, which during the winter where exposed becomes slightly bronzed. With regard to the leading shoot there is no difficulty, as often happens with *Thujopsis dolabrata*, in getting it to form a leader, as in this kind it is very vigorous. It was introduced by Fortune from Japan, and named in honour of the late Mr. Standish, of Ascot, to whom we owe the distribution of many of Fortune's discoveries.—W.

NOTES.

FLOWERS IN FASHION.—In Paris only five or six weeks ago the ladies were wearing bunches of Tulip buds at their throats, arranged with their own soft, grey leaves. Now I hear the golden blossoms of the Dandelion are imitated and worn; but then in Paris anything is worn—imitations of frogs and toads, lizards with diamond eyes, or death's heads and cross-bones of oxidised metal. They have just had a great flower show in the grounds near the Champs Elysée, at which Orchids, Palms, Azaleas, Roses, and Pæonies were beautifully shown; but Alphonse and Jeanette must have something sensational, and this year the much-talked-of novelty is our old friend the green Rose. It is amusing to read the remarks about this depauperated old variety in the papers; even some of our London journals have fallen into the trap (the *Illustrated London News* to wit!), and speak of this old botanical curiosity as if it were some unheard-of wonder of which horticulturists ought to be very proud! It is often sent to me to name. Mr. Hartland, of Cork, sent it only yesterday, and it has been grown in botanic gardens for years and years. As long as life endures we shall find it full of whims and caprice, I suppose. What flower did Helen of Troy bind in her auburn tresses? or what, if not the buds of Pomegranate, revealed the blue-black intensity of Cleopatra's hair? Who shall tell us which blossom of antiquity is the oldest, the *Nelumbium* of the east or *Sunflower* of the west? These secrets are safely locked in the safe of Time, and one must rest satisfied with the sure and certain knowledge that never since creation were flowers more beautiful or so widely grown and appreciated as they are to-day.

BIRD SONG.—"There are no snakes in Iceland," is a sentence—a whole chapter of a book, indeed—and as such often misquoted. In the original it is as above, but because it is equally true of Ireland, the name of that country is often substituted. One can spare the snakes well enough, graceful though they be, but it is too bad of Nature to deprive Ireland of the nightingale, "that sweet singer of the night, whose lime-light is the moon of summer." I heard nightingales about an old country-house in Sussex last April, where they actually sang me to sleep; and one day in May last year in the Cambridge garden I heard them singing in the sunshine which followed rain. They are quite plentiful everywhere in Southern England, but seem to draw their line

of distribution near the Tweed. The moonlight serenade of this little brown singer is delicious in the cool and stilly night, but even more so as she sings with the thrush or blackbird, and seems to exult in surpassing them in the compass and richness of her melody. The bad, bold blackbird is like an insolent tenor who knows his value, and he takes blackmail in kind for his singing. His motto is, "No supper, no song." He it is who tastes the earliest Strawberry and steals the best of the Cherries from under the gardener's nose, screaming out a defiant note as he jerks up and flops himself over the wall into the nearest plantation. But that sweet *prima-donna*, the nightingale, is as modest as a country maid, taking nothing, asking nothing but shelter for her nest and protection for her little fledglings. She gives right royally, and her power of song often costs her the boon of liberty, which really means loss of life also. I once saw a bloodhound sent after a man who was trapping nightingales. She did not bite the man, but she brought back most of his clothes when the whistle recalled her, and no one was sorry for the bird-thief, although he bawled out very pitifully.

WHITE PINKS.—Soft and white as swan's-down, sweet as spices from the Eastern seas is the first old white-blossomed Pink, opening out fresh and fair thus early in rosy June. It is one of the very best of all our real old cottage garden flowers, and with deep, full-scented Cabbage Roses and a deep fringe of this old Pink you may make a posy not easily surpassed in freshness and in subtle perfume. I remember some old villages in the midlands of England the streets of which were nightly perfumed with these flowers, so that strangers in passing used to ask the source of the fragrance with which the air was overlaid. No garden could well be too full of this flower, which is, as I think, preferable to the new white called Snowball or Mrs. Sinkins—smaller, it is true, but a much more shapely blossom. The faults of Mrs. Sinkins are fatal to a good Pink—it is too heavy and lumpy in shape, and so full of petals, that, as a rule, the tube becomes split, and the petals fall out in a helpless, disorganised-looking way. From Munstead comes a sweet little wiry-stalked Carnation Pink, white and neat, and of which we think very highly. In France market growers often make quite a speciality of these white Pinks; grown in pots they bloom early in April, and are highly appreciated ere the general supply comes in. All the Pinks are so readily increased by pipings or slips, that there is no difficulty in obtaining a good stock of these soft and fragrant flowers of June and July.

OLD BOOKS.—Someone said a bookworm was "a creature who wasted the present in finding out how others had wasted the past;" but we should not like to say that Chaucer or Shakespeare had wasted the time in which they lived, and the same is true of the books of Gerard and of Parkinson, who have told us of the garden flowers of the Elizabethan era. Gardeners are now taking quite an especial interest in these "footprints on the sands of time," and so highly valued are these ponderous old works not only in England, but in America, that whenever copies of them in decent condition are put up at Puttick & Simpson's, or elsewhere in London, our friend Mr. Quarritch either buys them himself, or he makes someone else buy them at their full value. Now that the Royal Horticultural Society have devoted a section of their Liverpool exhibition to horticultural literature, and have made an especial class for such old books as illustrate the history of gardening, it is to be hoped that amateurs will lend their rare works on botany or gardening, so that gardeners and

others interested may see the labours of those older plant lovers who "are not lost, but gone before." Will Canon Ellacombe exhibit those precious old folios which he so generously lent to "Veronica" some time ago? Then, Mr. Wolley Dod has a fine old folio, yecept Clusius, published in 1601, which is valuable as the original work of one of the earliest of all plant collectors or travelling botanists. Will some one send Lyon's interesting work on Orchids, a work written, printed, bound, and published, as I believe, by the author's own hand. England is, of all lands, so rich in the literature of gardening, that it is to be hoped that a really good show of books will be made. What a show the Orchid books alone would make from Lindley, Bateman, and Warner down to the "Reichenbachia!" So also the books on trees and shrubs and those devoted to garden flowers. The publishers should take advantage of the bold advertisement such an exhibition cannot fail to give, since book and buyer would thus be brought together amid congenial surroundings.

DAFFODILS IN JUNE.—It is quite possible to have these flowers forced into bloom in January if well-ripened Italian roots be obtained, even if not with early ripened bulbs of home growth, and by the late planting of such sorts as *N. muticus*, *N. Bernardi*, *N. bicolor*, and *N. grandis*, we may obtain their flowers in June. Only this morning (June 3) Mr. Smith, of Newry, sends me a handful of *N. grandis*, which looks quite strange amongst the Roses, Peonies, and Irises of early summer time. *N. papyraceus*, or Paper-white of the shops, blooms in November if forced, so that by early and late planting, by forcing on the one hand and retarding by late planting on the other, we can make sure of *Narcissi* in bloom for six months at least out of the twelve. Up the Pyrenees *Narcissi* are found in bloom in May and June, and doubtless when these late sorts are more plentiful we shall be able to enjoy their beauty and find our season of *Narcissi* lengthened by their advent. Then we must try and secure some of the wild Italian kinds as seen and referred to recently in these pages by Mr. Engleheart, as they would be most useful for early bloom. With us *N. Regina Margherita* flowered in pots a week earlier than *N. pallidus præcox*; hence I attach much value to these Italian roots as ripened under an Italian sky. The varieties of the *N. poeticus* section, again, are so extremely useful for cutting, that late blooming mountain forms would be very valuable. I was very much interested in the hybrid *N. triandrus*, *N. pseudo-Narcissus*, figured by Mr. Dod at page 505. His drawing shows a long tapering tube, but no ovary or seed vessel. Might I ask if this kind is abnormal or abortive in any way? The old diagnosis of *N. calathinus* would nearly fit Mr. Dod's drawing if the ovary was there; but if the plant he illustrates really has no ovary, it is a curiosity in its way, and the fact or the reverse should be recorded.

VERONICA HULKEANA.—This is a plant which grows upon one year after year, and as seen at its best it is, as a garden plant, one of the best of all the shrubby Veronicas. It is not hardy everywhere. Even at Kew it was formerly grown in a cool house; but in many parts of Devon and Cornwall, in Scilly, in parts of Wales, and in "faire Irelande" (Chaucer), this Veronica of Hulke is really one of the most distinct of all the flowers of spring. Now is the time to increase it by cuttings, or rather by "slips"—i.e., the young shoots, 2 inches to 4 inches in length, are torn off, and are then inserted in a sandy border and covered with a hand-light; in fact, we treat them just as we would the cuttings of Pansies or the pipings of Pinks or Carnations. Two-year-old

plants are best, for at that age the vigour and beauty of the plant seems to focus itself, as it were, and at that age its finest plume-like panicles of lilac flowers are borne. We have eighteen or twenty species of shrubby Veronicas from New Zealand—perhaps more—but none are so effective as is this species. As a garden plant it fulfils a definite want—this is indeed the mission of all things really beautiful—and its special mission is to fill in the gaps at the foot of sunny walls, those unsightly deltas left between wall shrubs of larger growth. What the Wistaria is under the coping, this Veronica may be at the ground line wherever the wall is bare for 2 feet or so. If only a foot is to spare, then there are worse plants than the yellow *Genista sagittalis*.

ERINUS ALPINUS.—In all gardens wherever there are low-topped walls or rockwork, this rosy purple *Erinus* should find a congenial home. In some places it is a miffy plant, but if considered as an annual, or, at most, as a biennial, to begin with, and then you do not forget its fondness for limestone habitats, I think you will not call it ungrateful. With a little true gardening instinct ten pennyweights of the seed of this little alpine weed will go a long way in making the walls of an old garden really enjoyable. A friend of mine, who wanted a rockery, asked me to go and see him to talk over the matter. "The worst of it all is," said he, "we have no good big boulders of which to make the thing." "Well," I said, "which do you want, stones or plants?" Of course, he decided for plants, and so we made a rockery of thin, shaly stones, planted edgewise, in a border of good, deep soil. It is now so covered with *Gentiana acaulis*, *Dianthus*, and *Erinus alpinus*, and with *Onosma* and *Violet Cress* (*Ionopsidium*) and other good things, that the uniformity of the stones on edge is barely noticeable. A wall coping of thin stones placed edgewise and not too closely together, is, as I think, one of the finest of all artificial habitats for rare little Alpine or Pyrenean wildings. A good rockery should hold plenty of soil, but its declivities should be made to secure every drop of the rainfall. There is a story of a rockwork builder who took a friend in the trade to see a *chef d'œuvre* of his creating in a country-house garden. Meantime it had fallen into the hands of a gardener, and the result was both the artists returned disappointed, because the beautiful erection of stones and cement had in the meantime been draped with "beastly creepers!" But even a professional rockwork builder could scarcely object to such a handsome little plant as is the alpine *Erinus* on a crumbling wall.

BIG POPPIES.—These great-bracted and Oriental Poppies seem to strike the highest note of colour in the garden, vivid glowing scarlet varying in tint, but most brilliant as seen in the sunshine, and yet beautiful even if their great blossoms are bowed down by rain. In the Salon this year (No. 2597) there is a brilliant picture of these great red Poppies (*P. bracteatum*) arranged in a purple jar. The canvas is a large one, and a good armful of these sunlit blossoms is well shown. It is by Mdlle. J. R. Villebesseux, and for once gives us a fair idea of this garden Poppy at its best. We can beat the French gardeners in most things, but their flower painters are ahead of our own. Grapes and Roses are really specialties in France, but English cultivators have grown finer Grapes and more beautiful Roses time after time. But I am not aware of any English painter of fruit who could compete with Kreyder, or of any flower painters who can outdo Fantin or Leclaire. The best plan with these great fiery Poppies is to raise a few every year from seed. This year we are trying to cross them with other kinds, in

order to obtain a wider range of colour, if such may be. Already, simple seeding has given us a scale, beginning at apricot-buff and extending to a deep blood-crimson. In deep rich warm soils a group of these Poppies, contrasted with white Peonies, Iris florentina, or Asphodels, forms a picture not easily forgotten. Whenever a fine variety is obtained it may be as well to remember that division is a sure and certain method of increase. Every bit of root will grow; hence there is no difficulty in keeping up a stock of these glowing flowers.

RUBUS NUTKANUS.—This dwarf, large-leaved Bramble is now in blossom, bearing snow-white flowers as big as those of *Rosa arvensis*, and they form a good contrast to those of *R. odoratus*, which are of a bright rose-purple hue. Both species grow well in partial shade, and are well worthy of being included amongst a selection of the best deciduous shrubs. A good breadth of *R. nutkanus* in a woodland walk or in a shrubbery border comes on one in the shape of a pleasant surprise, and as it is a plant easily increased, one may soon get up a stock of it for such purposes. Every bit of thick root will grow, besides which both this plant and *R. odoratus* throw up suckers or underground growths in plenty when well established in almost any kind of soil. Both these plants are worth introducing into plantations and outlying shrubbery belts or borders, as even when out of flower their leafage is bright in tone and distinct in form from spring, when it appears, until it falls in autumn. Just now quite small tufts of *R. nutkanus* are very beautiful, its light green leafage being thickly studded with the large white Rose-like flowers. The double form of *R. roseifolius* is quite hardy on some soils, but if only one species is to be selected, let it be *R. deliciosus*, or this nearly as beautiful *R. nutkanus*, since both are sure to be found worthy of the space accorded to them in a half-shady place.

CYPRIPEDIUMS.—An amateur fond of Orchids might do worse than form a complete collection of *Cypripediums*, as it is a genus which would afford him interest for some time to come. Then if while growing them he would have the species and varieties carefully drawn and described, we might some day hope for a monograph or life history of these curious flowers. Amongst those now in bloom, *C. Veitchianum* (*C. superbiens*) is very beautiful in intricate markings. *C. barbatum* Warneri, is one of the very choicest of all the forms of that type, and *C. Dominii* and *C. Sedeni* possess the merit of being nearly always in flower. *C. Lawrenceanum* is also bold and effective, and almost worth growing for its well marked foliage alone. The new *C. Sanderianum* is very curious, its petals resembling the sepals of some South American *Masdevallias*. I do not remember if the use or object of the pouch of these flowers has yet been discovered, but the long tails to the flowers are pretty generally believed to serve as ladders, up which creeping insects may ascend to the flowers, their visits being, it is supposed, conducive to cross-fertilisation. Nearly all the species are of easy culture, especially the tropical kinds, but this much is not quite applicable to some of the hardier sorts. *C. guttatum* and *C. macranthum* are both a little capricious, while *C. japonicum* seems perfectly unmanageable, and the same remark applies to *C. irapeanum*, the beautiful golden Mocassin flower of Mexico. The experience of any grower who has succeeded with any of the last named kinds would be very acceptable.

THE GARDEN GATE.—The entrance to the garden is a matter of some moment, and should be at least a pleasant "going in," even if not a strictly beautiful one. In old days the garden

gate was more thought of than now. Even in the case of cottage gardens this much is quite evident, some of the old entrances of rough timber work, or masonry, embowered with Roses or Honeysuckle still remaining to emphasise the fact. The entrance to the garden should be something more agreeable and distinctive than a mere hole in the wall, and the result is easily obtained by turning an arch of rough stones over the door, or gate, and elevating the wall above; or some importance may be given to the wall above the gate by a suitable coping of tiles or stonework. A light iron-work gate is sometimes preferable to a solid door, or a panel of hammered iron may be let into the upper half of an oaken door with good effect. It is often a matter of some interest to know the age of a garden, and when this is known it may be engraved, simply and boldly, on a stone, and let in over the gate or door, or a dial may take its place if the aspect be suitable. The modern idea of a gilt-faced clock over the stables scarcely compensates one for the loss of the old-fashioned sun-dials which our great grandfathers affixed to the sunny gables of their houses in the days when good, sound building was the rule. At the garden gate one should get a foretaste of what is to come; it may be wreathed with Ivy, with Clematis, Honeysuckle, Roses, Wistaria or Vine, and as so enriched it may be one of the most beautifully suggestive features of even the best of country houses.

VERBASCUM OLYMPICUM.—A stately habited biennial plant, forming a tuft of hoary leaves the first year, and during the second throwing up a tall, many-branched stem of yellow blossoms. It is very easily reared from seeds gathered and sown as soon as ripe in the open air. When well grown, the leaves are 2 feet to 3 feet in length and 6 inches or more in width, of a soft, velvety, or fustian-like texture, and the big rosettes of thirty or forty of such leaves are very effective either isolated or grouped in beds or on the Grass. So far as I know, this is the largest and most distinct of all the Mullein plants and quite as useful, medicinally, as the common native variety. Wherever large-leaved plants of distinct and noble port are appreciated, this Greek plant should be grown. I saw it in the Jardin des Plantes a few weeks ago, planted in the Grass, where its great hoary leaves showed themselves to the best advantage. We find the leaves to colour best in dry poor soil, or in soil to which a good proportion of lime rubbish has been added. In very rich or highly manured soils the leaves grow sappy and of a sage-green tint, but they are quite silvery on dry sunny banks among lime rubbish or on a rockery among stones.

TAKING NOTES.—I always recommend young gardeners to follow a plan which I have pursued for many years, viz., the careful noting down in a pocket-book of all things noteworthy in the garden. Even now I find my old pocket-books full of notes, diagrams, and rough sketches extremely useful for reference from time to time. I am less of a believer in genius or talent, or in innate cleverness, than I am in quiet plodding industry. Genius is the hare which lost, and industry is the tortoise which won the race, and it is a lesson young gardeners would do well to remember. Ah! but, says my old friend Quibbler, genius includes everything of which industry is only a part! All I can reply is, that I have known men who could have done anything, in a month let us say, but who for the life of them could not get beyond three weeks, and so within sight of the winning post they continually broke down! A steady system of taking notes is of the utmost help to a gardener, and to a young one particularly. There have been great men who never made any memoranda, except

mental ones. The late Mr. Thomas Brassey was a case in point, and in Help's biography of him he deprecates the system of making notes; but circumstances alter cases. Mr. Brassey was a director who had good assistants under him. He decided on the evidence they placed before him, but notes were taken very extensively and accurately by his surveyors and assistants, even if not by Mr. Brassey's own hand. In the garden, without a doubt the note-book is of the utmost value, and some of the most successful of all gardeners are those who take notes of the origin and progress of everything under their care. Employers soon gain confidence in such men, which is a very important thing—indeed, one of the most important of all the blessings which a gardener can enjoy.

BRIDAL LILIES.—I should like to suggest this as a short and pretty name for the plants which we call *Pancratiums* or *Hymenocallis* now-a-days in the garden. *Hymenocallis macrostephana* is the Latin name for one of the most sweet and beautiful of all stove bulbs just now in bloom. It is both fragrant and graceful in form, but the name is a stumbling-block to many. If any objection be offered to the above as a popular name, it should be accompanied by a more euphonious and appropriate one. There is another point in connection with this plant—a cultural one—as to which information is desirable. It grows and blooms here pretty well year after year; but soon after the young leaves push out they become brown at the edges and at the tips, and so not only do they look unsightly, but the bulbs are of course so much the weaker in consequence of this loss of leaf surface. As this disfigurement occurs in *Hymenocallis*, as grown side by side with *Eucharis* and the old *Pancratium speciosum*, both of which have healthy leafage, I am rather puzzled to know what is wrong. Other growers have also complained of this tendency to lose leaves in the way above described. As seen at their best, there are but few, if any, other stove bulbs which can compete with these, so that one is all the more anxious for their welfare.

IXIAS AND SPARAXIS.—On bright, warm days in June there is a spangled brilliancy about these flowers from the Cape which is distinct from anything else I know. Last autumn we made a narrow border in front of a flue-heated plant house. It is but little over a foot in width; the soil is light and sandy, well enriched with decomposed leaf-mould, and the aspect is nearly due south. We made a mistake in putting in the bulbs too early, so they started into growth too soon, and the tips of their leaves were browned by the frosts of winter and spring. December would be quite early enough to plant, and they should be at least 6 inches below the surface of the soil. If the bulbs are well ripened and taken up immediately after the leaves die down, there is no great difficulty in growing these lovely flowers. In hot, dry, sandy soils near the shelter of sunny walls they succeed best, and afford flowers for cutting in profusion of all shades of colour. Some of the *Sparaxis* are even more easily grown. One variety we have had outside on an ordinary border for several years. It is called *Angelique*, and is white with a sulphur throat or centre to the flower, and altogether reminds one of a *Freesia*, being very lovely in the sunshine. Wherever coarse sea sand or shingle free from salt can be obtained, it suits these bulbs well if mixed liberally with the soil. A better effect is obtained and these flowers are more readily managed if they are massed together. Planted late in a well-drained trench near a wall having a southern exposure, they are sure to bloom well the first year at least, and if

taken up at the end of June or July and kept dry until December, the chances are that they will continue to do well afterwards.

VERONICA.

FLOWER GARDEN.

FLORISTS' WORK FOR JUNE.

AURICULAS.—During the last two or three years we have repotted our Auriculas at two periods, viz., May and July. Those repotted in May are now well established in frames behind a north wall. Sometimes green fly will attack them and do considerable harm unless speedily removed, either by brushing it off with a small brush or fumigating the frames in which the plants are with Tobacco smoke. The latter is the most effectual remedy. The plants not repotted are now ripening seeds in a house specially set apart for flowering them in. They do not require a very large supply of water at the roots, but they like plenty of fresh air; therefore, keep the lights open night and day. At this season small seedling plants must be potted on as they require more room; most of the seeds will now have vegetated, and the plants produced thereby will grow rapidly if kept clean and carefully supplied with rain-water at the roots; do not water too freely overhead.

CARNATIONS AND PICOTEEES.—The lateness or earliness of the season is generally clearly indicated by the growth of these in pots. In ordinary seasons it is necessary to take the plants out of the frames and place sticks to them during the last days of April or the first week in May; this year they needed no attention until the 24th of May; Carnations are therefore three or four weeks later than usual. The ordinary time for Carnations to be in full bloom near London is the 20th of July, but owing to the lateness of the last few seasons the flowers have been a week or ten days later than that date. We have about 500 seedlings planted out, and they are now growing with great vigour, and each plant promises to produce at least a hundred blooms. The whole of these withstood the winter without a single casualty; whereas the named varieties from which the seeds were saved have in many cases succumbed to the spring frosts. We had, indeed, a hundred plants out in store-pots, and all but a dozen killed, and those remaining are greatly crippled. Our whole collection of plants in pots now occupies an open situation out of doors. They are set on a hard bottom of ashes. Cultivators should look over their plants daily in order to destroy any grubs or caterpillars that may be eating the flower-buds; a little Tobacco powder may be dusted on any parts on which green fly happens to be clustering. We sow annually a small portion of Carnation and Picotee seeds about the first week in April; from these we get some fine plants, and these we prick out into shallow boxes about this time, preparatory to being planted in beds of rich soil. They ought to be set 18 inches apart, and should be planted out by the third week in June, as that gives them ample time to get thoroughly established before winter; such plants are never injured by frost or wet, i.e., if the ground is well drained.

DAHLIAS should not be planted out until the month of June. They may be sometimes planted in May, but not in such a season as this. I like to put them into 6-inch pots in April, and in that size they may stand until the middle of June, if need be; by that time the weather will be sufficiently favourable to allow them to be planted out without any check to their growth. They should be sufficiently moist at the roots before they are turned out, and they should have some well-prepared light compost placed immediately around the roots. I like to put the stakes to which they are to be tied into the ground before planting them out. See also that they are clean and well inured to the open air.

GLADIOLI are now all above ground, and after the recent heavy rains the surface soil will be caked and impervious to air; therefore run the

Dutch hoe through it, and, as we may yet expect dry, hot weather, a mulching of decayed manure spread lightly over the surface will prevent evaporation to a considerable extent, and at the same time keep the particles of soil from again becoming battered firmly together by heavy rainfalls. Some vigorous growths may be produced in a slanting direction; these must be made straight by gradually drawing them up and fastening them to some support.

PANSIES are now flowering freely; but in that case the plants were wintered in cold frames in boxes. Pansy beds are also much benefited by being surface-dressed either with rich compost consisting of half manure and loam or leaf-mould and manure. See that there are no wireworms in the loam, as these pests are as destructive in a Pansy bed as they are amongst Carnations and Pinks.

TULIPS have been very gay this year, and the flowers perfect until a heavy rainfall of $1\frac{1}{2}$ inches in twenty-four hours played sad havoc amongst their gaily-tinted blooms. Few flowers can compare with Tulips in richness of colouring or delicacy of pencilling. I refer especially to flamed and feathered varieties, such as the rich gold-feathered and flamed crimson-red and maroon bizzarres, of which Commander, or the flamed and feathered George Hayward, the rich yellow and black-feathered Masterpiece, or the red and gold Dr. Hardy or Everard's Bowler are examples. In the byblomen section there is the same charming variety. The best we had this year were Bessie, maroon and white; Mrs. Jackson, with a black feather on a pure white ground; David Jackson, Talisman, and some others. Then there are the lovely Roses, amongst which, a perfect empress was the old Heroine, rich deep rose and purest white; Lady Sefton, Mrs. Lomax, Charmer, Pretty Jane, and last, but not least, Industry, the colour of which is almost scarlet laid on the purest white. We would like to cover the bed in order to afford them shelter from sun and rain, but it is not convenient to do so. The seed-pods are all picked off, and in ten days the bulbs will be taken up and stored until planting time comes round in November.

THE RANUNCULUS bed was not planted until two months past the usual time, owing to late frosts and snow. The roots had, on that account, become shrivelled very much indeed; but they were planted early in April, and they have certainly done remarkably well. They evidently like a wet season, as, since the recent rains have come, the growth has been most satisfactory. We mix with the soil a portion of sandy peat, which keeps it free and open; even after the occurrence of rain the surface is quite loose. A few weeds have been picked out and the surface lightly stirred, and we will also surface-dress with short decayed manure. The Ranunculus thrives well in cow manure, but it must be free from maggots, and well decayed. Our Ranunculus bed will not be in full bloom this year until quite the end of June.

CHRYSANTHEMUMS.—These will need attention this month. Repotting must be finished at once. For specimen Pompones use $8\frac{1}{2}$ -inch pots, and for large flowering varieties 11-inch. The shoots should not be stopped after June is out, and the foundations must be laid upon which to train well-formed and natural-looking specimens. The great fault of even the best cultivators is over-training, and as a result unnatural dwarfness; the shoots are bent and twisted one over each other until the plants resemble in form the face of a large old-fashioned watch. Three modes of training are followed, viz., the watch-face, the pyramidal, and the standard, to none of which do the plants take naturally. If a plant possesses a tall branching habit, there is no merit in showing it as a dwarf; rather the reverse. The greatest merit consists in growing the plants in the shape of a bush, with the shoots well furnished with leaves to the base, and tipped with large well-formed flowers. Plants intended to produce large blooms must also have attention.

If not already done, they ought to be potted at once—single plants into an $8\frac{1}{2}$ -inch pot, two into a 10-inch, or three into an 11-inch or 12-inch one. They require rather rich compost. Bones ground down to powder and fish manure both help to stimulate growth; one part of decayed manure should be added to three of good loam. Manure water ought not to be applied to the roots until the buds are formed.

J. DOUGLAS.

Petunias in the flower garden.—Petunias, especially single-flowering kinds, which can easily be raised from seed every spring like other annuals, are very showy when in full bloom, but they are the most easily injured of all flowers by the weather. A few hours' rain or wind will blemish them beyond recognition, and it will take them a long time to regain their beauty and freshness. Indeed, a bed of Petunias once tarnished never becomes so pretty again. If constant pegging down is not resorted to, the shoots are soon broken, and, worst of all, they do not produce a display during the whole season. If the plants happen to be at their best in July they will not be worth looking at in September, and at their best they will not be really gay for more than four or five weeks. Those, therefore, who wish their beds and borders to be full of flowers from June to November must not plant Petunias. —CAMBERIAN.

Phacelia campanularia.—This is one of Dr. Asa Gray's hardy annuals, introduced by Mr. Thompson, of Ipswich. Lovers of really blue flowers will be glad to learn that this is a lovely plant, and a valuable addition to flowers of that favourite colour. In habit plants of it bear some resemblance to *Whitlavia grandiflora*. My plants on a south border, raised from seed sown early in the spring, are now blooming, although not more than 3 inches in height. The leaves are somewhat heavily veined and bear no inconsiderable resemblance to *Begonia* leaves, but are, of course, smaller. The flowers are cup-shaped, about the size of *Nemophila insignis*, but the edges of the petals are slightly reflexed. In colour they are as intense a blue as that of *Salvia patens*. Therefore, this plant gives us in the form of a thoroughly hardy annual a gloriously rich colour, and one far too rare amongst annuals. No doubt it will come much finer if sown in rich soil than it is with me. The seed is rather small, and should be sown thinly in very shallow drills to enable cleansing to be done. I shall endeavour to grow some from seed in pots next autumn and preserve them through the winter. Its willingness to bloom in spring leads one to infer that it will be useful for spring gardening.—A. D.

Home-grown v. imported flower-roots.—It is the fashion now-a-days to look on imported roots of all kinds as being superior to those of home growth, but during the last few years I have frequently seen such grand examples of home-grown Lilies of the Valley and other roots of a similar kind, that my liking for those of foreign growth has somewhat diminished. I see, indeed, no reason why we should not be able to supply our own wants with very many things for which we have been in the habit of looking to foreigners. Norfolk is celebrated for its home-grown Valley Lilies; therefore, why should the warmer counties of the south be less successful? The demand for flowers is still on the increase, but in order to compete successfully with all comers, cheaper methods of production must be the rule, and to those who are looking about for an opening in the flower-root trade I would commend the production of Valley Lilies, that can be brought to the greatest perfection in this country.—J. G., Hants.

Papaver bracteatum.—I have a big clump, consisting of perhaps twenty or more strong plants of this Poppy, nearly all varying slightly in form of growth, or of leafage, or size and hue of the flowers, yet all true enough. Whilst some flowers are orange-scarlet, others approach the deep crimson-red hue of *P. umbrosum*. It would seem as if *P. orientale* were a product of these two

kinds, but I do not know whether they would cross and produce seeds. As *P. bracteatum* can be so easily obtained from seed, I am surprised that such a grand border flower is not found in every garden where space can be had for it. It is a fine companion plant to the Pæonies, and much more easily and cheaply raised. Blooms measuring 9 inches across the petals must be effective. I sow the seed of this Poppy under glass both early in spring and soon after the seed is ripe in summer. When up, the young plants are dibbled out into a nursery bed, where they remain until strong enough to bed out for blooming. Very probably the seed would germinate also readily enough in the open ground; but as I do not raise a large quantity of plants, I find a shallow pan or box to hold ample seed for my purpose, and growth in this way is both quick and sure.—A. D.

CEMETERY GARDENING.

In an admirable essay read before the Massachusetts Horticultural Society, Mr. J. G. Barker gave his views as to cemetery gardening, which may be briefly summed up as follows:—

1. There should be perfect security and permanence in the title and against intrusion.
2. Insuring peaceful quiet and perfect repose to all who may be brought within the sacred limits.
3. The landscape should embrace a diversified surface of land and water.
4. The area should be covered with green turf in broad stretches.
5. Shaded by umbrageous trees, singly distributed at intervals or in open groups.
6. And reaching on either side to masses of foliage of different hues, deciduous or evergreen, according to the situation. The outside boundaries should be concealed by these, and at the same time, from various commanding eminences, open and unobstructed vistas across the demesne and to distant objects of interest should be carefully preserved.
7. Easy access to all parts of the ground should be provided by smooth hard roads and paths, kept in perfect order.
8. Above all, we should enjoin severe simplicity and strictly good taste in the decoration of the graves and the mementoes offered to the dead.
9. In the modern rural cemetery we want no selfish repellent and obtrusive fences as enclosures to our lots, ever decaying and ever reminding us of the egotistical claims and pretensions of individuals in this common meeting place of rich and poor, where all of us, from the highest to the lowest, are at last reduced to a common level and to a condition in which there is and should be no respect of persons.

10. Lastly, and in connection with the sentiments already presented, as appropriate accompaniments and conditions of the sacred precincts of the cemetery, let us carefully avoid another great danger that is incurred in our desire to pay due respect to the memory of our dead; let us avoid making such a sacred spot appear to be only one vast advertisement of the stonemason's thriving trade. Instead of the constant repetition of granite and marble, shaft and obelisk, or pretentious mausoleum or cenotaph, some will prefer a mass of native rock, partially faced, it may be, for an inscription. Others, again, will prefer to mark "the spot most dear of all the earth beside" by planting a memorial tree to indicate the last resting place of their dear departed friends.—*Gardener's Monthly*.

Funeral wreaths.—I am glad to be able to agree heartily with "Veronica" on the subject of floral wreaths and crosses at funerals. A custom overdone often brings its own condemnation. A few flowers or even sprigs of foliage upon the coffin is quite a different matter, and should be encouraged. Not only should the floral offering be emblematic, but its bestowal should be purely personal. Of course, all could not give from their own gardens, as too many have neither gardens

nor flowers, but in most cases a mere handful is not difficult to obtain, and if only by purchase, then be it so. A modern reformed funeral devoid of the now stereotyped wreaths and crosses would hardly lack sweetness or picturesqueness did each one present carry a little bunch of something leafy or floral to cast as an offering upon the coffin of the departed. Casting flowers upon the coffin, even though they be presently buried, is more desirable than leaving wreaths and crosses upon the grave to wither and decay. Planting growing plants that will produce beautiful flowers upon graves is a pleasant custom and one that cannot be too strongly advocated. Tending them is a labour of love; they are always emblematic of the "hope which springs eternal in the human breast," and they enliven with their sweetness and beauty the habitation of the dead.—A. D.

NOTES ON HARDY PLANTS.

Arenaria purpurascens.—Respecting this there is often much disappointment. The colour of its flowers scarcely comes up to one's expectation. There is certainly a trace of purple in them, but it is very faint. I have, however, seen better coloured flowers in other gardens, though on plants, if I am not mistaken, from the same stock as my own. If that were so, it is clear that the colour of the flowers varies according to cultural conditions.

Haberlea rhodopensis.—I have a small plant of this now beautifully in flower, and truly lovely it is. By the side of it the various *Ramondias* are positively coarse looking, and, compared with them, it is a quick grower and not at all so particular as to soil or position. It seems to make itself perfectly at home in a potful of peaty soil, stood or plunged in Cocoa-nut fibre and placed in a west, east, or even north aspect, in all of which, however, it should never want for moisture. It seems grateful for a thickish top-dressing of Cocoa-nut fibre in a decomposing state, which keeps it both cool and moist. Under these conditions the plant now in flower has been placed, and it has also been the parent of some two dozen other plants during the past two years. The prevailing tint of the flowers is pale lavender.

Gentiana acaulis.—Though common, this is one of the most beautiful of all *Gentians*, and one which, when raised from seed, varies considerably. This, too, it does in its wild home. These variations have such distinctive features as shortness of the tube, a less sized flower than the type, and wider at the end of the bell; as regards colour, too, the distinctions are even more remarkable. One I have is more intensely blue than the type, and perhaps a little larger and broader at the mouth of the bell. The pale, almost sky-blue, varieties are, however, the most striking. The midrib of each division of the corolla is beautifully spotted on a pale green ground, and this shade is slightly varied in all my seedlings. Another distinction is that of leaf colour and size. The paler flowered plants have very pale foliage and less in size than that of the type. The plants to which I refer were raised from a broadcast sowing of imported seed, and there can, I think, be little doubt that they represent to some extent the varieties seen by those who go to see this *Gentian* in its native habitat.

Double-flowered Saxifraga granulata.—Common as this *Saxifrage* is, it is always greatly admired, but it can hardly be said to be a plant perfectly capable of taking care of itself in all gardens. In some districts, especially on lime, it increases like a weed, but in others where it is not so satisfactory it need not give much trouble if looked to at the proper time. As soon as the leaves have turned brown take up the granules and gently shake them in a little dry sharp sand, leaving them in it for three or four days in a dry and sunny situation. They may then be sown about 2 inches deep in light soil with little fear as to the results. Thus treated, the points which one seems to gain are those of drying off or ripen-

ing the little tubers, the freeing of them from ground pests, and the securing for them a change of soil. All this is not absolutely needful even in gardens in which it does not naturally thrive, but what I can say from experience is, that when so treated it produces magnificent flowers on very strong stems.

Dr. Stewart's Aquilegia.—Not only can I verify all that has been said as to the beauty of this hybrid, but I may add that it is a fortnight earlier than any other *Aquilegia* in my garden. This is important, not only because it thus secures for itself an immunity from cross-fertilisation, but it practically lengthens the *Aquilegia* season by a fortnight, and that by a lovely form. Some seedlings kindly sent me by Dr. Stewart have proved to be robust growers, and in their second year's growth about half of them have flowered. It is practically a form of the big-flowered *A. glandulosa*, and, like that species, produces its flowers very sparingly; they are, however, most effective and very persistent.

Anemone palmata.—This seems happier nowhere than in little pots. Plants of it grown singly when established two years show their radical leaves, involucre, and rich tawny yellow scapes to perfection. The sepals of this flower are so glistening and so closely set, that they differ very much from those of other yellow species of the same order, and which are rather too Buttercup-like in effect. The fine finish and shape of this *Anemone* are its distinguishing points. When grown in pots they should be kept out of doors, but plunged in sand, ashes, or some such material. If this is not done, the delicate roots of this plant can have no chance whatever. It may seem an undesirable way to cultivate a hardy plant compared with that of placing it on open rockwork or in a border, and I do not wish to say that it may not be grown as well and even better so than in pots; but the chief recommendation of pot cultivation is that it can be so grown in perfect character, and its beauty can be better examined than when planted out. On rockwork it likes sunshine, provided there are also a deep rich loam and plenty of moisture.

Primula Rusbyi.—This is in flower with me for the first time, and although I grow about ninety species and distinct varieties, were I compelled to grow but half-a-dozen I would choose this for one of them. The plant itself has an erect habit and a longish leaf sharply toothed; the scape is somewhat slender compared with the size of the foliage and mealy near the top, the meal or farina becoming thicker as it nears the calices. The flowers, which are sweet-scented, are bright purplish red of a peculiar hue, and have a distinct yellow eye encircled with darker purple. Some half-dozen plants of it have been tested as to their hardiness—one or two in the open, the remainder in a cold frame, which has always had air left on it. Those in the frame were several times frozen solid in their pots, and I therefore assume that those, equally with the others in the open, can stand very low temperatures. There is yet the question of moisture to be settled, and I am of opinion that the drier-kept plants in the frame broke into growth with greater vigour than the others.

Gentiana verna.—After another year's observation, I am more than ever convinced that, in order to get this plant established in broad healthy groups, we should allow flowering plants of it to seed and self-sow themselves, at first preparing a bit of suitable soil around the parent plant, and afterwards keeping the space clear of other plants. Where these conditions have been provided, or have occurred accidentally, I find stout seedlings springing up by the score, and in every way more satisfactory than introduced plants. The sort of soil in which the seed seems to germinate most freely is that composed of half-decayed leaf mould, loam and sandstone grit. This mixture seems capable of holding plenty of moisture, and it never gets hard. It cannot be said that these conditions are difficult to imitate, but even if they were, I find that seed of this *Gentian*

grows freely otherwise, provided it is not disturbed and the surface is kept clear of other plants. For instance, where this *Gentian* flowered near some pots of *Trientalis europæa* and *Saxifraga Macnabiana*, *Gentian* seedlings are now growing apace in their pots.

Mimulus cupreus is another common and quick-growing plant as effective as it is beautiful, and which in any position, except a dry one, may be relied on to produce hundreds of fine red, almost crimson, flowers. It is a rapid grower, as has just been stated, and if that be taken into account when a position is allotted to it, both bright foliage and brilliant flowers will be the result.

Anemone vernalis.—Many find this beautiful little spring *Windflower* somewhat difficult to establish; with the utmost care I have always lost a considerable percentage of both offsets and seedlings by transplantation. Latterly I have thought that we set them too deeply, for the leaf-stalks at their junction with the collar have been fleshy and also broad, each almost clasping the plant, and as the leaves are naturally persistent, it seemed that they should not be so deep in the soil as to be prematurely rotted. Moreover, strong plants in the open get well above the surface and show a somewhat woody stem. In addition to these premises, I may add that my recent experience has rather favoured these views, for I obtain better results by exposing a little root than allowing the green parts to dip into the soil.

Lychnis alpina var. lapponica.—This is, at present, one of the most brilliantly flowered and effective of alpine. It differs from the type in having more foliage and in being altogether stronger in growth. The flowers, too, are borne in larger clusters and on taller stems. A plant only 3 inches or 4 inches across may often be seen with a spreading set of flower-stems, numbering from five to eight and not more than as many inches high. Few plants are better adapted for rockwork than this is or for somewhat off-handed treatment, because it not only endures, but flourishes in a dry situation; it is all the better, however, for a rich soil, and if it is one that will not bake, little trouble will be experienced, for self-sown seedlings will appear all round the parent plant. This is more important than may at first appear, because there is something of a biennial character about the variety, and it is not so readily propagated by division as some plants are.

Asarum europæum, or the old Asarabacca, is a plant which ought to receive more attention than it gets. It will grow anywhere and withstand the roughest of treatment, and, notwithstanding that it will favour us with its bright shining dark green foliage all the year round; this, in itself, is valuable, Evergreens having a rich and warm effect in winter; but when we take into account the remarkably neat habit of this *Asarum*, we may find hundreds of uses for it to which less beautiful plants are often put; for instance, as an edging plant to a shady walk I know nothing to equal it. It is prettier than Ivy and does not give half the trouble. Even in exposed positions it behaves well, whilst as a rock plant for filling in between large stones in quantity no neater subject could be had. So characteristic is the foliage of this plant, that we can well afford to forego its curiously dusky and hidden flowers. In order to get a quantity of it for either of the purposes suggested, it is only needful to sow the seed broadcast on a bed of vegetable mould and keep it free from weeds, or where a few large pieces exist they may be taken up, divided, and replanted late in the summer, and by the following spring they will begin to be effective.

J. W.

Solomon's Seal scented.—My clumps of this are always beautifully scented, and I was not aware that there was anything unusual about the fact. It is not the effect of peat in my case, as it is growing in rather heavy moist soil on a north border among double *Marsh Marigolds*, yellow *Water Flags*, *Forget-me-nots*, double

Meadow Saxifrage, Cardamines, Primroses, and similar vegetation. Each stem of the Solomon's Seal, of which there are about fourteen, measures nearly a yard from the ground to the tip, so that I think the variety is that known as *Polygonatum multiflorum majus*. Still, a smaller variety which I once had bore flowers with just the same scent. T. J. W.

—This, which I will assume to be the same as that referred to by "D. T. F." (p. 530), has been sent to me by my friend Dr. Browne. I cannot say what it may be, but it surely cannot be even a variety of Solomon's Seal, from which it differs in every way. In the first place, the height of my specimen is but 8 inches. The flowers, which are nearly all solitary, are produced from the leaf-axils, and very short in the stalk. They are as large as those on the common Solomon's Seal, but whiter and more inflated. They are prettily striped and tipped with glaucous green similar to that of the foliage. Their fragrance, which is delightful, is in the way of that of the Lily of the Valley. The leaves are nearly oval, the largest being scarcely 2 inches long, evenly arranged all the length of the plant, and the stems slightly arch.—J. W.

Aquilegia glandulosa.—This is, in my estimation, the queen of Columbines, and it is also the earliest. The flowers are pale blue and white and the spurs long and handsome. Whilst so many of the later *Aquilegias* reach a height of 30 inches, and in good soils even more, *glandulosa* is content to bloom exquisitely at a height of 18 inches. A neighbour who saw this Columbine for the first time is anxious to learn whether it would answer for pot culture; but although I cannot fully enlighten him, I have no doubt whatever that it would do well so treated. I know that in a cool house planted out it is singularly beautiful.—A. D.

Aralia Sieboldi.—This and also its variegated variety are plants that thrive under conditions that would prove fatal to most plants. Their only fault is getting leggy, owing to their liability to lose their lower leaves. No plant grown is, however, more readily rejuvenated than this *Aralia*, and as soon as it gets unsightly we cut it down close to the ground, put the tops in as cuttings, and treat the old stumps as we would *Pelargoniums* when cut down, viz., keep them rather dry until fresh shoots are produced. The roots are then shaken out and repotted in quite small pots, and in a short time good dwarf plants are the result. If it is desired to greatly increase the stock, the stems may be cut up into lengths and plunged in the soil. They soon strike root in a brisk heat, and make pretty plants in one season. I may add, too, that old plants seed freely under glass; I have now a fine lot of seedlings from home-saved seed, but out of doors, although this *Aralia* flowers freely, it does so too late to perfect seed.—J. G. H.

SHORT NOTES.—FLOWER.

Lily of the Valley—I have a bed of this eight years old, full of leaf, but the plants do not flower freely; what ought to be done to make them flower well next year?—GRASSEDALE.

* Go over the bed now and pull up the weakest of the growths where crowded; then give the bed a thorough soaking of liquid manure, and let the foliage and crowns be exposed to the sun throughout the summer. Thus treated, the plants will soon improve and flower freely. It is a mistake to have beds of Valley Lilies too full of leaves, and it is very important that the growths be exposed to the sun, more especially in autumn.—J. MERR.

Myosotis dissitiflora splendens.—This is very superior to the type, a remark which also applies to *Silene rubra compacta*; the latter is exceedingly handsome and not more than 2½ inches high. It is truly named *compacta*. In order to keep a stock of it true, seeds should be saved only from the best plants, as there are sure to be a few stragglers. Irises and Peonies are both now very beautiful; Plantain Lilies are also in flower, and are very useful in a cottage.—W. A. COOK.

Silvery-leaved plants. Will you kindly name the best silvery-leaved hardy winter bedding plants that retain their colour, and do not grow more than about 1 foot high?—SUN-CREATOR.

* *Santolina tomentosa*, *Veronica incana*, *Stachys lanata*, *Geranium tomentosum* and Silver variegated Thyme will doubtless answer your purpose.—EPH.

GARDEN FLORA.

PLATE 548.

HARDY AZALEAS.

(WITH A PLATE OF TWO NEW VARIETIES.*)

AT this season many a garden is lit up with the brilliant tints of that invaluable class of shrubs popularly known as American plants. Commonest among these is undoubtedly the *Rhododendron*, a grand evergreen shrub. Then comes the *Azalea*, which, though it lacks the noble growth which characterises the *Rhododendron*, is certainly not behind it in point of beauty; many, indeed, think it matchless among flowering shrubs, the colours of its flowers being so varied and striking, and owing to the branches being arranged in tabulated tiers and held out horizontally in a charming way the blossoms are set off to good advantage. In order to see hardy *Azaleas* in their fullest beauty one must visit old gardens or nurseries where they have been planted two or three generations ago; they are not remarkable for rapid growth, and do not assume their peculiar habit or contour until they are many years of age. In such gardens as those at Coolhurst, Belvoir, and Highclere, and in the famous Surrey nurseries, *Azaleas* may be found which for size and beauty would astonish those who have not seen these shrubs in their best state. To assert, as some do, that the *Azalea* is a neglected shrub is perhaps incorrect, but it is



Azalea nudiflora

not nearly so commonly planted as the *Rhododendron*. Yet this cannot be because it is difficult to grow. On the contrary, there is scarcely a soil in which hardy *Azaleas* will not thrive, although, as a matter of course, they delight most in a sandy peat such as that in which *Rhododendrons* luxuriate.

THE HISTORY of the hardy *Azaleas* in English gardens dates back as far as 1734, in which year the three American species which have been chiefly instrumental in producing the present race of hybrids were introduced presumably by one Peter Collinson, to whom we are indebted for the first introduction of so many American trees and shrubs. These three species were *A. nudiflora*, *A. viscosa*, and *A. calendulacea*, all very beautiful and very prone to variation in their wild state. These species bore scarlet, white, pink, red, and variegated flowers; in short, every shade of *Azalea* colour except yellow, and it was not till the introduction of the Pontic *Azalea*, *A. pontica*, or *Rhododendron flavum*, as it is also called, in 1793, that yellow was infused into *Azaleas*. It is not a little singular that while the home of *A. pontica* is, as it were, near at hand, the species from across the Atlantic were introduced sixty years earlier. With such material at command and a natural propensity in the plants themselves to intercross, hybridists had a good starting-point; consequently, in a comparatively short time there were hundreds of

hybrid varieties of *Azalea* in English gardens. When the present century was still in its teens large numbers of sorts were raised and sold at the celebrated Hammersmith nurseries of Lee and Kennedy, who were the first, so Loudon says, to produce them in this country. Afterwards *Azalea* raising and growing was taken up by Messrs. Osborn, of Fulham, where, till within a few years ago, there were bushes of *Azalea* a hundred years old, and by the Messrs. Waterer, of Knap Hill and Bagshot, where, as well as in Belgium, at the present time many bushes exist whose youth is beyond the recollection of the



Azalea calendulacea.

"oldest inhabitant." It would be a difficult as well as useless task to attempt to trace the history of even the finest and most distinct of the hundreds of varieties that have received names. It is equally difficult to find in a collection the typical species possessing the characters which they exhibit in a wild state; nor are these wild species so desirable as the hybrids which have gained much by the blending of different colours and habits. Thus the swamp Honeysuckle (*A. nudiflora*), which has flowers of various colours, bears them on naked branches before the leaves; whereas by crossing it with later flowering kinds like *pontica* and *calendulacea*, its flowers have been induced to open at the same time as the foliage. The upright Honeysuckle (*A. viscosa*), again, is naturally a midsummer flowerer, but its hybrids bloom early in June with the rest. The flowers of *viscosa* are clammy, and this peculiarity may be traced in all its hybrids. More varieties are said to have been raised from *A. viscosa* than from any other. Fifty years ago Loddiges' catalogue enumerated 107 with Latin names, and many others have been raised since that time. *A. pontica*, as before said, was instrumental in imparting yellow colours to the hybrids, and



Azalea pontica.

moreover, its flowers being naturally larger than those of others, the hybrids, having *pontica* for one of its parents, became larger and larger until now we have the large and highly coloured race, of which two of the most beautiful are herewith figured. To the Marigold-flowered *Azalea*, as *A. calendulacea* is called, we owe all those brilliant orange-red and copper-coloured varieties, which many think the loveliest of all. It is considered by American botanists to be the handsomest shrub in North America. It grows from 2 feet to 6 feet high, and always forms a spreading bush with tabulated branches. There is a very

* Drawn in Mr. Anthony Waterer's nursery at Knap Hill, Woking, in June.



NEW HYBRID AZALEAS

beautiful and distinct hybrid from *A. calendulacea*, called *Morteri*, which though raised years ago keeps distinct to this day.

GRENT AZALEAS is the collective name given to all hardy Azaleas, on account of many, perhaps the largest number, having been raised in Belgium, but, as before mentioned, the work has also been carried on in this country, and notably at Highclere, where at one time the hybrids numbered about fifty, and were known as the Highclere hybrids. At the present time the work of Azalea raising is confined to a few nurseries, the chief being that at Knap Hill, where one may see thousands of seedlings in flower at the present time. These differ from the older set of varieties chiefly in possessing greater substance of petal and larger and more symmetrically shaped blooms. About a dozen years ago Mr. Waterer obtained a distinct break in this direction, and since then he has worked upon it, the result being a group of hybrids much superior to the older sorts.

There is now a long list of Knap Hill hybrids, and these with new Continental and old sorts make a collection of about 130 kinds.

THE DOUBLE VARIETIES, of which *narcissiflora* was one of the first, now form a numerous group, and in the Knap Hill Nurseries there is a selection of a dozen very fine sorts. They are perfectly double, but as yet no very brilliant colours have been obtained. These double kinds last considerably longer in bloom than the singles, and they are also well adapted for forcing into bloom early, for which purpose they are grown in the form of dwarf bushes.

AZALEA MOLLIS, or, to be more accurate, *A. sinensis*, is a very charming Azalea, which during the past few years has added much beauty to our spring-flowering shrubs. It was introduced from China many years ago, but there was not much variation from the original salmon-red colour till lately. Now there is a wide variation of colour from very pale yellow through orange and orange-red to deep pink. Being larger in flower and extremely floriferous, *A. mollis* and its varieties are greatly admired by everyone. It would be

a great gain if a race of hybrids could be obtained between this and the Ghent Azaleas, but up to the present there have been no results, although some hybridists assert that they have been successful in crossing the two groups. For years Mr. Anthony Waterer has tried to intercross them, but has failed; he, however, still hopes to succeed. There is no need here to speak of other hardy Azaleas which have had no relation to the hybrids in question, as they have already been described in *THE GARDEN* (Vol. XI.) by Mr. W. B. Hemsley.

against a green background; hence they are often planted as a fringe to a dense shrubbery. They dislike a mixed shrubbery, or to be smothered in any way, but when old they are able to hold their own against other things. In many old gardens one sees them growing vigorously under the shade of large trees, and they never display their beauty to such advantage as when in such a position, as subdued light seems to intensify the brilliancy of their colours. No garden of any importance should be without some at least of these lovely shrubs, and it is to be hoped that the plate herewith given will tend to awaken an interest in them.

W. G.

WORK DONE IN WEEK ENDING JUNE 8.

JUNE 2 AND 3.

FINE; but summer temperature is yet lacking, and tender flower garden plants are still kept in sheltered places, but we have nearly finished planting other kinds, as all other outside work has been left in favour of getting on with this, for until it is quite finished we always feel unable to make headway with other work, of which, unfortunately, there is now an overplus in every department. At present we are in the same predicament with regard to housework. Grape thinning puts the veto on every description of work, other than that which must be done, namely, airing and watering. Lady Downes, Alicante, and late Hamburgs we have now in hand, as we consider it to be a useless exhaustion of the productive powers of the Vine to only half thin the bunches by what is called the first thinning, but which with us is first and last combined, because we thin out so hardly as to render second thinnings unnecessary, except that sometimes a few small berries may require to be cut out.

Alwrick Seedling and Muscats, that, as a rule, have a large percentage of imperfectly fertilised, and therefore small, berries, are thinned last, so as to be sure that the smaller berries get cut out. Grapes ripe we now keep cool, and well aired night and day, fine netting being placed over the openings to keep out mice and birds; atmospheric moisture is not withdrawn, only reduced.

JUNE 4 AND 5.

Both days have been warm, with a fair amount of sunshine, and having done all flower garden planting that it is at present advisable to do, our time has been devoted to cleaning up the attendant litter that is inevitable to bedding out, to mulching with Cocoa fibre such plants as did not transplant with balls of earth, and to pegging down *Tropeolums*, *Gnaphaliums*, *Petunias* and *Verbenas*, and to tying to sticks, *Fuchsias*, *Abutilons*, *Grevilleas*, &c. Wall fruit trees, Pears and Peaches in particular, wanted and have had attention, the former as to the cutting back of shoots and training in young growths to completely furnish the wall. Cordons have been cut back to the second joint of new shoots, and the leaders temporarily tacked into position. The fruit on most trees is being thinned naturally, and, from present appearance, there will be little of that for us to do, a contrast to last year, when we had to go over the trees for that purpose several times. Peaches have, in this particular, changed places with the Pears, as we have been pulling them off in quantity, and pinched out the points of strong shoots with a view of inducing uniformity of growth over the entire tree; sublaterals on all shoots we have pinched hard back, and the



Azalea mollis.

CULTURE AND POSITION.—There is little to be said in reference to the culture of hardy Azaleas. They delight in moist peaty soil or sandy loam, and, knowing this, no one would attempt to grow them in a heavy soil, or in one in which chalk predominates, for, like the *Rhododendron*, Azaleas abhor all limestone. They thrive in sun or shade provided the soil is moist. As to position, they look best and thrive best when planted by themselves in isolated groups away from Evergreens of every kind, but they always have a fine effect when viewed

longest shoots, fruit-bearers of next year, are being nailed in to the wall. The unusually heavy rainfall has been all in favour of fruit trees generally, and I never knew them more free from blight or the growth finer, and they are worthy of every effort being made to keep them in the same satisfactory state. Small fruits are just as good, Strawberries being extra grand; our plots are always mulched in winter with a thick coating of good manure; the rains have cleaned this; strawing down is not needed, but hand-weeding is being done preparatory to putting over the bird-protecting netting. To preserve Cherries, netting has to be put on before there is the least sign of colouring, and it is necessary to use small sticks to prop out the netting a sufficient distance from the branches to keep the birds when lighting on the netting from reaching the fruit. Work in the houses has yet all to be subservient to Grape thinning; little else has been done besides this other than the weekly scrub up. Cut all ripe fruit of Melons; got out soil and put in new in readiness for another batch, which will be planted soon as the soil is warmed through. Early Peaches as ripened are gathered and put in cool fruit-room, which both improves their flavour and preserves them for a long time. It is the same in respect of Melons and Pines, but Figs do not relish such a change and soon damp off. Pinched out the weak shoots of Chrysanthemums; two, and in some cases three, of the strongest are left to grow on. Bush plants have nearly all had their second stopping of shoots, and are being put in flowering pots (9-inch ones) as fast as the pressure of other duties will allow.

JUNE 7 AND 8.

At last we are having real summer weather, and we have made a start to plant out tender bedding plants. Coleuses, Iresines, and a few Alternantheras are already out, so are Dahlias, preference being given to single varieties, intermixed with which we have planted Marguerites in variety, and also the cardinal section of herbaceous Lobelias. Abutilons, Cannas, Solanums, Tobaccos, Sunflowers, and large growing succulents are also now being planted. The recent long-continued rains have produced a fine crop of weeds, and these two sunny days we have been busy amongst them with the hoes. Potatoes, Peas, Onions, Carrots, Parsnips, and between Currants and Gooseberry bushes have all been hoed. Sowed Peas, and between the rows—which are 7 feet apart—planted out Artichokes and Autumn Giant Cauliflowers: gathered first Peas—Ringleader—and also dug the first Potatoes—Myatt's Ashleaf—which have been grown on a warm south border. Besides Grape thinning, no work other than the usual daily routine has been done in the houses.

HANTS.

FRUITS UNDER GLASS.

CHERRIES.

HOUSES in which Cherries are ripe must now be kept dry, airy, and cool, and such kinds as May Duke, Early Rivers, and Black Tartarian may be slightly shaded for a few hours on bright days. Elton and Bigarreau Napoleon, two of our best main crop varieties, cannot well have too much sun, at least until they are quite ripe, and then, unless the house is very bright and the trees are sparsely furnished with foliage, they will keep fresh and plump until the first-named are fit for gathering from open walls. Early trees from which the fruit has been gathered should be well washed to cleanse and refresh the foliage when fine sunny mornings or evenings, after this date, favour the introduction of the syringe. The roots must also be looked to, as we still have a long season—in fact, a whole summer before us, and the premature ripening of the leaves and buds may lead to serious consequences in the autumn. Water in moderation must therefore be given to the borders in which the roots of these particular trees are located, and more mulching may be added to prevent the escape of moisture. Where pot trees are grown they must be removed to the open air as the fruit is gathered, well washed with the garden engine, and plunged to the rims in sheltered, but open, situations, where they can be regularly tended with water. Trees in very small pots are sometimes shifted into others a size or two larger, and are then allowed to

re-establish themselves before they are taken out. Old trees, on the other hand, which require turning out and reducing to make room for fresh compost and new crocks in the same sized pots cannot be so treated, as the check before they have completed their growth might prove too severe. These, then, should be plunged with the general stock, well watered, and washed, and operated upon as soon as the buds are properly formed and the foliage shows signs of maturity. All Cherry houses ought to be built with loose or portable sash roofs, which can be taken off as soon as the last fruit is gathered, and those intended for early forcing should be arranged for planting the trees in internal borders.

PLUMS.

When the early varieties are ripe the house must be carefully netted to keep out birds, and the treatment of the trees will in no particular differ from that laid down for ripe Cherries. Where large collections, including early, midseason, and late varieties, are grown, it is a good plan to leave all the earliest and a portion of the next section in pots, as they can then be removed to cool, snug quarters, where they will be safe from enemies and wet, and maintain a steady succession until fruit is ripe on walls. The late sorts, it is hardly necessary to say, must be kept under glass, as the Golden Drop, the late Gages, and the old, but rarely met with, *Impratrice*, require an abundance of sun and plenty of time to finish them properly. Plums by bushels and tons are ready long before these sorts are fit for use, but once properly ripened and kept until they begin to shrivel, nothing from the open air can touch them either in appearance or flavour. I have often stated that a good selection of home-grown trees can be prepared for indoor fruiting at very little expense without the aid of glass. Clean straight maidens, bought in say November, potted, plunged, and mulched, or planted out on an open quarter, will make good fruit-bearing trees in two years, when they will be fit for forcing or the cold orchard house. If potting on arrival is decided upon, the pots will require lifting occasionally to prevent the roots from striking into the borders, and trees that are planted out should be lifted and replanted after the roots have been shortened each autumn until they are wanted for potting. Plenty of water and an occasional dash with the syringe in dry weather will be all the roots and foliage require, and incessant pinching throughout the summer months will lay the foundation of cordon-like pyramids thickly set with spurs. Trees got in last autumn will now be growing freely, and every shoot with the exception of the leaders must be pinched the first time at the fifth leaf, afterwards at the second or third, to induce the formation of spurs near home. Spider and greenfly are the chief enemies to Plums when in growth, but these can be obliterated by an occasional washing with soapsuds or a solution of Gi-hurst compound.

THE ORCHARD HOUSE.

The successful forcer of early varieties of Peaches and Nectarines will soon be looking for a satisfactory return for his patience and labour. Having so often pointed out the importance of a constant supply of good liquid food, it is hardly likely that the trees have been allowed to suffer, as we have not hitherto had a drying or burning season. On the other hand, it has been one of those peculiar years which tests a good grower's ability, and not unfrequently brings the inexperienced to grief. Assuming, then, that all has gone well, and the fruit is now laying on pulp and colour, or, perhaps, approaching ripeness, keep each tree well supplied with top-dressing, give or withhold water of a stimulating nature as often as it may be needed. Never dribble, but soak thoroughly, withhold the water-pot, watch closely, and repeat before the balls of soil reach the dry side. Syringe well with pure soft water; say twice on fine days, once when the weather is dull, and continue this treatment until the fruit begins to show signs of changing for ripening. When this stage is reached, perhaps a little before, withhold all stimulating liquids, and give sufficient clear water to keep the roots in a good growing condition. Readers of Peach calendars are advised to withhold water from the borders and mulch when the fruit is ripening; but trees in pots,

which get dry in a few hours, must be carefully watered until the last fruit is ripe. Too much attention cannot be paid to watering, as an excess spoils the flavour, while a dribbling supply causes the fruit to fall or ripen prematurely.

Management of the fruit.—Although the pinching of early trees is nearly over for this season, all spray that impedes the passage of light and air must be removed, and leaves which shade the fruit turned aside to insure colour and flavour. Some assert that a pale Peach is as good as a coloured one, and bring forward the old Noblesse in support of their argument, evidently unmindful of the fact that a highly finished fruit of this exquisite variety shows blotches and streaks of the most delicate crimson. This matter of colour is, however, ignored by sticklers for flavour; no matter how ugly or forbidding a fruit may be, but so long as flavour is dependent on sunshine, and exposure to it paints the Peach and Nectarine with vermilion, give me the examples that show full average size and colour, and flavour will not be wanting. Assuming, then, that the fruit is beginning to ripen, more air must be given to the house, but not to lower the temperature, as warmth is an important factor in giving flavour, and the syringe must be carefully used about the pots, stems, and walls of the house on fine days. Early morning is the best time to gather Peaches, as they are at that time cool and in good condition for keeping after removal to a dry, airy room. It is a mistake to suppose that they should be allowed to hang until they are dead ripe, although they may be wanted for home use, for no sooner is a fine Peach fully up to the mark than it begins to lose its brisk sparkling flavour. An experienced person can tell by the appearance of a fruit without touching it whether it is in a fit state for gathering. On no account must pressure be brought to bear when detaching it from the tree, as every finger-mark leaves a bruise; this may, however, be obviated by taking a pad of wadding in the left hand, a pair of Grape scissors in the right, and snipping the stalks close to the wood. Each fruit should then be laid on a square of silver paper and placed in a flat, well padded box or basket for removal to the Grape room, where good Peaches will keep for several days; but it must be borne in mind that keeping after they are ripe does not improve them. Nectarines are perhaps less delicate than Peaches, but, like them, they should be carefully handled and always detached before they are quite soft down to the stalk. Growers for market gather their fruit when quite hard and safe from injury in packing or transit. All they require is size and colour. The London fruiterer can always ripen the hardest Peaches. Country dealers who have not been trained in Covent Garden, and do not keep an immense stock of Peaches in their vaults to draw from, prefer having the fruit sent in a ripe state; indeed, they would feel scandalised by the arrival of a box of hard fruit which the Centre Row would pronounce perfect.

The general orchard house.—Pinching, thinning, watering, and syringing, to which may be added ventilating on a very liberal scale, will now take up all the attendants' time in this department. To say that one of these operations is of more importance than another would be wrong, as all are so closely dovetailed into each other, that neglect of one throws all the others out of gear, and not unfrequently brings the steed to a dead stand. Of all the modes of fruit culture the growth of stone fruits and Pears is perhaps the most artificial, and yet fruit of the largest size and finest quality is obtained from well managed miniature trees in 12-inch pots. These at the present time are making very rapid growth, and the fruit is swelling fast—two conditions which render constant feeding and frequent top-dressing absolutely necessary. Trees standing clear of the ground in well ventilated houses cannot easily be over-watered during a continuance of fine bright weather; neither can the syringe be too freely plied, always provided they are in good health and the pots are full of roots. The first syringing may now be performed soon after six o'clock a.m., the second immediately after the trees have been watered and the time has arrived for closing. At such times the play backwards and forwards with the syringe or engine should reach every leaf and stem: the walls and floors should also be well

saturated. If not already done, now is a good time to litter down all floor space with fresh stable litter for the twofold purpose of keeping the crock roots cool and exhaling a constant supply of invigorating moisture throughout the hottest part of the day. The ventilators may now be opened as soon as the temperature begins to rise after the first syringing and regulated according to the state of the weather until the time arrives for closing, when a close atmosphere with moisture is essential to the swelling of the fruit. It is usual to keep the house close for two or three hours during the decline of the sun and then give night air, but there is no rule without an exception, and although I prefer shutting up, very good fruit can be grown where the ventilators are never closed from midsummer to September. As the trees increase in size and more space is wanted early Cherries and Plums may be removed to other quarters, where they can be protected from birds and wet, and early Pears will do well plunged and well mulched in front of a south or west wall. A rearrangement of the whole house can then be made, every tree will occupy a new position, fruit and foliage previously shaded will become exposed, and more room will be obtained for carrying on the daily manipulation and attention. Last, but not least, a general turn over will break up all newly-formed insect colonies, Strawberry shelves can be well scrubbed down, and a wash composed of quicklime and sulphur will make the walls of the house clean and sweet for the season.

STRAWBERRIES.

Midsummer is upon us and Strawberry layering should now be in operation, but, judging from appearances, this work will be two or three weeks later than usual. Still the usual number of plants for forcing must be obtained, and, much as we value an early start, we must wait patiently and endeavour to cope with a tardy season by the use of smaller pots for late as well as early sorts and extra cultural attention through the growing season. I have often pointed out the economical system of pegging down at once on the tops of the well filled fruiting pots, and strongly advise all who have not hitherto given it a trial to lose no time in doing so, as this is not only the cheapest, but probably the best, and most decidedly the quickest, mode of performing the first part of a very expensive branch of fruit forcing. Pots 5 inches in diameter are frequently used for early sorts; some growers go up to 7 inches for the general and late crops. This year I would start with the first size and finish with the 6½-inch Weston measure, viz., inside to inside. Let these be made perfectly clean inside and out, as a plant, even a Strawberry, never does so well or makes half the progress in a dirty pot as it does in a clean one. If new, soak in water and dry them before they are filled; crock well, and cover the crocks with a little pinch of soot. Some people think one crock to keep out the worms is enough; but the Strawberry loves good liquid food, and the first thing to be thought of is its free passage out of the pots, as stagnant moisture is objectionable to the plants and detrimental to the quality of the fruit. Let the soil be dry and extra well fortified with bone-dust to make up for quantity; ram firm, and peg down as advised in preceding papers. Still further to make the best of a late season, keep the pots free from weeds during the time the layers are rooting, stir the surface occasionally, never allow the old foliage to shade them, and water regularly, not spasmodically, in dry weather.

W. COLEMAN.

Pruning Chrysanthemums.—We have this day (June 5) cut all the tops off our stock of autumn-flowering Chrysanthemums, a practice which we have followed for several years and find it to answer admirably. The sorts dealt with are known as October flowerers, and include such varieties as Anastasio, Alex. Dufour, Bolide, Inimitable, La Vierge, and Madame Desgrange. The cutting back not only delays flowering, but also makes them more bushy. Madame Desgrange is the only one not dealt with in this manner; that variety is allowed to grow its own way. It does not flower so early as the others when not stopped. Our stock is plunged to the rims of the pots in the open; but the roots find their way over the top

and through the bottom hole, and gain strength by doing so. Quite large plants, therefore, are the result, and we do nothing more to them except give them an occasional dose of water in dry weather. Early in September they will be lifted and placed in a cold frame for a few days and kept shaded. Thus treated they soon recover the loss of such roots as had grown over and through the pots, and they flower as well as if they had been undisturbed.—J. C. C.

KITCHEN GARDEN.

TOMATOES IN PITS AND FRAMES.

It is surprising what fine crops of Tomatoes can be grown in pits and frames, and more especially those constructed on the span-roof principle. In 1882 I saw a very fine lot of Tomatoes ripening in low heated pits at Sion. There was abundance of fruit in various stages of growth, and many had been gathered prior to the time of my visit, which was early in July of that year. Strong plants were put out in succession to Kidney Beans, some being trained against the back wall, and the remainder disposed in the body of the pit and allowed to ramble over the mounds of soil. Quite recently I saw another good example of pit culture at Ashton Court, near Bristol; the pit in this instance was span-roofed and also heated. It had been cleared of the old hotbed material, and the plants which were placed in extra large pots stood on the bottom considerably below the outside ground level; from these the growths were thinly trained over a temporary trellis, formed with strips of deal fixed crosswise, nearly on a level with the eaves of the roof. Every light on each side of this pit can be opened at will, and the training can thus be attended to from the outside. Viewed from the walk, a flat surface of fruit and leaves presents itself, and a remarkably fine crop of handsome fruit is now in various stages of ripening. It would be useless to attempt to secure early crops in unheated structures, but there is no reason why good summer and autumn crops should not be grown in pits and frames that not unfrequently are standing empty at that time. It may be that crops in the open air will again be heavy and good as they were last year, but the start has been late and the season being quite against rapid growth, we cannot feel certain of ripening as many fruit as may be required. Besides, were walls well furnished with fruit trees, few suitable spaces would be available for Tomatoes, and it is only in the most favoured localities that they can be relied upon to perfect crops in the open borders. It is not yet too late to utilise pits and frames previously occupied, it may have been with either Potatoes, Beans, Carrots, or bedding plants, for Tomato culture. If strong plants are put out, they will soon overtake their less favoured kindred in the open. If there is a bed of heating material for them to root into they will need but little loam to start in, but on a hard bottom they ought to receive good heaps of loamy soil, to which should be added some old manure to the extent of about one quarter of the bulk. No doubt a very liberal use of manure induces a too luxuriant growth, but it is equally certain starvation treatment is unprofitable.

CROWDING THE GROWTHS is a very frequent cause of partial failure. By training thinly, as I noticed particularly at Ashton Court, more fruits than leaves appear to prevail, while if crowded the contrary is apparent. Being late, the best plan will be to keep each plant to a single stem. The back walls of lean-to pits ought to be covered with plants placed about 8 inches apart, and if these are leggy they may be planted at a good distance from the wall and

pegged down, so as to bring the first cluster of fruit a few inches from the ground. The buried stems soon root strongly into the surrounding soil, and will materially assist in the perfecting three or four clusters of fruit, for which there ought to be space enough, especially if the plants are trained obliquely. One or, at the most, two rows of plants may go on the bed, according to the width; these should be trained from front to back, and may be laid on the soil, or on any temporary trellising or staging available. All side shoots ought to be kept closely rubbed off, and the plants stopped beyond the third or fourth bunch of fruit. No shading should be given, but they ought to be encouraged to make a quick start, air being given sparingly at first, and early closing also should be practised. At no time should they become very dry at the roots, and I find that the syringe may also be used in dry warm weather, its use, I believe, contributing to a good set. In cold dull weather, however, when the Potato disease is rife, the foliage should be kept as dry as possible, and the lights closer than usual, or the spores of the Potato fungus will soon effect a lodgment on the foliage of the Tomatoes, and then good-bye to the prospects of ripening a good crop.

UTILISATION OF OLD PLANTS.—Many cultivators are in the habit of throwing away pot plants that have perfected early crops; but let me advise their retention in order to try what can be done with them either in pits or frames, or against sunny walls. Supposing them to be nearly cleared of fruit, let them now receive a top-dressing of loam and manure in equal quantities, and be otherwise encouraged to form a number of side shoots. These soon show for fruiting, and as soon as this is observed they may be gradually hardened off preparatory to being exposed to all weathers or placed in pits, though, better still, if space can still be spared, keep them in heat till they have set a quantity of fruit, and then let them be hardened off. If they are eventually placed against sunny walls, they ought not to be turned out of their pots, but the latter should be slightly sunk into the border and be then heavily banked over with rotten manure. In this way no serious check will be given to the plants, and as the roots soon find their way into the manure, both from the stem and pots, there will be every prospect, weather permitting, of their perfecting heavy crops. The pots being well buried in manure, but little water will be required, but at the same time they must be attended to occasionally in this way, and especially at the outset. For furnishing abundance of green fruit for pickles and chutnee these old plants are really superior to young ones, and are worth preserving for that purpose alone. We have obtained exceptionally heavy crops from old pot plants plunged in forcing pits, and they are particularly well adapted for training over temporary trellises, as at Ashton Court; they furnish the whole space allowed them, and are therefore in full bearing more quickly than young plants. Even these occasionally require to be thinned out, otherwise the fruits are apt to be too small. If laid on the bare soil, some contrivance will be necessary to raise the clusters of fruit somewhat, especially in autumn—a difficulty easily mastered. A few years ago we utilised ordinary Potato frames for the production of our summer and autumn crops of Tomatoes, and one of our best “hits” was when we pegged down a number of old plants all over the beds and staked up the required number of laterals, from each of which we took one good cluster of fruit. In this manner we could put on the lights whenever the weather was wet and cold, and no disease troubled us. Much time was, as a matter of course, expended

in thinning out the shoots and in staking and stopping those reserved, the foliage also being reduced when necessary; but for all this trouble we were well repaid.

W. I. M.

LATE CELERY.

A good deal of Celery is grown for use in August and September, but it is in October, November, and onwards that the demand for it is greatest, and an ample supply of it from November until April will always give satisfaction. Either for cooking or for salad it is difficult to find anything more acceptable than Celery, especially in winter, and it is very desirable that every effort should be made to ensure an unfailing supply of late produce. Should the early crops fail through drought or other cause, the great variety of other vegetables in August and September will lessen the inconvenience of the deficiency, but when vegetables become fewer and scarcer, Celery will be looked for, and may without much difficulty be forthcoming. As a rule late Celery is raised and planted too early. Everyone, indeed, seems to want to have the whole of their Celery planted as soon as possible in May; by September it is full grown, and then it has to stand for months before it is used. It is Celery of this kind that does not keep well—how can it? It begins to decay in November, and by February there is little or none left. The remedy for this, and also the best plan to adopt, is to defer raising the young plants until June and to plant them in July; growth will not then be completed until November, when it will be fresh and solid, and there will be no danger of the heads failing to keep well throughout the entire winter. We have never found Celery plants grow much after frost set in, and it is important that they be of good size before that; but as to having them full grown some months before winter and then expect them to keep sound throughout the worst months in the year is out of the question. Nor is it a good plan to raise late and early Celery plants together, planting out some to form an early crop and allowing others to remain crowded in the nursery bed until the time comes for planting the late crop. Plants should be raised specially for the late crop, and none which were left over from early planting or other surplus stock should be used for such an important crop.

BY SOWING EARLY IN JUNE strong young plants will be produced. There are various ways of raising them; where only a few hundred plants are wanted the seed may be sown in two or three 6-inch pots or in a cutting box; but where thousands of plants are required, a slight hotbed should be formed, on which a frame should be placed. Some rich soil should be put inside, and on this the seed should be sown thinly. As soon as the plants are well up, the glasslights and frame may be removed; the plants will then grow very dwarf and robust, and many of them may be taken straight from the bed to the trenches. When sown in pots or boxes the plants must be transplanted to a sheltered corner in the open into other boxes or a frame. It often happens that there are empty frames at this season, and one of these will be found to be just the place in which to raise late Celery. Where there is a quantity of old soil in the frame the seed may be sown, or the plants transplanted into this without further preparation. There is still another way of getting the plants up; seed will germinate now freely in the open, and if a sheltered corner is selected and made rich, seed may be sown to produce plants in July, but whichever way plants are raised the soil must be rich; the seed should not be buried more than a quarter of an inch below the surface, and the plants should never

be allowed to become dry at the root. This is one of the main conditions towards securing good plants as well as satisfactory results, and whatever other attention they lack, moisture they must have; to this rule there is no exception. When young plants growing very closely together are transplanted, it is difficult to lift any soil with their roots, but when it is possible to get a ball of soil attached to them it ought to be secured, as the young plants succeed much better with it than without it. As a rule, the weather is always dry in July when the plants are being put into the trenches, and, therefore, they should be watered freely as soon as put out, as well as frequently afterwards when necessary. Manure water need not be applied until they are in full growth. Late Celery trenches should not be made so deep as the earlier ones; 6 in. or 8 in. below the surface will be found to be better than double these depths. If heads of exceptionally high quality are desired, only one row should be planted in each trench; first-rate heads may also be produced with two rows in a trench, and others may be planted with from three to six rows, but it is more difficult to earth up properly when the rows are numerous than when they are few.

J. MUIR.

Margam, South Wales.

Earthing up Potatoes.—This is now indispensable, and it needs to be done with care and deliberation. Usually the work is done by means of a hoe, used too often roughly. But without doubt the best way in order to have Potatoes well earthed is to start at planting time by giving at the first ample space between the rows, and in good soil, such as is usually found in gardens, the range according to growth should be from 30 inches to 50 inches. Thus the tops get ample space in which to develop without crowding, and the roots also have ample room. Those who have never tried the plan of giving ample space in good soil will be surprised at the increase in root produce that will be found when the plan is adopted. Specially does it favour complete earthing, for that operation can be performed with the fork, the most useful of all garden implements. Whilst one, with a long pole, lifts up the lower leafage of the Potato plants, another gently lifts up to the stems about 3 inches of the light clean soil from between the rows. Some ten days later that work is repeated, and the result is sharp ridges that throw off heavy rains and fungus spores from the swelling tubers into the furrows. If after the earthing is done those furrows are lightly forked down the middle, all moisture will soon percolate away. Where time cannot be spared for forking, the hoe must do the earthing as best it can be done in that way.—A. D.

French Cucumbers.—The present discussion on salading reminds me of one ingredient that we grow infinitely better in England than they do in France, viz., Cucumbers. It is, in fact, hardly an exaggeration to say that I never saw what one would consider an edible Cucumber on the Continent. Short, soft, fat, yellow, seedy, is the true definition of the wagonloads of Cucumbers which one sees in the Parisian markets or on stalls in the streets. Few of them come up to the average even of our open-air Cucumbers in Covent Garden or our larger provincial markets. This must surely arise from an error of judgment or of taste rather than from any difficulty there can be in regard to growing the harder varieties of frame Cucumbers in the open air in the milder districts of France. Probably a good many of those French Cucumbers are cooked before they are eaten; but even for cooking the better sorts of Cucumbers are preferable. No wonder, therefore, Cucumbers are seldom used in French salads. In this country enormous quantities of Cucumbers are consumed, and to those they agree with they are wholesome. Many years ago a clever medical man gave me a sure test as to whether Cucumbers or any other vegetable agreed with one. "If you do not taste

them after eating them, you may eat as much as you please, not only with impunity, but with positive benefit; but should you taste them two hours after eating when in good health, never eat them again." He approved of eating rind and all with bread and cheese, plenty of salt and a dash of pepper.—D. T. F.

THINNING MAIN CROPS.

It is hardly too much to affirm that probably a majority of crops are neither thinned in time nor to a sufficient extent. The evil effects of a crush at starting are not sufficiently appreciated. The sight of a full or even a crowded crop has a peculiar and even dangerous fascination for the inexperienced; the plants also nurse or draw each other up at first, and the crowded crop fills and satisfies the eye so much more than a thin one that the temptation is strong to delay thinning. It is also a difficult point to determine where the nursing of young plants ends and the weakening from overcrowding begins. Perhaps the safer side is to be thoroughly sceptical about the benefit of nursing, and to thin vigorously almost as soon as the crop appears above ground. This course proves a sure antidote to the evils of overcrowding, and ensures a vigorous start from the first. Were one always sure of their seed and their seed beds, a still better plan is to sow thinly, and so prevent the need of any or much thinning. But the risks attendant on this course are greater than those incident to thick sowing and a crush at the start, for though it is easy to pull out one or many plants, it is in regard to several crops far more difficult to put any in to really useful purpose. For example, such main crops as Carrots are seldom satisfactory if transplanted. On the other hand, Parsnips, if carefully manipulated, do well, and Onions so exceedingly well, that some prefer transplanted crops to those grown where sown. But on the whole the better, easiest, and safest plan is to sow all main crops in or on their permanent quarters.

By the simple method of testing all seeds in samples before sowing in bulk a fair estimate may be formed of their quality, and tolerably safe rules of the ratios of sowing thus established. Considerable experience, however, is needed before anything like a safe means of seed sowing can be established through mere tests of quality. Amateurs who sow in bulk expecting to realise the same ratio of healthy germination as they may have obtained from their samples are fated to great disappointment. The soil and the army of germ destroyers forbid such favourable results. Coldness, stiffness, poverty, paucity or depth of soil, all may hinder or prevent germination, while sudden alternations from heat to cold are perhaps greater hindrances than any or all of these put together. To bring up the germination of the bulk to that of the samples, climatal and physical conditions must be as near as may be equal. No one of practical experience needs to be told how very seldom this can be the case. How often, for example, drought arrests the growth of seeds just about to burst into growth, and at other times they are flushed prematurely with growth of top before the radicles are sufficiently advanced to support the young stem or leaflets. Taking due note of the climatal and soil difficulties alone, it is wise to sow the bulk of most crops at least cent. per cent. beyond what would be considered ample as tested by the samples. Then the destroyers of seeds must be reckoned with; these consist of legions of birds, as well as of worms and other insects. The earth itself, too, if applied too thickly, buries, virtually steals, and for ever destroys seeds by wholesale. We may to some extent net out birds, but we cannot shut out the earthworms that often drag the seeds into their holes, or throw them out on the summit of their casts, either process hindering them from growing. To safeguard the cultivator against depredation, another 100 per cent. should be added to the bulk beyond what might seem ample as measured by the sample.

Finally, there are the germ destroyers to be reckoned with. These are of two classes, living

and dead. The latter consists of ungenial or unsuitable seed-beds, excess of cold, heat, wet, or drought, too deep or too shallow sowing, &c.; the former of winged birds, the larvæ of insects, slugs, snails, &c. The majority of living creatures in the air and on or in the earth or the air seem ready to feed upon and devour the embryo plant in that state of special weakness and sweetness just as it is emerging from the state of seedhood and developing into a thrifty plant. Fighting its way upwards from the earth into the atmosphere, it has to fight for life against myriads of insects and winged and feathered life, while stronger plants—weeds too—often spring up and do their utmost to smother it as they struggle for supremacy in the same seed-bed. No one realises a tittle of these dangers that too often end in the wholesale destruction of seedling germs; another cent. per cent. must therefore be allowed for germ destroyers. We thus arrive at the conclusion that for any plant required for our permanent main crop, at least four seeds should be sown. The ratio of seeding is mostly far higher than this; but, provided the seeds are of the highest quality and the seed-beds clean and otherwise favourable, an allowance of 300 per cent. ought to be made to ensure a plant, while avoiding too severe a crush in seed-beds or rows. In any case, prompt thinning, when thinning is needful, is of the utmost importance, as the majority of crops, severely crushed at the start, are more or less crippled for life, yield less produce, and that of inferior quality. D. T. F.

ENDIVE CULTURE.

ENDIVE is an indispensable crop in all large gardens. It is also grown in many small ones, and all who are fond of a good salad must grow it. When sown and planted early almost every plant will run to flower; therefore early culture should be avoided. Indeed, as a rule, there is little or no demand for early Endive; if the first of it is ready in September and the supply is kept up until the following March or April, that will be sufficient. As a market crop Endive is not profitable early in the season or at midsummer, because the majority of people prefer Lettuces, and they can be grown more cheaply than Endive. Of Endive, about four sowings should be made during the season. The first should be put in early in June, the second in the beginning of July, the third in the end of that month, and the fourth about the middle of August. The June sowing will be ready by the end of August, and the plants from the last will be good as regards size before frost sets in. There are only two varieties of Endive worth growing, one the Moss Curled, or kinds belonging to that type; the other Improved Broad-leaved Batavian. The curled is the best for autumn use, but the Batavian is hardier and should always be grown in order to afford a supply from November onwards. It is hardier than Lettuce and grows to a very large size, and its massive heads of broad crisp leaves are excellent eaten with oil. The seed need not be sown where the plants are to grow, as this requires a quantity of seed and much space; a small patch may be sown anywhere, and the plants transferred to their permanent quarters as soon as ready. They bear transplanting well. Little half-starved plants of Endive are useless; they should therefore have rich soil from the first. Even the seed should be sown in good soil, from which the plants will turn out strong and healthy. Half an ounce of seed will produce many hundreds of plants; we sometimes sow broadcast, and at other times in rows; both answer the purpose. The early June plants are generally ready for putting out by about the 1st of July, and as we have then cleared off to some extent early Potatoes, Turnips, Spinach, and other early vegetables, we have no difficulty in finding a place for the Endive. The ground is forked over, and if poor manure is added, then the plants are lifted from the seed bed and dibbled in. The curled variety may be planted 10 inches apart each way, but the Batavian should have more room; and if it is planted at a distance of 15 inches

from row to row and 1 foot asunder in the row, it will be found to fill up that space. All subsequent sowings and transplantings should be done in the same way. The latest batch may have to pass through much severe weather, and this is planted on a warm border or in a sheltered position. Slugs and snails are not so fond of Endive as of Lettuce, and they are rarely injured in that way. Dryness at the root is the main cause of Endive running to flower prematurely, and to prevent this it should be watered in very dry weather, especially that growing in light soil. Where the grower contemplates competing in a salad class at shows, finely grown, well-blanching Endive tells well in a collection, and in order to secure the finest possible heads the surface of the soil between the plants should be mulched with some old manure. Besides having well developed plants, it is very desirable that they should be blanched at all times before being used. To accomplish this the leaves should be taken in both hands and lifted up until they assume a conical form; then they should be pressed tightly together and tied round near the top with a piece of matting. This excludes light from the centre, and in two weeks or so after tying, the interior will be found to be beautifully blanched. CAMBRIAN.

ECONOMICAL CROPPING.

Few crops wholly different in character and produce answer better to run abreast than Peas and Celery. By forming the trench a foot or more wide two rows of Celery may be grown in each, and treated thus there is little waste of ground by leaving a space from 3 feet to 4 feet wide between each double row of Celery in the trenches. Some, however, form the trenches much wider, forming, in fact, the sunk portion between the ridges into hollow beds. The plants in these cases are usually planted across the trench, which mostly holds from four to six plants in the cross rows. In this system of bed culture the spaces will require to be 6 feet or more wide to furnish sufficient mould for earthing up and blanching the Celery. The wider the trenches or sunk beds and the interspaces the greater the distance between the Peas. It does not, however, follow that the further the Peas are asunder the better they or the Celery will thrive; on the contrary, considerable experience in this mode of joint culture for these two crops leads me to pronounce in favour of double rows of Celery in 15-inch or 18-inch trenches with interspaces of 4 feet between them. These distances will be found to foster the growth of the Celery by the useful shade of the Peas, and to afford sufficient space for the culture and gathering of the Peas. Of course the latter will be harvested before the soil of the ridges is required for the earthing up and blanching of the Celery.

There are several cultural advantages in this example of dual culture of two crops abreast. The economising effects of moisture and the fostering effect of the shadow of the Peas have already been adverted to, but increased depth, warmth, and richness of root-runs for the Peas are also of great advantage to them. To derive the largest benefit from running these two crops abreast we should begin by preparing the ground for the Peas in the centre of the ridges. Dig in a spit deep and level a heavy coating of manure; then proceed to line out the trenches and remove a spit, and lay one-half on one ridge and the other on the other. This provides a rich mass of loose soil for the roots of the Peas, which should be sown rather thickly and deeply along the centre of the ridges. A layer of rich manure at least 4 inches in thickness should be laid along the bottom of the trench and dug in, leaving the ground loose and rough. Always the earlier in the season the making of the trenches and ridges

can be proceeded with the better. Of course the Peas can be sown and the Celery and other crops planted in succession as required, but early preparation enables the weather to mellow, sweeten, and enrich the soil, and thus to foster and perfect growth so much better and sooner. The Peas require a deep tilth, and after running through that plunge their roots into the manure, which mostly carries them through with great vigour. The roots are warm on the raised ridges without being dry, and the tops being so fully exposed to wind and sun, crops so situated are mostly distinguished by unusual vigour and fertility. By frequently forking up and intermixing the soil and manure in the trenches, this is mellowed into a rich mould most congenial to the rapid and crisp growth of the Celery; hence the two crops run abreast are mostly finished in the highest perfection. This method of growing these two very important crops also furnishes unique facilities for picking up other catch crops *en route*. For example, the ridge space on either side of that allotted for Peas may be cropped with Radishes and Lettuces, and these may be consumed before the Peas need staking or afterwards. The trenches, if prepared early and furnished with somewhat rank and hot manure, may be utilised at once in the production of crops of early Potatoes, these being fit for use in time to be cleared for the main or late crop of Celery. In such cases we may have almost four crops abreast, or at least four useful and profitable crops off the ground in the same season.

D. T. F.

INDOOR GARDEN.

LAPAGERIAS IN CLAY AND STONES.

A PLANT of Lapageria with which I am acquainted grows and thrives in a soil consisting of clay and stones. It is not sheltered from fierce sunshine; on the contrary, it is as fully exposed in a large half span-roofed house as it can possibly be, and whenever we have fierce sunshine of two hours or more duration its leaves hang down and look as if they would never become firm again. Its shoots are never pinched; it is rarely ever tied in, and yet its vigour and blooming power are remarkable. As regards its flowering, I may say that it is never out of bloom from one end of the year to the other; nor has it been for several years together, and just now magnificent bells hang on it in clusters of from five to eight, and odd ones and twins are spread all over it. The owner is frequently told that he should not allow these blooms to appear at such unseasonable times; but he says he sees no occasion to remove them, and that he will have plenty at the usual flowering period. It is no uncommon thing for shoots of this plant to grow from 20 feet to 30 feet in one season, and laterals are so abundant, that they cannot be allowed to remain, and have to be broken off, from want of space and in the interest of plants grown underneath them. Periodical thinnings have also to be made, and then old and new growths are cut out by the armful. It now covers an area of 100 feet. For a long time it waged war with a *Maréchal Niel* Rose for a quarter of the house, and ultimately got what it wanted. Had it been allowed during the past two or three years to grow as it liked, it would ere this have covered the whole of the house, back and front, or, speaking by measurement, an area of not less than 480 feet. As regards the shoots, sections of them which were broken off as useless measured three-eighths of an inch. A fresh set of Asparagus-like sprouts are just now appearing, being the second set this spring. As on former occasions, they have crept under the flags and sent their

heads up between the cracks, where, of course, many of them could not be allowed to remain. One which appeared near the side was allowed to grow on, and it made a growth of 23 feet in a very short time; another shoot is appearing close to it. The leaves in many instances are over 4 inches long and 3 inches across, and the network of stems and foliage is becoming so dense that something will have to be done for the benefit of the plants growing underneath.

The variety is the dark red one with very large bells. So much for the habit of the plant and its degree of vigour. What, I presume, will be the most interesting fact to the reader in connection with this plant will be the soil in which it is grown. As already mentioned, it is absolutely a stiff loam, which can only be correctly called clay and stones; this rests on rubble which constituted the filling in of a small quarry hole. The drainage is therefore perfect, and, of course, from the fact that a sort of stage stands immediately over the labyrinth of roots, the moisture, so essential to the *Lapageria*, is never wanting. At a distance of some 4 yards from the main stem an attempt was made to plant some *Aruum Lilies*. It was found, however, that the rope-like roots of the *Lapageria* existed at that distance from the stool in such numbers, that the planting of the *Callas* had to be given up. The great vigour inherited by this plant I attribute to the very warm aspect in which it grows, and its profuse flowering to the solar heat to which it is subjected. Many have said that it should have a little shade, but the plant is where it has been for many years; it lives and blooms well, and more cannot be wanted.

The inferences to be drawn in regard to this *Lapageria* are that it likes stiff, well-drained soil, plenty of moisture, and full exposure to sunshine. An important point in the culture of *Lapagerias* seems to be to have a strong plant with which to start; that it should be carefully set in an open border, and have its roots well protected. The presence of slugs anywhere near is sure to reveal itself in an unpleasant way by the succulent sprouts being eaten off. In order to obviate such attacks, every week the dust from fumigating tins is gently scattered all around the crown for a distance of a yard. Since that has been done, and it has become almost the only cultural attention which the plant receives, slugs have never interfered with the sprouts. It should be added that no manure water is given to this *Lapageria*, which is quite vigorous enough without it. J. WOOD.

Bougainvillea spectabilis.—This species and *B. glabra* are quite distinct as regards their habit of blooming, a fact known to everyone who has grown them. Nevertheless, "J. S. W." persists that both bloom from the current season's wood. Two plants of *B. spectabilis* that I have had at different times and procured from different sources both flowered for several years from the growth made the year before without forming a particle of young wood previous to blooming, producing, in fact, nothing but the flowers and the stalks that bore them until after flowering they began to make shoots. Someone who wrote some years ago about *B. spectabilis*, and who had grown the plant, described it as blooming in part from the old wood and part from shoots 10 inches or 12 inches long, and on the strength of this statement I supposed that some wood-growth was at times made. But there has evidently been a confusion in the kinds; and I am now under the impression that *B. spectabilis* never makes any wood previous to flowering, as in every case where I have seen this species bloom, including the plant at Kew, there has not been a particle of young wood made previous to flowering. Would Mr. Daniels, who has evidently had more to do with *Bougainvilleas* than most of

us, be kind enough to say whether *B. spectabilis* does, or does not, flower on the current season's wood? The matter is of importance, inasmuch as it determines the time when the plant should be pruned.—T. B.

FREESIA REFRACTA ALBA.

I do not know what the experience of others may be with regard to imported bulbs of *Freesias*, but I find that home-grown bulbs are much the largest, and consequently the best flowerers, the variety with yellow flowers being no exception to this rule. It appears to me that, like many other bulbous plants, *Freesias* are weakened if kept too long out of the soil, and that no doubt is the reason why imported bulbs are weaker than home-grown ones. Our stock of bulbs, which were in flower in February in an intermediate house, were allowed to complete their growth in the same house, and now (May 20), after standing in the open air for a fortnight, the leaves are quite yellow, and part readily from the roots. I should perhaps mention that we made no attempt to hurry them to rest by withholding water; they had, indeed, as much moisture as was required to keep the soil moist. Under these conditions they went to rest at their own time, and the result is a greatly increased number of large plump bulbs; in fact, they must have increased at the rate of twenty-five per cent.; but this is not surprising, seeing that the strongest stems produced one or more bulbs in the axils of the leaves, while others ripened several pods of perfect seeds. Taken altogether, I do not know many plants which can be increased at such a rate as *Freesias*. On turning out our stock, I found that they had made a greater number of roots than I had supposed. They are not large, but very numerous. For the future I shall confine the number of large bulbs to eight for 6-inch pots. These will make neat specimens for table decoration or for vases, &c. I find the fragrance of these *Freesias* is much liked. The flowers also open well in rooms, and a plant will last in presentable condition for more than a week. On a limited scale we have proved that *Freesias* make capital specimens when grown in pans, with the flower-spikes neatly tied out, and we hope to increase their number by selecting pans about 14 inches in diameter and 6 inches deep. In these the bulbs will be distributed 2 inches apart all over the pan. Our stock is now spread out on a shelf in the fruit room; after lying there for a fortnight or so, they will be ready for planting again. In the matter of soil, *Freesias* are not very particular. With us they grow vigorously in good turfy loam in which there is a fair sprinkle of sharp sand. As soon as potted, ours will be placed in a cold pit, and remain there until the middle of October, when they will be introduced into a house that is heated about 10° higher than an ordinary greenhouse, and there they will remain until they come into flower. J. C. C.

Allamandas planted out.—There are, in my opinion, no more useful plants grown under glass than *Allamandas*. Their flowers may be used in the best of floral decorations; we have frequently ornamented a dinner table wholly with them, and the effect was always good. The blooms remain fresh after being cut for a very long time, and they may be packed up and sent long distances without injury; but the best property of *Allamandas* is the very long time during which they continue to produce blooms. We have a plant which blooms for six months at a time, and during that period produces thousands of flowers in succession; it is *A. Hendersoni*, planted out and unrestricted in growth. It was planted in the form of a cutting three years ago, at the end of a Cucumber house. The roots have a place to themselves about 3 feet square and 18 inches deep, below which there is about 1 foot of drainage. Being in a corner, the branches have covered the end of the house, part of the back wall, and a good portion of the roof. Its main branches are very numerous, and as these throw out side shoots

the flowering points are very plentiful. The blossoms begin to open about the end of May, and continue to open daily until November; some of them are cut singly, and the points of the shoots with clusters of flowers attached to them are also often cut and used. Anyone with a healthy plant of this kind may cut from it hundreds of blooms weekly; we have never had any plant in a pot succeed like it; the planting-out system is the best of all; just now and all through the season abundance of water and liquid manure is given, and the shoots are allowed to ramble as they like. —J. MUIR, *Margam, South Wales*.

JASMINES IN POTS.

It may not fall to the lot of many to have to grow the common *Jasmine* in pots; but if circumstances render this needful, I may state that it submits to pot culture much better than one would suppose, seeing how unruly an old *Jasmine* will become when left alone. The greatest difficulty I found was at starting. Rather large plants were wanted—plants that would fill 10-inch and 12-inch pots, as they were required for a prominent position in a large vestibule. These we had some difficulty in getting; in fact, we had to be content with smallish plants dug up from the open ground. These were obtained during the winter time, and were potted in 8-inch pots in good fibrous loam. Every branch had to be carefully preserved, as it was important to hasten on growth, in order to get the sized plants required. With a few neat sticks and ties, we soon managed to form some fairly handsome specimens 3 feet high from the pot. When potted and tied they were placed in a cold pit, where they remained until early in the summer. While in the pit they had plenty of air and room, and the growth they made showed they did not object to the treatment they were receiving. Before the weather got very hot they were taken from the pit, and the pots were plunged to their rims in a shady border; in other respects they received the same attention as ordinary greenhouse plants. As might be imagined, we did not get many flowers the first year; but, as the plants made good growth, we did not mind that. In the autumn of the first year they had filled their pots full of roots, and had to be put into others 2 inches larger. Some additional sticks and ties were also necessary to keep them in good form, and then they were taken back to their winter quarters in the cold pit. Early the second summer the treatment had to be altered; they commenced to grow with great vigour in the spring, and therefore they had to be transferred to the front bench of an airy greenhouse, where they remained until they came into flower, and a very satisfactory number of blossoms they produced. Having in the third summer got plants as large as were required, and placed them in the positions for which they were specially grown, the after management was simple enough. Late in autumn all the young growth was cut back to a spur; the plants were then turned out of their pots, and about half of the old soil was shaken away from their roots. Fresh compost was then applied, and the plants were put back into the same pots. The cold pit was always their winter quarters, and the greenhouse they occupied from early spring until they came into flower. When the blossoms had faded, the plants were placed in the open air until it was time to prune them in the autumn preparatory to the annual repotting. Repotting I found to be the only plan by which I could ensure good growth; for, as this *Jasmine* flowers on the young growth, sufficient root action must be maintained to support it, or the number of blossoms will be few and individually small. J. C. C.

SHORT NOTE.—INDOOR.

Nicotiana affinis in the shade.—This does well in a sunless semi-dark corner in a conservatory, greenhouse or room. It succeeds better than any other flowering plant we have ever tried under such circumstances. It not only grows freely, but blooms constantly, and its fragrance is sweet and agreeable.—CAMERIAN.

BOOKS.

NEW ORCHID BOOK.*

It is not more than five years since I heard an English nurseryman lament that, like Alexander, he had no more worlds to conquer! "Nothing new to be had in the world now," said he; "plant collecting is not what it was in the days of Hartweg and the two Lobbs." But some of our modern Alexanders have a knack of making new fields of action for themselves, and to this class undoubtedly belongs Mr. Sander, of St. Albans. When several of our foremost London nurserymen were talking of the bad times, and of the expenses of maintaining collectors abroad, and of the dearth of plants really showy and new, Mr. Sander plunged into the business just as a shooting star dives in amongst the planets, and at the present time as an Orchid importer, I believe it is not too much to say that he stands alone in Europe in that particular. With the how, and the why, and the wherefore of his doing this much, I have nothing whatever to do; my mission is now to speak of accomplished facts, which Burns long ago told us "wadna ding." Mr. Sander, moreover, is not quite contented with his success as an Orchid importer; but now, "with the assistance of scientific authority," he has resolved to compete with the publishers of works devoted to Orchids, and before me is the result, in the so-called "Reichenbachia," a folio work with coloured illustrations.

With the first number of this beautiful book on the table before me, and knowing a little as to the trouble and expense of such illustrated folios, I do not like to find fault, but I entirely fail to see the appropriateness of the title selected. Of course, an author or publisher may with perfect freedom use what title best pleases him, but doing this does not prove that he is right. A contemporary, in reviewing the present work, tells us that the title is appropriate enough, an assertion just a trifle ambiguous, and then goes on to say that "since Lindley's death no one has more conspicuously identified himself with Orchids than Professor Reichenbach; no one has amassed such stores of information concerning them, and no one has more disinterestedly put himself at the service of Orchid lovers or Orchid growers;" with all of which I most cordially agree, but unfortunately the same authority goes on to say that this master mind may see his way clearly enough, but yet fail to enable others to see or understand what he means! Precisely so; that is just the point I wish to emphasise; and for this reason I have long maintained that accurate coloured illustrations are more valuable than any written description. And what does all this prove? Simply this, that henceforth in the study of plants good figures will day by day become more and more essential, that after wobbling about in a sea of long words and indefinite descriptions for years we have at last returned to illustration as the best means of education in such matters. A beautiful book of Orchid portraits this new work will be, and most highly will it be valued on that account. The letterpress, which is in three languages, in view of a Continental circulation, is perhaps less interesting than the plates, but this will doubtless improve as the work goes on. The plants illustrated are: 1, *Odontoglossum Alexandræ*; 2, *Cattleya Percivaliana*; 3, *Cypripedium Sanderianum*; and, 4, *Odontoglossum Rossi*, all of which have been figured elsewhere, if we except the *Cypripedium*, which is a new species from

Malaysia allied to *C. lævigatum*, but having long petals, barred and hairy at the base, reminding one of the sepals of some of the Chimæroid *Masdevallias*. This *Cypripedium* is illustrated from a sketch by Mr. Fitch; all the others are after beautiful drawings made by Mr. Moon, whose plates are so well known to readers of *THE GARDEN* for their grace of composition and faithfulness.

Having said what I believe to be true after giving due thought to this work, I am none the less anxious to congratulate Mr. Sander personally on the pictorial truthfulness and beauty of his new venture. Having now fairly entered into the field of botanical literature, I hope his list of Orchid plates may be a long one. Mr. Moon certainly deserves something more than simple acknowledgment, all his plates being good; in fact, he has got his work well over that equator in art of this kind which separates the coloured diagram from the more faithful portrait, which is saying a great deal.

There is one drawback to the nurseryman as a publisher; it is this: he is often tempted to make a mere advertising medium of his work. So far, however, there is no evidence of this tendency in Mr. Sander's new venture, and we hope that the number of subscribers will render such a course unnecessary. From a purely economic point of view this work is one of the largest, and, so far as its plates go, it is the best; hence, we may add, decidedly the cheapest of all the serials now devoted to Orchids. F. W. BURBIDGE.

ROSE GARDEN.

OLD ROSES.

I HAVE just laid down an old book on Roses, the perusal of which has afforded me much gratification, inasmuch as it shows how great has been the addition made to the better forms of Roses during the last half century. Indeed, we may safely conclude that exhibition Roses were quite unknown fifty years ago; yet this book convinces one that the love for Roses was at that time as great as now. What has struck me as being remarkable is the number of sorts which have become unknown in so short a time.

It seems that the first impulse given to Rose culture in France was at the commencement of the present century, under the auspices of the Empress Josephine. At that time it appears that Rose seeds, obtained from all parts of the world, were sown annually. It also appears that any new varieties raised in this way were not purchasable, but exchanged for other plants to such nurserymen as would undertake to distribute them. At this time it seems that there were eighteen hundred varieties of Roses in France, but not more than two-thirds of that number were considered to be worthy of cultivation. Standard Roses were quite as much in favour then as they have been at any time since. It was not an unusual sight to see them 18 feet high, and sometimes from ten to fifteen sorts were grafted on one Brier. Budding Roses does not appear to have been adopted; and, as regards their propagation, the author says that in England a new Rose remained a rarity for years, while in France it would be increased very rapidly by grafting. At the time when this book was written, the most noted Rose nurseries in England were at Tooting, Ingatstone, and Sawbridgeworth; and, notwithstanding that the climate of France was thought to be more favourable for the Rose than England, it was acknowledged in Paris that English growers produced the finest Roses in the world. This statement is singular when compared with another on the next page, which is to the effect that

Roses are largely exported to England by several French growers. I suppose this matter is, however, explained from what has already been said, that the English grower was not at that time successful in raising Roses. English botanists, it is said, introduced the Banksian and microphylla varieties from China, and Scotch Roses were held in much esteem about that time, particularly a variety named Smithi, a double yellow Rose, raised by the gardener to Lady Liverpool, a Rose not, I fear, in cultivation now. The first Hybrid Perpetual appears to have accidentally appeared in a Mrs. Lee's garden at Stanwell, and was therefore named Stanwell Perpetual. It also appears that the greatest number of varieties of Moss Roses was raised in England. The Ayrshire Roses seem singularly enough to have been chiefly raised from seed at Dundee, while a Sweet Brier bearing yellow flowers was raised at Pitmaston. Can this be the Austrian Copper Brier? About that time it seems that M. Ladfay raised a spine-bearing variety of the Banksian family, which it was hoped would produce vivid pink-coloured flowers; but our author does not say if this expectation was realised. The sporting character of Roses was as much observed at that time as now. According to the author of this book, the White Bath originated in this way at Clifton. Rose Unique was discovered in a cottager's garden amongst a plantation of Cabbage Roses about the commencement of the present century. That old-fashioned pink-flowered dwarf-growing old Rose de Meaux was first discovered in a garden in the west of England, and purchased by a nurseryman for five guineas; as the author says this Rose was never known to bear seed in England, it must have originated as a sport.

Single Roses certainly obtained a fair amount of attention at the time when this book was written, for in a list giving the names of all the varieties raised in England, prominent mention is made of two, viz., Rivers's Single and Single Crimson. How many more single varieties there might have been known at that time no clue is afforded, but I should imagine that Clifton White and Chelsea White, which are named in the list, refer to single Roses. Altogether there are seventy-three English-raised Roses in the list given in this old book. It appears that standard Roses were first introduced by the Dutch, and first brought to England from France about the commencement of the present century. At that time the importation of stocks from France formed quite an article of commerce. As a closing paragraph I make the following extract relating to a case of reversion: "Some plants of the Damask Moss Rose, raised in a clergyman's garden in Rutland, have during the present year lost their Moss, and assumed the appearance of the common Hundred-leaved." The Hundred-leaved is known now as the Cabbage Rose, from which the Moss is said to be a sport. J. C. C.

Rosa rugosa.—This Rose, like some others of the Japanese species, promises to be very hardy, and I imagine it could be got to naturalise itself in woods like the common wild Rose. In our cold situation, which is high and inland, it grows and ripens its seeds freely. We gathered and sowed seed last autumn, and, notwithstanding the unfavourable winter and spring, the seedlings are up and looking well. This Rose makes a very dense green bush, and as it is not likely to be damaged by rabbits, it should make a good covert.—J. S.

Rose Celeste.—If "R. K." (p. 534) cannot succeed in growing the Roses which he has in the outskirts of Dublin, I fear he will not be more successful with Celeste. It is a charming little Rose, but not harder than the common run of Roses, or better able to cope with the smoky

* "Reichenbachia: Orchids Illustrated and Described." By F. Sander, with the assistance of scientific authority. St. Albans: F. Sander & Co., Orchid Importers and Growers, &c., &c.

atmosphere of large towns. I should not, however, give up Rose culture after one attempt, as there may have been some fault in the management. Some of the China Roses are very beautiful as well as hardy—why not try them?—and some of the Hybrid Perpetuals are known to do fairly well in the vicinity of large towns.—J. C. C.

PLANTS FOR CLIMBING WALLS.

LET us suppose that the dwelling is isolated and that the front faces the south; the first thing I

summer and cold in winter; besides, it gives additional support to the wall. On the north wall the various varieties of Ampelopsis, particularly hederacea, will be found to be the best climbers, because they require little sunshine; they, however, need some sort of trellis (although they adhere to the wall by means of their own tendrils) on which to be trained. They also withstand both cold and heat. A particular variety of Vine might also be used on the north aspect, as it also lives without sun. It was introduced ten years ago from Japan, where it grows in the woods. It has been named *Vitis Coignetii*. It is remarkable for its large leaves, which are reddish

PACKING PLANTS FOR SEA-VOYAGES.

At the last meeting of the Edinburgh Botanical Society, Mr. R. Lindsay, curator of the Botanic Garden, read the following paper on a method of transmitting living plants abroad: "The method usually adopted," he said, "in transmitting living plants, particularly where very long journeys have to be undergone, is to pack them in Wardian cases, i.e., cases fitted with glass sashes, which, when closed, are nearly air-tight. This is, no doubt, the best mode of conveying plants safely, provided they are properly attended to on the journey. To do so it is almost necessary for someone who understands the requirements of plant life to take charge of such cases, as, when sent without any special attention being paid to them, the results are frequently unsatisfactory. The dangers attending such structures appear to be want of ventilation and shading. The plants contained in them soon become drawn up and weakly in the steamy atmosphere of a close-fitting case, and often arrive at their destination in a dying or dead condition.

"One of the most successful importations of plants that I recollect having seen was contained in a small wooden box sent to Edinburgh from Australia by Baron von Mueller in 1866. The plants had been over three months on the journey, but were found to be in perfect health on their arrival

at the Royal Botanic Garden. This result we attributed chiefly to the simple manner in which the case was constructed. It consisted of a rough square wooden box, filled with soil, into which the plants (which had previously been grown in pots) were placed; two

narrow strips of wood were nailed on to the sides of the box in an upright position, to which a cross piece was attached, constituting a handle. The whole was then covered with strong cotton cloth, no glass being used. In July last, Mr. John Buchanan, when returning to Central Africa, was desirous of taking some economic plants out with him to that country, and an opportunity was thus afforded of trying an experiment in the way of packing. This was rendered all the more necessary, as on previous occasions similar plants sent to Central Africa from the garden, packed in Wardian cases, although taken every care of on the way out, were found to be mostly dead on their arrival.

"On this occasion a case similar to that exhibited was prepared. It was 18 inches long, 12 inches wide, and 16 inches deep. It had a ridge roof with a handle fastened on the top for carrying purposes. The main difference between it and an ordinary Wardian case was the substitution of cotton blinds for glass sashes. The blinds were nailed to the top of the ridge and tied down with cords to the sides of the case, so that they could be easily rolled up or down as required. The advantage of this method is the admission of sufficient light and air to maintain the plants in a healthy condition; the fine meshes of the cloth act as a shade from strong sunshine, and do not admit so much air as to cause the interior to become quickly dried up. The plants sent on this trial consisted of India-rubbers, several Tea plants, Cinchonas, and Ipocacuanha. They were all turned out of the pots in which they had been growing previously, the balls of soil slightly reduced, and then wrapped up tightly amongst Sphagnum Moss. The plants were then packed in the case firmly, in an upright position, using Sphagnum for filling in the interstices. Thin strips of wood were placed across the balls, the ends of which were nailed to a flange inside the case for that purpose, thus preventing the plants from moving, even if the case was turned on end. After being well watered and allowed to settle for a day, the blinds were tied down and the case was sent to London, where Mr. Buchanan took it in charge. He was eighty-two days on the journey out, and in a letter to Mr. Taylor, received in December

underneath; but it is fruitless, and is propagated by means of cuttings with difficulty; it is therefore as yet scarce.

On the west wall I would put Clematises, of which there are great numbers of varieties of various colours. The east wall does best for Roses, but in order to obtain a pleasing variety of colours some little attention must be paid to the way in which they are planted, and they should be kinds which bloom from May till the end of October. To succeed satisfactorily it is necessary to plant at about 3 feet to 4 feet apart a quantity of *Rosa multiflora* on its own roots. This Rose is hardier than any other sort, and is constantly growing from early spring till frost sets in. In the same year in which *R. multiflora* is planted dormant buds of other varieties may be put on its lateral branches; in the following spring these side branches must be pruned in to near the inserted buds, which will grow and bloom the same year. In this way the wall will, in three or four years, be ornamented with a great variety of blooms of different colours. *R. multiflora* can generally be obtained on its own roots in pots, and therefore it can be planted at any time; if planted now, it could be budded in July and August. Of course, for Roses a trellis is indispensable.

If in front of the house there exists a verandah, the Ivy can, nevertheless, be so managed as to cover the upper stories, and the verandah may be embellished with climbing annuals, such as *Ipomæas*, *Convolvulus*, and other flowering climbers, which furnish a great variety of colours.

Monplaisir, Lyons.

JEAN SISLEY.

SHORT NOTES.—VARIOUS.

Yellow Carnations.—Mrs. George Hawtry is the best yellow with which I am acquainted. It is, I think, superior to *Pride of Penshurst*, inasmuch as it is nicely scented, while *Pride of Penshurst* is not or but very faintly. Mrs. George Hawtry also comes into flower a fortnight earlier. I do not, however, mean to discard *Pride of Penshurst*, as it forms a useful succession. —W. A. Cook.

Diseased Roses (*A. S.*).—The name of the orange fungus on your Roses is *Coleosporium pingue*. The only remedy is to carefully hand-pick and burn. —W. G. S.

would do would be to plant against it various varieties of Ivy, whether it be stone, bricks, or wood. Ivy requires no trellis-work to support it, and in three or four years it will cover a wall from 30 feet to 40 feet high, thus protecting it against heat in



last, Mr. Buchanan reports that all the plants arrived in a perfectly healthy condition, except the Cinchonas, and that he had not given up all hopes even of them.

"I may mention that the Cinchonas referred to were not very vigorous plants to begin with; they were the best we had at the time, but were merely young seedlings. It would be well to have this method still further tested, either by having a few plants sent to a distance alone, or, at all events, in charge of someone less skilful in the management of plants than Mr. Buchanan. For all but very tender plants (where special provision would be required), I think much more favourable results would be attained by the use of a case such as that described, always provided it were placed free from danger of sea water getting through the canvas, than if the usual Wardian case were used."

GARDEN DESTROYERS.

THE SLUG PEST.

THIS has been specially trying and destructive this season. The long winter probably lacked the needful severity to kill slugs, if indeed it ever does kill them, under the modern conditions of double cropping, now well nigh universal in kitchen gardens. Under the older system of one crop a year, culture was more radical, and the long spells of fallow between the crops starved out the slugs. Green crops are nearly always on the ground, and where these are found slugs are also near at hand. This incessant cropping is without doubt largely responsible for the alarming increase and power of the pest of slugs. The slugs, like the crops, are always with us, notwithstanding the vigorous use of the old remedies. Chief among these are quicklime, or a half and half of quick lime and soot. Many cultivators are, however, losing faith in these old antidotes; the lime is losing its burning potency and the soot its killing bitterness or suffocating pungency. There may be something in this. Builders as well as cultivators affirm that modern lime is by no means so strong as the old, and chimney sweeps are roundly accused of mixing brown soil and other rubbish with their soot. By saving the sweepings of our own chimneys, however, one source of deterioration may be readily avoided. Lime should be slaked immediately before use, if its full pungency as a slug killer is to be preserved intact. This was the old-fashioned way of doing things. Sifted soot was stored in a dry place as carefully as if it had been raw sugar, and unslaked lime was stored with equal care. The lime was slaked and applied quite hot, either by itself or in conjunction with a third or a half of soot. Used thus in the right way and at the right time, one dressing made great havoc among the slugs, a second gave the quietus to the sick and the dying, and a third made an end of them as far as crops for that season were concerned.

But now not a few are always liming, and the oftener they dust their plants the stronger and more numerous the slugs become. There are several tolerably obvious reasons for such failures. No doubt one, and that the most potent, may be found in the dead state of the lime. It has lost its life, or quickness, which is the foundation of its destructive power. To not a few, amateurs especially, lime is lime, and all sorts and conditions of it are to them alike potential in killing slugs; there cannot be a greater mistake. Lime too long kept, or stored in a damp place, is of no more use than sand or soil for killing slugs, all its pungent properties having been already stolen out of it by the air, or washed out of it by water. I have seen bushels of lime already as dead and inert as a rusty door nail cast on slug infested crops, with just as little effect on insect life as a shower of swansdown would have had, or less.

Good quicklime, fresh slaked and hot, is the first condition of success in this mode of slug killing. The second is to apply it at the right time. It is somewhat difficult to settle this by the clock; but easy by observation to determine the right time by the state or condition of the slugs. When feeding is the most vulnerable state of slugs and snails of all sorts. Dash

the burning powder upon them when fully distended and open mouthed; a sudden and, consequently, a merciful death, puts an end, at once, to their ravages and sufferings. When partially burnt, slugs often change their position, or cast their coats. And when dosed a second time, in this semi-helpless and more vulnerable state, they perish at once.

This is one of those cases in which two half loaves, at distinct times, are better than a whole one at once. By dressing with too heavy a hand, the lime and soot partially protect the slugs. But this or more pungent dressings, repeated at short intervals, assuredly destroy. It may be added that the most active feeding times with slugs are soon after day-dawn in the morning, and just as twilight fades into darkness at night. Any time, too, after soft showers of rain, with warmth afterwards, the slugs come out in force, seeking what seedling germs or green things they can devour. It must also be borne in mind that all such dressings lose their destructive potency a few moments after touching the ground; the moisture of the earth slakes the lime, and there is a speedy end of its powers as a slug destroyer. Little and often is, therefore, the great secret of success in this case. Too much at once only cumbrous young plants, and even fetters stronger ones in their growth, and has no deterrent effect whatever on slug life or propagation. On the contrary, slugs often hug effete lime and soot dressings as if they liked them.

Another point of great moment in our war against the slugs is to attack them over the entire surface of the garden. Not a few attack them on seed-beds or special patches of plants only; but where slugs abound, Grass, gravel, vacant ground, and especially living edgings of Box, Saxifrage, Pansies, Sedums, Violets, Thrift, &c., must be carefully and frequently sprinkled if we would come off more than conquerors in this warfare.

Finally, it must never be forgotten that by having the ground always under crops we give the slugs a tremendous advantage over us, as shelter and food are ever within their reach. Hence, instead of the usual annual or comparatively few dressings found sufficient in the olden times, a dozen dressings a year may now be needful. This augmentation of the pest of slugs may also suggest the inquiry after new agents and modes of destruction; and if any reader of THE GARDEN knows any more potent, simple, or effective than those here set forth, I trust they will hasten to publish them for our benefit. Of course, vigorous surface scarification greatly bothers the slugs; and the prompt removal of all decomposing vegetable matter, the burning of all Cabbage or other stalks, the use of clean manure free from slug larvæ, frequent trenching and honest deep digging, occasional burning of portions of the surface tilth, dressings with burnt earth, marl, salt, lime; free exposure of the surface in a rough state to atmospheric influences, and thorough drainage, may all tend to lessen the numbers and weaken the destructive force of slugs. Birds also pick up a few, and a brood of young ducks has been credited with the clearance of an entire kitchen garden. But in most cases, though these and other repressive forces are brought to bear against the slugs, it will still be needful to pickle them off as they appear, if the sweeter vegetable and fruit crops are to be protected from their destructive ravages, by which many thousand pounds' worth of valuable produce is destroyed annually.

D. T. F.

Eucharis mite.—Perhaps some of your readers who have to grow Eucharis flowers will be pleased to know a way by which this bulb mite may be got rid of. Twelve months ago our Eucharis bulbs were badly infested by this mite; the majority of them had neither leaves nor roots, but mites in plenty, and clearly visible to the naked eye. The bulbs, therefore, were turned out of their pots; those with leaves and roots were cleaned, and potted and placed by themselves. They received no dressing beyond a brush with a wisp of matting, which was used to clear off the putty-like soil. In repotting rather small-sized pots were selected; they were well drained, and the bulbs were placed rather low down in them. From four to eight bulbs were put into each pot,

and the base of each bulb was surrounded with clean dry sand, the rest of the material being very dry loam. The pots were placed in a warm house, and the leaves were sprinkled with water every day until new ones appeared; then the soil was damped on the top, increasing the moisture as growth advanced. Some of the bulbs thus treated flowered fairly well, though the blooms were imperfect. —H. GILL, *Lane Villa, Lancaster.*

Moles.—The rapidity and extent of the operations of the mole when at work would hardly be credited. We are rarely troubled with them inside the kitchen garden walls; but on one occasion, just after our Onion beds had been sown and trimmed, and the men had left off work about an hour or so, I was astonished, on going round, to see two of the long beds run from end to end by a mole, and about a dozen hillocks thrown up. As he was busy at work when I made the discovery, I tried to jump on him, but missed him. I sent for the mole-catcher in the morning, and together we traced them—for there were two—from the Onion beds to the garden wall, which is 2 feet thick at the base, and sunk nearly a yard in the ground. Here the moles disappeared, but their run was discovered on the opposite side, where it crossed a flower border to the edge of the Grass verge which it followed, just under the surface, for about 50 yards; then crossed under a hard walk, came up beside the Grass verge on the other side, followed it again for nearly 80 yards and disappeared under a Holly hedge into the orchard. Both moles were caught the following day in the run outside the walls, and the whole run appeared to have been the work of a few hours. It is hard to understand how anyone can favour moles either in the farm or garden. They may have a place and use in Nature, but they are nothing but an unmitigated evil in cultivated ground, and I should not be surprised if those who favour moles in such places favoured weeds as well. —J. S. W.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JUNE 8.

In addition to the usual fortnightly meeting there was this time an Orchid exhibition, and this, together with unusually large miscellaneous exhibits, made an extensive display. Numerous new and rare plants were placed before the committee, whom the following were awarded first-class certificates:—

CATLEYA SPECIOSISSIMA VAR. **FAIRFAX.**—An exceedingly fine variety, remarkable chiefly for its intensity of colour, which is several shades darker than usual. The flower, too, is large and of fine form. Shown by Admiral Fairfax, Ravenswood, Melrose.

GLOXINIA ORMONDE.—An erect-flowered variety—the finest in a group of new sorts shown by Messrs. Cannell, of Swanley. The flowers are large, of perfect shape, and of a bright crimson-carmine colour, particularly in the throat.

PEONY ECLAIRE.—A large double-flowered herbaceous variety of a beautiful salmon-pink colour—the finest of its colour yet raised. Shown by Messrs. Kelway, Langport.

PEONIA (TREE) LILACINA AND **PURITY.**—Two exceptionally fine sorts, both with large double or semi-double flowers. The first is pure white, stained with carmine in the centre, while the other is snow-white. Exhibited by Mr. F. G. Tautz from an importation by Mr. Gordon, Twickenham.

PEONIA FESTIVA MAXIMA.—A herbaceous variety having large double flowers, pure white, with a dash of crimson on the petals here and there. From Mr. T. S. Ware, Tottenham.

PYRETHRUM CELIA.—A large double-flowered variety of deep rose-pink colour. Messrs. Kelway.

PYRETHRUM MRS. BATEMAN BROWN.—A splendidly coloured single sort, the flowers of which are large, the florets broad, and of a glowing crimson-carmine. Mr. T. S. Ware.

IRIS VICTORINE.—A beautiful variety of the bearded section, long known as one of the finest. The flowers

are white, blotched and flaked with purple. Messrs. Kelway.

VIRGINIA LADY C. BERESFORD.—Truss and flower above the usual size; colour, a lovely rose pink, with large white centre. From the raiser, Mr. Stacey, Dunmow.

PYRETHRUM PRINCESS OF WALES AND ORMONDE.—Two beautiful varieties, both distinct in colour, and perfect as regards size and shape. From Messrs. Kelway.

THE ORCHIDS included some choice kinds, the chief being those from Mr. Dorman, of Sydenham. Among these was that extraordinary new Orchid, *Maxillaria Sanderiana*, the plant shown being the second flowered in this country, the first having been shown at the Orchid conference last year. The flowers are as large as those of *Lycaste Skinneri* and somewhat of the same shape. The broad and thick petals and sepals are ivory-white, and the lower parts of these are covered with reddish chocolate blotches and spots. It is one of the handsomest and most distinct Orchids introduced of late years. It was certificated last year. From Mr. Dorman also came the lovely *Cattleya Reineckiana*, which is *C. Mossie* with pure white sepals and petals and a richly-coloured lip; *C. Wagneri*, a pure white variety of *C. Mossie*, except a stain of yellow in the lip; *Oncidium pulchellum*, an extremely pretty Orchid not often seen, the flowers being small, pale mauve, borne in a numerous cluster on long slender spikes; *Epidendrum vitellinum maximum*, the finest variety of it yet shown, the flowers being much larger than those of the ordinary major form and the colour brighter; *Odontoglossum crispum* Mrs. Dorman, a variety having a finely-formed flower, with broad sepals and petals blotched and clouded with claret-purple; *O. Andersonianum* Miss Dorman, a richly-spotted variety, but not very different from others we have seen. The New Plant and Bulb Company, Colchester, showed a few specimens of *Cattleya Mossie*, one of them, named *Colchesteri*, being among the very finest varieties of this Orchid we have ever seen. The flowers are large, with broad sepals and petals of a delicate mauve. The labellum has a long lobe, coloured with the richest and deepest amethyst and broadly edged with mauve. Another variety, named *leucoglossa*, from the same firm, was also pretty, the flowers being white faintly tinged with mauve and with a white lip. Mr. H. M. Pollett, Fernside, Bickley, showed a flowering plant of a very fine variety of *Cypripedium Godefroyi*, named *argenteum*, the flower being larger, the sepals broader, and the markings heavier than have hitherto been seen. The most remarkable specimen in the show was a plant of *Masdevallia rosea*, from Mr. Courtauld's garden, Bocking Place, Braintree. This plant bore hundreds of flowers, which formed a perfectly circular fringe round the pot, rendering the plant one of the most beautiful specimen Orchids we have ever seen. A cultural commendation was awarded to Mr. Courtauld's gardener. Mr. Cobb, Sydenham, showed a fine form of *Odontoglossum Alexandræ*, having large white flowers with very few, if any, spots. The plant shown bore a spike bearing fourteen flowers.

MISCELLANEOUS GROUPS.—From Messrs. Paul, Waltham Cross, came numerous boxes and baskets of *Rhododendron* blooms in great variety, making a most attractive collection. Of these Lord Clyde, Sir R. Peel, John Waterer, Michael Watcrer, &c., were rich crimson; Sir J. Sebright, Lord J. Russell, and Schiller were good purples; Mr. W. Bovill, J. M. Brookes, concessum and mirabile, good carmines; and *Standishi Perfectum*, *Athens*, *Star of England*, *Minnie*, and *The Queen*, fine pale-hued flowers. Very striking were baskets of the semi-double Scotch Brier blooms, in several colours, and the now too rare old Austrian copper-coloured Rose, a delightful hue much wanted amongst Teas. Mr. T. S. Ware, of Tottenham, as usual, had a wondrous bank of hardy flowers, amongst which *Pæonies*, of many hues, made a prominent feature; whilst in form and substance few excel the fine old crimson of our gardens; the variety of colour introduced now adds a great charm to these grand old hardy flowers. *Pyrethrums*, single and double, were abundant, the best of the former, Mrs. Bateman Brown, being, without exception, the finest yet seen. *Sherlocki* also is of a glorious rich crimson-

scarlet hue. *Irises* in variety, *Anthericums*, giant *Poppies*, *Saxifrages*, and other hardy flowers assisted in making up the collection. Messrs. Barr, of Covent Garden, showed some grand Bearded *Irises*, the most effective of which, however, seemed to be the deep and pale blue *pallida* and the white *albicans*. Here, too, were *Poppies*, *Pæonies*, *Ixias*, *Pyrethrums*, and rare old *Ranunculus* blooms of the true rounded double form and of various colours. Messrs. Kelway, of Langport, exhibited a glowing bank of *Pæonies* in boxes, interspersed with quaint coloured *Irises*, *Poppies*, *Lupines*, *Delphiniums*, &c., and a very striking lot of double and single *Pyrethrums*, for which the firm has so great a reputation. Of the former very good were *Princesse de Metternich*, white fringed; *Acme*, crimson; *Monsieur Barral*, rich red; *Henry Mangles*, pleasing pink; *J. H. Twenty*, rich red, anemone centre; *Minerva*, soft pink; *Gloire d'Italie*, rich rosy red; *Nemesis*, orange-red, very striking; and *Deese*, pure white. Of single kinds, very effective were *Belgica*, flesh; *Princess of Wales*, rich reddish carmine; *Mercury*, peach; *Discorder*, white; and *Prince Henry*, rich glowing crimson. From Messrs. Hooper, Covent Garden, came a large, but very flatly arranged, collection of cut blooms of *Pæonies* in pleasing variety; from the society's gardens, numerous good Ivy-leaf *Pelargoniums*, single and double; and from Mr. Krelage, Haarlem, various *Iris* blooms.

FUCHSIAS.—From the Royal Horticultural Gardens, Chiswick, came to the show at South Kensington, on Tuesday last, a very interesting collection of *Fuchsias*, neat, medium-sized specimens, from 20 inches to 30 inches in height, fairly bushy and in profuse bloom. As ordinary decorative flowering plants these could hardly have been surpassed, and it is exceedingly pleasing to find such a good example set from the Chiswick Gardens. A good selection of these comprised, of dark sorts, *Madame Thibaut*, robust and wondrously free, certainly a fine kind for open-air culture. The tube of the flower is short, and with sepals, which are reflexed, bright red in colour, the corolla being of a purplish red. Right Hon. John Bright has a broad expanded bluish mauve corolla, short tube, and sepals of a rich red hue. Charming is a charming kind, corolla reddish purple, short tube with rather long reflexed petals. Little, very free, tube and sepals rosy pink, corolla long and of a rich rosy purple. Extraordinary has a dense double blue corolla and short red tube and sepals of a globose form. *Lucretia Borgia* has a bluish purple corolla and sharply reflexed sepals; is very distinct. Of light kinds the good old *Venus de Medici* was excellent; *M. Dufaure*, flesh-coloured tube and rosy pink corolla; Mrs. Bright, one of the *Arabella* type, very free; Elizabeth Marshall, red tube and fine double white corolla; and Mrs. Mein, red tube and fine single white corolla.

Among the miscellaneous exhibits was a collection of drawings of Orchids, by Mr. Foord-Hughes, some of which were truthful and good, and Messrs. Firman and Jones exhibited a coloured drawing of *Odontoglossum Alexandræ* on a plate glass mirror, admirably executed and highly effective. Mr. H. G. Smyth, of Drury Lane, also had an exhibit consisting of capital samples of Orchid peat, remarkable for its thickness and fibry texture.

Fruit and vegetables.—There were but few exhibits submitted to the committee. Messrs. Rivers showed fruits of their Early Favourite Plum, a purple round sort remarkable for its earliness. A cultural commendation was awarded. The same firm also showed new fruits of the Gladstone Apple, and old fruits well preserved of Dumelow's Seedling. Mr. Lockie, of Oakley Court, showed a new green-fleshed Melon named Oakley Court, a cross between the Egyptian and Dr. Hogg. The committee desire to see it again, as the fruit was not ripe. A named Melon, Edgecote Beauty, was shown by Mr. Wiles, of Edgecote. The South Australian Commissioners again showed some of the produce of their colony, consisting of Pears, Potatoes, and Onions, and preserved fruits, including Peaches, Pears, and Plums.

The Orchid show was a success; it made a fine display of bloom, but it lacked interest for the orchidist, as there were no remarkable specimens except those made up of a multitude of small plants.

There was no first-rate collection represented, and the competition, as the prize list will show, was confined to a few exhibitors, and only everyday Orchids were shown. Mr. Southgate's garden at Streatham contributed the first prize group of twelve kinds, the most conspicuous examples being *Odontoglossum vexillarium*, *Cattleya gigas*, *Cypripedium Domii* with five spikes, *Aerides Fieldingi* with six spikes, *Oncidium macranthum*, and *Anguloa Ruckeri*. Mr. Little's second dozen included a grand plant of *Cattleya Mendeli* with seven spikes and a large mass of *C. Mossie*. The best six Orchids from amateurs came from Mr. Crawshaw's garden, Rosefield, Sevenoaks, who had a fine *Odontoglossum vexillarium*, good plants of *Cattleya Warneri* and *C. Mendeli*. Nurserymen were best represented by Mr. Cypher, of Cheltenham—indeed, this exhibitor and Mr. James had it all to themselves. Mr. Cypher's plants were much the same as he exhibited at the Regent's Park the day following, all being large masses of fresh, well-flowered plants, and Mr. James' plants were also much the same at the two shows. There was but one group of *Odontoglossums* of not less than fifteen kinds. This was from Mr. James, and included a few choice things, such as *O. cordatum Kienastianum*, a very dark variety, the aureum form with yellow flowers, *O. Wilkeanum*, *O. polyanthum*, *O. Lehmanni*, the true *O. niveum majus*, and *O. sceptrum*. There was a class for six *Cattleyas* and *Lælias*, the finest being from Mr. Cypher, who had fine plants of *L. purpurata Brysiana*, a variety with very dark flowers; *L. purpurata alba*, *C. Mossie*, *grandis*, *Mendeli*, *grandiflora*, and *C. lobata*, a good dark variety of a rarely seen species. Mr. Crawshaw was second, having in his group a fine specimen of the beautiful *L. Russelliana*, with a dozen flowers, while Mr. James was third.

Scientific committee.—*Red-spotted Potatoes.*—Dr. Masters observed with reference to Mr. Plowright's communication made to the last meeting that although many were found in the experiments at Chiswick in 1884, none whatever occurred in 1885.

Apples and Pears attacked by Erysiphe communis.—Mr. W. G. Smith stated that the trees at Dunstable were badly attacked this year by an *Oidium*. It had often been noticed before, but it had not previously been identified with *E. communis*. It attacks the stamens and pistil, destroying the pollen.

Circa Lactuca with stipules.—Dr. Masters brought plants, and called attention to the fact, previously unobserved, that this species possessed minute gland-like stipules, which disappeared from the older and lower portion of the plants.

Hawthorn shoot from root.—He also exhibited a shoot of *Crataegus Pyracantha* springing from a root.

Dentia gracilis with "blind flowers."—Dr. Lowe brought specimens showing that these produced no fruit, but often bore isolated flowers with perfect organs.

Senecio spathulifolius.—He also exhibited fine specimens of this plant growing in the open. It is a native of Holyhead, and said to be in Yorkshire by Backhouse. Mr. Boscawen observed that the Groundsels are all best raised from green seed, which come up quicker and better than when dried. It is the same with *Lilies*. Dr. Lowe also exhibited plants of *Aster aurantius*, originally received from the late Mr. Joad.

Potato with Phycomyces nitens.—A specimen was received from Mr. Wills with the silky-looking fungus, which appeared to be in fructification. It was referred to Mr. Smith for further examination and report.

Ascomyces Alni.—A specimen of Alder root covered with excrescence due to this fungus was sent by Mr. Bunyard, of Maidstone.

Anthracium Liliastrium and Delphinium.—He also sent isolated blossoms of these plants springing from the base of the plants in anticipation of the usual spikes.

Method of lighting with the interposition of water.—Mr. T. C. March (of the Board of Green Cloth, Buckingham Palace) was invited to give some account of his invention, which consists of introducing a shallow glass tank over the plants. This stops the heat rays but allows the light to penetrate freely. Mr. Stirling,

the (Queen's) gardener, is experimenting with it, and finds Fuchsias, Ferns, &c., grow extremely well under it. It was suggested that it might be useful to adopt some form of the arrangement in tropical countries with advantage.

ROYAL BOTANIC.

JUNE 9.

THE predominating features of Wednesday's show, the last held by the society this season, were the Orchids and hardy flowers, than which we have never seen finer at this place. The Orchids gave a glow of brightness to the tent; in fact, were it not for these, it would have been a very dull affair, for there was a conspicuous absence of brilliant flowers, few, if any, Azaleas, no pot Roses, whilst the specimen stove and greenhouse plants were decidedly below the average quality; scarcely a collection beyond those shown from the Cheltenham Nurseries were up to the exhibition standard. The Pelargoniums also helped to relieve the prevalent dullness, and as these were excellent they were a much admired feature. The miscellaneous groups, which usually occupy the central mounds, were as interesting as ever, although the absence of the Messrs. Veitch's group was noticeable. The corridor was filled with the cut flowers, which made a showy and interesting display; but the fruit, though of fair quality, was by no means plentiful.

THE ORCHIDS, as we have said, were remarkable for number and high quality, and consequently the usual Orchid bank was filled, besides another larger bank behind it. Such a display of Orchids is another illustration of the increasing popularity of these plants, and it is pretty evident to those who frequent the great flower shows that they are gradually elbowing out nearly all other plants from notice, especially the trained stove and greenhouse specimens. There were four classes for Orchids on this occasion, two for *bona fide* specimen plants and two for made-up specimens. The latter, of course, made the greatest show, and uncommonly fine they were. Among the amateurs, Mr. Whitbourne, of Great Gearies, Ilford, was first by a long way, and every plant shown did Mr. Douglas credit, for he took both first prizes in the made-up and the specimen classes. In the made-up group was a marvellous plant of *Odontoglossum vexillarium* about 3 feet through, and a complete mass of bloom. It was a show in itself, and was, in fact, the centre of attraction. In company with it were fine specimens of *Dendrobium nobile*, *Cattleya Mossiæ*, C. Mendeli, *Lælia purpurata*, *Odontoglossum crispum*, O. Roezli, *Epidendrum vitellinum majus*, *Masdevallia Harryana*, *Cypripedium Lawrenceanum*, and C. caudatum roseum. In Mr. Southgate's second collection was a grand specimen of *Aerides Fieldingi*, with five branched spikes; also good plants of *Cattleya gigas* and Warneri, *Cypripedium Domini*, *Odontoglossum vexillarium*, *picturatum*, and others. In Mr. Little's group was a grand plant of *Cattleya Mendeli* with about eighteen flowers, and of the rare C. intricata, said to be a cross between C. amethystina and L. elegans. The amateurs' specimen class was well represented, but as a whole it was not remarkable for any fine plants shown in it. Mr. Whitbourne's group consisted of *Odontoglossum vexillarium*, two fine plants, one about 2½ feet across; *Cymbidium Lowianum*, with two spikes; *Lælia purpurata*, *Cattleya Mossiæ*, *Cypripedium Domini*, *Vanda suavis*, and *Odontoglossum Roezli*. Mr. Crawshaw's second group included a fine *Lælia Russelliana* with three spikes, L. purpurata, a good *Vanda suavis*, and *Cattleya Mendeli* and Warneri. A large specimen of *Dendrobium thyrsiflorum*, with twenty spikes, was conspicuous in the third collection. The nurserymen were well represented by Mr. Cypher, of Cheltenham, who, like Mr. Douglas, took first prizes in each class. In the made-up class he had a grand group of a dozen plants, consisting of huge masses of such as *Epidendrum vitellinum majus*, *Cattleya Mossiæ* and Mendeli, *Odontoglossum citrosum*, *Cypripedium Lawrenceanum*, and *Anguloa Clowesi*; while Mr. James' second group contained smaller, but, nevertheless, well-flowered plants; Mr. Cypher's specimen plants were *Cattleya Mossiæ* with thirteen flowers, *Lælia purpurata* with twenty-two, and *Epidendrum vitellinum* with a dozen spikes; also good

plants of *Cypripedium Lawrenceanum*, C. Mendeli, and the rarely seen C. lobata. In Mr. James' second group was a good variety of *Odontoglossum Wilckeanum* and of *Cypripedium barbatum* named *superbum*.

STOVE AND GREENHOUSE PLANTS were best represented by Mr. Cypher, who won the first prizes in both classes for twelve and six plants. His dozen included grand examples of *Erica Cavendishi*, *depressa*, *ventricosa*, and *tricolor*, *Hedera tulipiferum*, *Ixora Williamsi*, *Aphelexis macrantha purpurea*, *Clerodendron Balfourii*, and *Dracophyllum gracile*; in Mr. Mould's second group was a huge plant of the beautiful *Gloriosa superba*, a plant not often seen at shows, and not so common in stoves as it should be; the flowers are scarlet and orange. There were also a good *Allamanda grandiflora* and *Dipladenia* in this group, while in Mr. James's was a specimen of *Rondeletia speciosa major*, also a capital greenhouse shrub. The groups of half a dozen plants were also good from Mr. Cypher, the most remarkable plant in his group being a large specimen of *Anthurium Scherzerianum* Cypheri, which has huge spathes larger, in fact, than those of Wardi. The amateurs' specimen plants were poor compared with the nurserymen's; indeed some of those shown never ought to have been admitted in competition, for they were worse than third-rate.

FINE-FOLIAGED PLANTS were not nearly so fine as in previous years, the best being those from Mr. Rann, of Handcross Park, who also showed the best Ferns, a grand group of half-a-dozen specimens, the most remarkable of them being two huge plants of *Gleichenia rupestris* and the variety *glauca*, *Asplenium Nidus-avis*, and Tree Ferns—*Dicksonias squarrosa*, *antarctica*, and *Youngi*. The best six variegated-leaved plants also came from Handcross Park. These consisted of *Croton Henryanus*, *superbus*, and *Prince of Wales*, all admirably coloured specimens of three of the best varieties; *Dieffenbachia illustris*, *Pandanus Veitchi*, and *Yucca aloifolia variegata*. *Pelargoniums* made a fine show of themselves, and had groups of them been distributed about the tent it would have lit it up more than it was. Mr. Turner, as usual, was first among the nurserymen, showing plants in his customary fine style. His group of show kinds included such beautiful sorts as *Rosetta*, *Sister of Mercy*, *Talisman*, *Prince Leopold*, *Kingston Beauty*, and *Prince of Purples*, while among Mr. Cypher's group, who was a close second, were fine decorative sorts like *Miss Simpson*, *Triomphe de St. Amand*, *Decorator*, and C. Outram. The fancy varieties were also shown best by Mr. Turner, and the amateurs' class was represented best by Mr. Phillips, of Langley, who had capital groups of both show and fancy kinds, the latter being rather small, but densely flowered plants. There was nothing remarkable about the sorts, all being well known at exhibitions. The *Begonias* from Messrs. Laing, of Forest Hill, made a bright group, as all the plants were large and abundantly flowered, and, as may be supposed, consisted of the finest varieties. The most noteworthy sorts were those named *White Perfection*, *Staustead Surprise*, *Grace Darling*, *Primrose Queen*, *S. North*, *New Colour*, *W. Freeman*, and *Ball of Fire*. Some of the groups of Fuchsias were good.

CUT FLOWERS were plentiful and have rarely been seen finer. Roses were excellent, particularly those from Mr. Tranter, of Henley-on-Thames, and Mr. Hollingsworth, of Maidstone. Some at least of the blooms were cut from outdoor bushes, and very fine they were, the *Maréchal Niel* and *Niphetos* being especially so. A charming basket of cut Roses was shown by Messrs. Paul, of Cheshunt. The little double *Polyantha* Roses on long, graceful sprays showed to advantage and were much admired. The hardy flower class was excellent, although there were but two competitors, Mr. Ware and Messrs. Paul, of Cheshunt. Mr. Ware's collection consisted of great bunches of showy things like *Delphinium formosum*, *Hemerocallis flava*, *Aquilegia chrysantha*, *Campanula speciosa*, double and single *Pyrethrums*, *Irises*, *Geums*, *Pæonies*, *Anthericum Liliastrium*, *Oriental Poppies*, *Lilium colchicum*, *Onosma tauricum*, and double *Poet's Narcissus*, all of which are first-rate hardy perennials. Messrs. Paul's collection was likewise fine, but their bunches were smaller; therefore less

attractive. They had some beautiful Persian *Ranunculuses*, *Geranium armenum*, *Sarracenia purpurea* (from the open-air bog garden), *Anchusa capensis*, double *Rockets*, *Anemone fulgens*, *Geum minimum*, *Pyrethums*, and *Agrostemma Flos-jovis*. There was also a large display of *Pæonies* and *Irises*, particularly of the latter in consequence of prizes being offered for collections of them, Mr. Ware being first, and followed by Messrs. Paul and Messrs. Barr, who each had large groups.

NEW PLANTS.—*Botanical certificates* were awarded to Messrs. Veitch, for *Nephrolepis rufescens tripinnatifida*, *Asparagus verticillatus*, *Pteris tremula foliosa*, *Todea grandipinnula*, and *Gymnogramma schizophylla gloriosa*; to Messrs. Low, for *Cattleya Reinckiana* and C. Wagneri; to Mr. B. S. Williams, for *Oncidium Kramerii majus* and *Lisochilus lutescens*; to Messrs. E. G. Henderson, for *Dracæna nobilissima*; and to Messrs. Sander, for *Oncidium superbien*. *Floricultural certificates* were awarded to Messrs. Veitch, for *Rhododendron Gloria Mundi*, *Imantophyllum Distinction*, and *Gloxinia Ivanhoe*; to Messrs. Laing, for *Begonia Charmer*, B. Miss Amy Adcock; and to Mr. T. S. Ware, for *Anthericum Liliastrium majus* and *Pæonia Festiva maxima*.

FRUIT.—There was a decided falling off in the fruit class, which is usually a noteworthy feature at the June show here. This may be owing to the season. The Grapes were fairly good, particularly those shown by Mr. Mowbray, the Earl of Leven's gardener, at Fulmer, who had excellent Black Prince bunches and Buckland Sweetwater. Mr. Osman also showed Grapes well from Ottershaw Park, and likewise Mr. Brush from Lady Hume Campbell's garden at Eastcott. There were some unripe *Alexandrian Muscats*, which it seemed a pity to cut so prematurely. The class for Peaches was best of all, and some really fine fruits were shown. The best two dishes, shown by Mr. Hepworth, of Maidstone, consisted of *Alexander* and *Barrington*; the second pair were *Early Silver* and *Grosse Mignonne*; the third, *Royal George* and *Grosse Mignonne*; while *Early Victoria* and *Early Albert* were also shown well. The best two Nectarines were *Elruge* and *Lord Napier*, from Singleton, Swansea, followed by *Violette Hâtive* and *Elruge*, and *Hunt's Tawny* and *Elruge* were third. There were good Cherries from Mr. Hare, of Wellington, and excellent Strawberries, the best sorts being *President* and *La Grosse Sucrée*. Melons were poor, *McIndoe's Green flesh* and *Hero of Lockinge* being first. There was but one collection in competition for the prizes offered by the fruiterers. This, from Mr. Dyke Lee's garden at Aylesbury (a very creditable display), was shown by Mr. Robbins, the gardener. There were several Melons of sorts, fairly good Grapes, excellent Peaches, *White Currants*, and Strawberries, the whole making up a collection of about two dozen dishes. Some dishes of Australian Apples were likewise shown, and their large size and fine colour greatly attracted the visitors.

THE MISCELLANEOUS CLASSES contributed a deal to the show, the chief of which were arranged on the four central mounds. Mr. B. S. Williams occupied one with a large mixed collection of stove and greenhouse plants, fine-foliaged and flowering, among which numerous choice Orchids were prominent, none being more attractive than the *Cattleyas* and *Lælias*, and a very fine variety of the *Butterfly* Orchid, *Oncidium Kramerii*, called *majus*. These were interspersed with fine-leaved plants, including *Nepenthes* and other Pitcher plants. A silver-gilt medal was awarded to Mr. Williams, and likewise to Messrs. Laing, who occupied the opposite bank with a fine group consisting chiefly of fine-leaved plants, conspicuous among them being *Caladiums*, *Palms*, &c., intermixed with *Begonias* and Orchids, *Gloxinias*, and the like. Messrs. Henderson took a silver medal for a group of fine-foliaged plants consisting chiefly of *Caladiums*, some of which were new varieties mixed with other beautiful stove and greenhouse plants. A very tastefully arranged group was exhibited by Messrs. Hooper, of Covent Garden, which surpassed all the others as regards effect. It was made up chiefly of *Gloxinias* and *Petunias* and bright-leaved plants such as *Crotons* and *Dracænas*, *Eleganc*

was imparted to the group by Palms and Ferns. A silver medal was awarded to the exhibitors. Messrs. Cutbush took a silver medal for a large collection of hard-wooded plants, admirably grown and flowered. Messrs. Low won a silver medal for a grand group of Cattleya Mossiae, among which were some splendid varieties, including the highly-prized C. Reineckiana; and Messrs. Veitch took a silver medal for a large display of cut flowers, including Irises, Poppies, Anemones, Ixias, Pæonies, Pyrethrums, the whole making quite a show in themselves. To these were added a collection of new plants from the same nursery, some of which received certificates. Other prizes were awarded to Mr. Ware for Pæonies, to Mr. Clay for seedling Pelargoniums, to Mr. Phillips for Pelargoniums, to Messrs. Carter for a fine collection of Ixias, to Mr. Salter for well-grown Hydrangeas, and to Mr. Forbes, of Hawick, for an uncommonly fine collection of Pansies, such as we rarely see exhibited in the south.

A full prize list is given in our advertising columns.

GARDEN CATS.

CALLING on a friend last autumn, he complained of the trouble which mice were giving him amongst a crop of ripe Grapes; and, as they often do in such cases, they refused to enter a trap. I advised him to get a cat, a young one if possible, not more than half grown; for, as generally happens, an old cat, or one that is full grown, has such a disinclination to be confined in a fresh place, that it usually takes the first chance which occurs of getting out of it. Cats were, however, not favourites with my friend; he alleged that they were objectionable in a garden, particularly amongst plants—an objection often raised, but which is only correct when they are wild and shy for want of kind treatment, or have not been brought up in the houses where plants are grown; for, as persons who have employed these deftly-moving animals know, they barely break anything when used to the houses, and not treated in a way to make them timid. Where game happens to be preserved in the neighbourhood of a garden, it is almost impossible to keep cats any time, as gamekeepers usually give them no quarter. For this reason I was long without any experience with garden cats, even where there was not much difficulty on the score of their poaching propensities. But one summer, being troubled in the way my friend was with mice in the vineries, I tried the usual remedies of tying Gorse tightly round the stems of the Vines, so as to prevent their travelling up, and also tied sheets of paper round them smeared with birdlime. Two or three of the vermin were caught in this way, but they soon got too cunning, and followed the woodwork until they got above the barriers I had placed, and night after night more bunches of Grapes were disfigured. I wanted to exhibit some of the Grapes at two or three shows that were coming on, and had the mortification of seeing some of the best bunches I had intended to show spoilt. I then got a half-grown kitten and turned it into the houses, taking means for a few days to prevent its getting out. It soon settled accounts with the wary little pests, and afterwards was content to make the garden and houses its home. After this I was never without two or three cats, which passed most of their time in the houses, and kept them, as well as the kitchen garden, free from both rats and mice; the benefit of freedom from which is not fully realised until one has had to deal with a garden near enough to stack yards or farm buildings to admit of the vermin turning their attention to the garden, if they wanted a change or were disturbed in their usual abode.

Although cats are not able to cope with birds in gardens so effectually as with the four-legged intruders in and about the houses, still, if a number proportionate to the size of the garden are kept, they help much to keep the winged marauders from doing the mischief they otherwise would do. The method adopted by Mr. Wilson, of Weybridge, and others, of tethering a cat near seed-beds, or

such things as ripe Strawberries, that birds often devour, is effectual on a limited scale. A cat so tethered by the neck soon learns to move freely from one end to the other of a wire running 8 inches or 9 inches above the ground, and stretched quite tight, like a garden line, so that the ring on it to which the cat is secured will slide easily. A little box, like a miniature dog-kennel, that puss can take shelter and sleep in, completes the arrangement. Employed this way at exceptional times, and at others left to themselves, I have found few more useful things in a garden than a cat. But there are cats and cats, and, though distinctions in breed are not noticed or recognised in the way they are with dogs, still there is almost as much difference in the incessant watchfulness after vermin that may be seen running through successive generations of cats that are slim and wiry, compared with others that are big and naturally disposed to get fat, as there is between a nimble fox terrier and a sleepy mongrel that passes most of its time away at rest.

T. B.

WINTER-FLOWERING FUCHSIAS.

SEVERAL of the original species of Fuchsia are most beautiful, and among them may be found far greater variety in the way of form and colour than amongst ordinary garden kinds, which, in many cases, so nearly resemble each other, that it is necessary to examine the plants side by side to detect the difference. The mention of such species as *F. splendens*, *serratifolia*, *fulgens*, *gracilis*, *corymbiflora*, *triphylia*, *microphylla*, *procumbens*, and *excoartata* will serve to show the variety existing among them, ranging as they do from the almost tree-like *corymbiflora* to the little creeping *procumbens*, and in the size of blossom from that of *fulgens* or *corymbiflora* to the tiny blossoms of *microphylla*. *F. splendens* possesses the merit of flowering throughout the winter, provided it is afforded a suitable structure, and the plants are prepared for that purpose. This Fuchsia is always much admired, and, in order to ensure a supply of bloom from it during winter, the following treatment should be observed. In the case of old specimens, they should be allowed a little rest in spring, and then started freely into growth. As soon as young shoots make their appearance the plants should be potted, and encouraged to grow freely by keeping them in a good genial temperature. Soon after midsummer they should be placed out of doors in a sunny spot, in order to get the wood well ripened, as upon that depends the future display of bloom. Water is not withheld to assist the ripening process, as this would cause most of the leaves to drop, and hence the plant would have a somewhat naked appearance during winter. About the end of August the plants should be moved under glass, and if kept in a temperature of from 50° to 60°, they will continue to flower for months. Young plants must also be grown on as quickly as possible during the early summer months, in order to ensure well-ripened growth. The scarlet and green flowers of *F. splendens* are very distinct from those of any other kind. *F. serratifolia* is also a good winter bloomer, and of hybrid kinds with the same characteristics the oldest one is raised many years ago by Mr. Dominy (Dominiana), still one of the best in its limited class. Between this last and *F. serratifolia* several hybrids have been raised; indeed one (hybrida rubra) received a first-class certificate from the Royal Horticultural Society some four or five years since, but it does not seem to have made much headway. About the same time several varieties, the progeny of the same parents, were put into commerce by M. Lemoine, of Nancy, and very pretty they were for winter blooming, possessing the sometimes great merit of flowering freely in a small state. The blooms of all are of a reddish orange colour.

H. P.

Senecio pyramidatus.—Under this name there is now flowering in No. 5 house at Kew a plant which is worth attention because of its beauty and

fitness for greenhouse cultivation. It has erect stems 18 inches high, the upper part clothed with crowded terete foliage 4 inches long. The flowers are borne upon a spike 1 foot long, which terminates the strongest shoots, and has upon its upper 6 inches about a score of large, bright yellow Marigold-like flowers. These last upon the plant about a month after opening, and their brilliant colour renders them very ornamental. *Senecios* are quite a wonderful group of heterogeneous composites, the strange fantastic forms of some of them and extraordinary resemblance of others to widely different plants, so far as regards botanical relationship, being very remarkable. In the same house with the above-mentioned species, and standing close to it, are two other species which may be pointed to as instances of this wide variation in habit and leaf characters. These are *S. macroglossus*, the Ivy Groundsel, which is exactly like an Ivy plant in habit and foliage, and *S. præcox*, a tree-like species with a stem 7 feet high and as thick as a man's wrist; its leaves are borne in a cluster on the top of the stem, and are something like the leaves of an Acer. This last is a native of Mexico, the two former of the Cape.

QUESTIONS.

5498.—**Packing Strawberries.**—Will some reader of THE GARDEN kindly give me a few hints as to the best way in which to pack Strawberries? I have to send them about 100 miles by rail.—S.

5499.—**Nymphæa and Eremurus seed.**—Could Mr. Frank Miles kindly inform me where he procured the seed of *Nymphæa alba* var. *rubra* and *Eremurus robustus*?—C. W. CLEVELAND, Cleveland House.

5500.—**Herbs.**—Will some reader of THE GARDEN kindly answer the following questions: Is there such a herb as Sitfast? If so, what is it like and where can it be got? I have a plaster made up of four parts—two of chemicals and two of herbs. It is upwards of thirty years since it was made. Can I get it analysed in order to obtain the name of the herbs?—ALPHA, Durham.

5501.—**Repotting Camellias.**—I have bought a large white Camellia at a sale, and as it appears to have been in the pot in which it now is for a number of years, and would be better for a shift, I have had a box made for it. I know it is late in the season to repot it, as it has made its growth. I would, therefore, be glad of the advice of some of your readers as to whether I should be running too great a risk in doing so.—T. M.

5502.—**Vanilla Orchid.**—Will some Orchid grower kindly tell me how to treat this in order to induce it to fruit? I have a large plant of it in the stove that flowers well, but has never yet set any fruit. My employer says it fruited previous to his purchasing it, but it has not fruited since. I may add that it has been under my charge for seven years.—OLD SUB.

LATE NOTES.

Laburnum sports (*P. Norfolk*).—These are not at all uncommon. The purple kind is *Cytisus purpureus*, and the bronzy coloured sort, *C. Adami*.

Mushrooms (*P. F.*)—Your Mushroom, carrying another inverted on its crown, though singular, is not uncommon. Their tops had become united when young, and in course of growth the stronger had uprooted the weaker.

Hose-in-hose Mimulus (*W. B. Hartland*).—A very pretty variety, and must be effective in a mass or as a pot plant. The *Violas* Countess of Kintore and King of the Blacks you send are good blooms of two valuable sorts.

Abutilon Boule de Neige (*F. Neale*).—Simply a monstrous flower, not uncommonly met with in *Abutilons*, especially in the white sort you send. We imagine it arises, as you observe, from the exhausted state of the plant.

Seedling Picotee (*R. H. Vertigan*).—Your Chad Valley Queen is an extremely pretty variety, and as the calyx does not split and the plant such a free flowerer, it must be looked upon as an acquisition. The *Primula luteola* spike is fine, it is also tolerably well known to be one of the hardiest species.

Names of plants.—*Bon.*—*Saxifraga granulata* fl. pl. —*M. F.*—*Solanum jasminoides*. —*R. J. M.*—*Oriental Poppy*, *Papaver orientale*. —*W. & S.*—*Iris sibirica*, and smaller flower, *I. graminea*. —*H. E.*—1, *Muscari moschatum monstrosum*; 2, *Anemone pennsylvanica*; 3, *Iris Guldentiedtiana*; 4, *Achillea umbellata*. —*Capt. Hope*.—A very fine variety of *Oncidium crispum*. —*A. B.*—*Rhododendron fragrantissimum*. We see no reason why it should not succeed against the back wall of a vinery. Name of tree is *Prunus Padus*. —*C. D.*—1, *Hyppophæa rhamnoides*; 2, *Viburnum Lantana*; 3 and 4, varieties of *Cratægea coccinea*. —*C. Barker*.—*Staphylea pinnata*. —*Mrs. Albright*.—*Amelanchier vulgaris*. —*C. H. F.*—Pale flower is *Dendrobium Pierardii*, other is *D. transparens*. —*D. C.*—*Crinum capense*. —*H. D. E.*—Apparently *Phyllocaulos multiflorus* variety. —*W. M.*—*Gloriosa superba*. —*W. Holde*.—Appears to be *Rosa chinensis*. —*Carlus*.—Send us a good specimen in a box. Yours in a letter came smashed. —*S. T.*—Double variety of *Saxifraga granulata*. —*W. Richardson*.—The tree is *Cytisus Adami*, a hybrid between *C. Laburnum* and *C. purpureus*, not uncommon. —*J. C. L.* and *E. F. C.*—Next week.

WOODS & FORESTS.

THE CORSICAN AND AUSTRIAN FIRS.

I AM pleased to see these two Firs, but particularly the last, so much praised in THE GARDEN and elsewhere lately by practical men. It seems safe to predict that the Corsican Fir will be the most popular tree for planting, as a substitute for the Larch and Fir timber, in a short time. Stocks in nurseries are already being exhausted. A clear distinction should, however, be drawn between the two varieties. Authorities say that they are simply varieties of the same species; which may be the case, but in habit, appearance, and particularly in the remarkable difference of their transplanting powers, they are as dissimilar as any two Firs I know of. They are said to be about equal in the quality of their timber; but, unfortunately, the habit of the Austrian Fir partly spoils it as a timber tree unless it is grown thickly enough on the ground to allow of only about one-third of its length, or less, at the top to carry branches. It will branch out laterally, growing nearly as broad as long, and so many branches cause the trunk to be rough and knotty and less straight than that of the Corsican. It loads itself with snow, too, and from that cause is apt to be laid over, and the wind has the same effect on its broad sides. Isolated specimens which I have seen are more like Cedars in shape, owing to the spread of the side limbs. For shelter purposes it is unmatched, and, so far as our plantations are concerned, it is the best transplanting up to twenty years of age of any of the Conifer family. The Corsican, on the other hand, whether thick or thin on the ground, is of slender habit of growth, and bears most of its branches at the top; hence it makes a clean straight pole such as the timber merchant loves to see, and it increases in bulk evenly and about as fast again as the Larch, and faster than the Scotch Fir—an enormous advantage in planting for profit. This is the character of the Corsican Fir wherever I have seen it true; and the figure of the tall specimen at Kew in THE GARDEN not long since gave an excellent idea of the typical variety. It is undoubtedly a bad transplanting; but I think, from what I have seen of it lately, that if it was planted early in autumn—say October or just before starting its buds in spring, it would succeed much better. Some of the healthiest young trees we have of it here, seven or eight years planted, grow about 1000 feet above the sea, on a poor, thin moorland soil, and in a position as nearly resembling the top of Salisbury Crags, near Edinburgh, as anything could do. YORKSHIREMAN.

Value of the Spruce.—Spruce, in this part of Yorkshire, has been quite a drug since the gales of three and four years ago, when so many trees of this Conifer were blown down. On an adjoining estate, where nearly a whole plantation was uprooted, a purchaser could not be found at any price for some months; and at last it was only sold by offering some good Larch along with it. This estate is, generally speaking, on the limestone formation, which seems to be unfavourable alike to Scotch Fir and Spruce, but especially the latter. Larch, on the other hand, grows luxuriantly, and hundreds of acres of fine trees, from sixty to eighty years' growth, can be seen. Although I pay the same for felling Spruce as for Larch and Scotch, it is only because we have so little of it, comparatively, that it is not necessary to make a distinction in the price. If it were to cut by itself, it would take at least 1s. (and probably 1s. 6d.) per 100 feet extra; for the average Spruce has such hard knots, and so many of them, and so few axes—unless left very thick—will cut the branches without breaking pieces out of the edge, that it takes almost double the time

to dress one as it does a Larch. I only plant it for the sake of the shelter it affords for game, and for its fine appearance when young, amongst other trees; certainly, at its present price of 2d. or 3d. per cubic foot, it is not tempting to plant it as an investment.—W. B. H.

MIXED PLANTATIONS.

THERE is something delightful about an old mixed plantation. Generally I am averse to mixing up different species, and it may be bad woodcraft to say anything in its favour, but from the picturesque side of the question it cannot be denied that effects are gained which could not be were trees of one species only planted. A plantation—as it hardly reaches the size of a wood, and is too wide in proportion to its length to be termed a belt—where I had occasion to be recently very well illustrated the point, and showed where, in spite of its admitted disadvantages, such an arrangement was admissible. The place to which I refer forms an approach to a residence, the drive passing through its centre. From an economic view, some of the trees need to be felled, and where such exists, except in special cases, ornamentally their removal would be no disadvantage. The trees, which are a mixture of Ash, Horse Chestnut, Beech, Lime, Birch, Wych Elm, common Elm, Larch, Acacia, Oak, and Sycamore, are growing very thickly, and as a consequence have run up very tall, and in the body of the plantation with very few branches except at the top. Round the margins they are, of course, well clothed throughout their entire height. There is naturally comparatively little underwood, but occasionally there is a group of Hazel, Maple, and common Elder where there is a slight opening between the trees. In such a position as this, the lack of underwood is rather an advantage than otherwise, as the ground is carpeted with the native woodland plants and flowers, and the absence of the underwood admits of free locomotion amongst the tree stems. These, from the variety of species, assume almost all forms and colours. There are some large Ashes which, branching out at a short distance above ground, form quite effective objects, and some of the Sycamores and Horse Chestnuts take similar forms. Others run perhaps to a height of 30 feet or 40 feet with scarcely a deflection or a branch. There is another thing, though, which is more important in the matter of effect than the boles, and that is the diversity of foliage. All the trees are deciduous, but the Larch scarcely seems at home. This is really the only tree to which I should object. The Limes and the Sycamores are now splendidly in leaf. The lighter foliage of the Lime contrasts well with the dark masses of the Sycamore, and the deep and beautiful tint of the Beech is scarcely less striking. The Acacia is as yet barely in full leaf. Where the Horse Chestnut is confined the character of its leaf alters considerably, and it lacks the beauty of the foliage of its congeners round the margin. The Beech seems but little affected in this way. There are only a few Birches; these I would like to see more largely introduced in such places. If the mixed planting is adopted for the sake of the effect, the mere idea of introducing a few trees of not very high timber value should not be allowed to weigh too much. It is only from the reason of its being a low-priced wood that I can account for the small extent to which the Birch is commonly used. In such plantations as these the Wych Elm is to be preferred to too many English Elms, as the character of its growth and its larger leaves enhance its value considerably, especially when coming into leaf it is very effective. Such things as Hazel, Maple, and Elder, of course, fill subsidiary positions. The flowers and the fruit of the Elder cause it to hold a higher place than it

otherwise would. On the whole, I do not greatly favour Elder for these places, as its nature and mode of growth do not seem quite in accord with such trees as the Hazel and the Maple. Ivy generally forms a considerable item in these old mixed plantations. In the one of which I am more particularly speaking it grows in considerable abundance, but I notice that it is only where the trees are decaying that it makes undue growth. It would be easy to jump to the conclusion that the Ivy helped to produce the decay. This, however, from surrounding circumstances, I do not believe. Where the trees are perfectly healthy the Ivy seems to be kept within its proper bounds, and it is only as the branches die back that it seems to overcome the growth of the tree. I have no doubt whatever that when a tree begins to decay, that the presence of the Ivy greatly hastens its entire dissolution, but in the majority of cases I very much doubt if it is capable of causing the decline and death of a tree, which is often attributed to it.

D. J. YEO.

Grubbing v. sawing trees.—I must remind your correspondent "D. J. Y." the question he raised first was not one of "grubbing v. sawing" trees, but of doing both. He recommended the trees to be felled or sawn off after they were grubbed, but under any circumstances they were to be stubbed—dug up, as one would understand, since the object of the stubbing was to plant fences where the roots had been. I say, fell by the axe or saw, which you like, but leave the roots in the ground, because it would not pay but be a dead loss to stub them, and this every woodman seems to think, for they do not stub if they can help it. I must say "D. J. Y." recommends expensive ways of management. His 1s. and 1s. 6d. each for grubbing up tree-stumps is preposterous, but as he "undertakes offhand to send a customer who will give me something for the roots and bear the expense of grubbing and removal as well," I shall be pleased to enter into negotiations with him on that head, and if he will send me his address, &c., he shall have mine. He will not be able to find workmen anywhere who are fit for such work under 18s. or 20s. per week, I may just tell him, and we shall see how much under 10s. per root grubbing up the roots and removing them will cost. I am going to set out more hedgerow and field timber this summer, and am in earnest, and any communication of "D. J. Y.'s" will be dealt with in a business way. I fail to see how your correspondent interprets my reference to the removal of the tops to mean that the butts are left hedge-high. It was plain, I think, that felling hedgerow timber was the question, and, I take it, when a tree is stubbed or felled, the top is "removed" as well.—YORKSHIREMAN.

The common Bracken in woods.—Those who have not to contend with this plague in establishing young plantations are fortunate. In many parts of England, and especially in Yorkshire and Nottinghamshire, it is an almost insurmountable obstacle to the planting of waste lands, except at great expense. It smothers young trees completely, unless it is beaten down with sticks or hooks about this season; but that is a task where the ground to be gone over is extensive. Persistent beating down during the growing season is, however, the only way, and if persevered in for several years it will exterminate the Bracken, which bleeds severely from the broken young stems, and grows weaker and weaker every year. In most of our woods and in the deer park here the Bracken is rampant, and has greatly extended in the woods within the memory of the present generation. It in time kills all underwood as it extends. In the older woods, where there was once abundance of natural undergrowth, there is now none, the Bracken having extinguished it. It is a curious thing that wherever the Bracken establishes itself it thrives the better the longer it has been on the ground. Other crops "sicken" in time, but I know tracts of Bracken, miles in extent, that, as far as tradition tells, seems to have been there for hundreds of years at least, and which still thrives on its own debris as vigorously as

ever. I have often found old Bracken stems so long that if they had been set on end a botanist might have mistaken them for the stems of a Tree Fern. The rhizomes extend along the surface of the ground for years. I wish the old Fern roots and fibres could be turned to account in some way. I could supply thousands of tons of it as light and fibrous as a sponge. Someone took the author "Lothair" to task for exaggerating when he spoke of the common Bracken growing 6 feet high; but that is nothing unusual, and I am not sure but I could produce longer fronds than even that. In exposed places and poor soil it is often not above 18 inches high, but in shady woods it grows so tall as to render them impassable, and felled timber is frequently lost if not removed before it begins to grow. —YORKSHIREMAN.

ROT IN LARCH.

OVER the whole extent of a forest under my charge here, which comprises 100 acres of Scotch Pine from fifty-four to sixty years of age, there are a few Larches scattered, about the same age as the Scotch Pine, but generally much larger, some of them containing upwards of 20 cubic feet sale measure. Until of late these Larches appeared to be in a very thriving state; but in October last the extreme tops of some of them were observed to be dead; and other signs of decay were visible in those growing on the parts where there was the worst subsoil. Fifteen of these were felled, and not one of them could be said to be really sound, though only one, smaller than the rest, was hollow-hearted. A few of the healthiest were also cut down, which were allowed to be perfectly sound in respect to timber. However, the brown irregular dark-bordered spot was begun in them also. I inspected the best and worst of the first lot after they were cut into 2-inch planks. The rot in the one most affected could be seen 16 feet up the planks; in the others, it did not exceed 2 feet, 3 feet, and 6 feet, in narrow strips; in other respects the timber is of good quality.

The soil in which the trees grew is of heath and poor vegetable mould, from 6 inches to 9 inches deep; it had formerly grown, and would naturally continue to grow, the three common Heaths, Ferns, Mosses, &c., with a subsoil of hard gravelly clay, friable when dug up, and containing a considerable quantity of oxide of iron. On the transverse section of the ends of the trees, fifty-four annual rings, or years' growth, can be distinctly numbered. The first sixteen years' growth in all (but the hollow one mentioned) is sound, as also the last fifteen years' growth on the outside, whether alburnum or heart wood; so that the rotting spots are contained in the twenty-three years' middle-aged wood of the tree; and there the spots vary much in situation, size, shape, and colour, and frequently do not affect the same number of annual layers even in the same tree.

Besides the want of fertility in the subsoil, it must contain matter deleterious to the Pine and Fir tribe; for of the many hundred Scotch Pines, and not a few Larch and Spruce Firs, which I have seen blown down by the wind, there was scarcely a perpendicular root which had penetrated this and similar subsoils found otherwise than completely rotten. The former were cankered (as it is here termed) farther up the tree; the two latter nearly always began to rot at the root ends. May we not, therefore, infer that the rot in the Larch originates in the root, and in time extends up the tree? and that the cause of all the evil is the penetration of the root into a bad subsoil? In accordance with this idea, I shall mention an instance where Larch has been planted, "again and again," on hills (not too high), in good heath mould, on a subsoil of

reddish sand, where trees have as often dwindled and died before they were 6 feet high. The best Larches in this part of the country grow by the bank of a river, in a bed of alluvial soil, on a rock, which is the only subsoil. The largest of these trees is 100 feet high and 9½ feet in girth at 4 feet from the ground.

ABERDEEN FORESTER.

PLANTING TREES FOR UTILITY AND ORNAMENT.

I HAVE always considered it practicable to plant a permanent undergrowth of evergreen and deciduous trees and shrubs to serve either as screens near or away from a mansion or cover for game, and at the same time to insure a free growth of profitable and ornamental timber. In one instance I have planted in masses what I intended to be the permanent trees which were to form a screen to shut out some unsightly buildings. The kinds of trees planted for the purpose were chiefly Oaks, Spanish Chestnuts, and Elms. Then others of the same kinds, but of smaller size, were planted between them as temporary plants, to effect an immediate blind, by way of filling up the spaces until the principal trees begin to extend their branches, when the super-numerary trees are to be taken out in two, three, or four years to plant again as single trees, or in groups, hedgerows, or for any other purpose for which they may be wanted, as they will be suitably prepared for such purposes; otherwise they must be cut down or taken out before they injure the permanent trees. The other spaces should be filled up with Beech and Hornbeam, which, when headed down, generally retain their foliage through the winter months, when such thick cover is most wanted. Such plants for undergrowth I take care to divest of their leading upright shoots, at from 4 feet to 6 feet or 7 feet high, according to their appearance and effect with the side branches of the intended permanent trees. Divesting them of their upright aspiring shoots prevents them from getting up to injure the permanent trees, and increases their lateral or side branches, so as to fill up the blind and keep a permanent undergrowth. This work should be attended to for a few years to prevent them acquiring fresh leaders, which they are naturally inclined to do. At the base of the permanent trees I planted young Hollies, either common or variegated, for future effect, at from 1 foot to 2 feet from the stem, with the head leaning towards it, to allow for the increase of the trunk or stem, as well as to form a surer mark than any other I could think of to know the permanent trees by. Then, round the outsides of the belt and occasionally in the interior, I planted Spruce and Silver Firs and Scotch Pines, each kind by themselves in groups or masses as it were; the Firs being from 4 feet to 7 feet in height, taking special care to shorten the leading upright shoot, or break out the central leading bud of the upright shoot, at the desired height; also to shorten or break out the central or leading bud of the side branches where necessary to thicken the blind, and prevent them getting out of bounds and destroying or injuring the fences. Scotch Pines should be planted principally at or near the outside, as they do not endure under the shade so long as the Spruce and Silver Firs. In front of this belt, viz., the side most in view, were planted various kinds of evergreen, deciduous, and variegated dwarf flowering trees and shrubs; at least to be kept dwarf so as not to injure the effect of the permanent forest trees in the background, as well as more effectually to insure the main object, an effectual permanent blind, not forgetting embellishment as well.

Although I have recommended Beech and Hornbeam for under-cover, I would prefer common Hollies, common Laurels, Rhododendrons, or other suitable Evergreens, which will endure under the drip and shade of other trees, but they are of such slow growth at first, and are, besides, dearer, and not so easily procured as the Beech and Hornbeam. At any rate, the Evergreens should be planted at the first making of the plantations, and, as they get up, the Beech and Hornbeam could be removed if thought desirable; but in each case attention must be, for several years, regularly paid to divesting them of their aspiring shoots, and occasionally shortening some of the side branches to prevent too much straggling and to insure the permanent undergrowth. I will just observe that Beech and Hornbeam are best adapted, in distant high exposed situations, for permanent undergrowth in narrow belts or clumps, and Evergreens nearer home in more sheltered places.

By following up this plan for a few years, we can insure a permanent close and thick undergrowth of evergreen or deciduous trees and shrubs, with the most beautiful, picturesque, and profitable forest trees, instead of those unsightly naked plantations, open at bottom, with nearly valueless timber trees, so frequently to be seen, and which plantations, with very little trouble or expense, might be made both profitable and ornamental at the same time. But, alas! gentlemen do not see this; or, at least, they will not pursue it, too often, I fear, from the causes I have previously hinted at.

I could say much more on this subject, and on that of pruning and training hedgerow timber trees, but more particularly on single evergreen trees, or masses of evergreen trees in noblemen's or gentlemen's parks, with accompanying undergrowth for shelter and protection to the trees. Such parks are generally very deficient in these respects, and have rather a dreary effect in winter without these accompanying embellishments, while there are hundreds of acres ornamented with only deciduous trees.

W. B.

Voles and mice in woods.—It is hardly realised, I imagine, how numerous these little animals are in woods and fields, but I was able to form some idea of their numbers not long since in an Oak wood where a good many acres of undergrowth and Grass and Bracken had been accidentally burnt down, leaving the surface of the ground quite bare. Over the whole of the burnt piece the runs and holes of the mice formed a perfect network, scarcely a foot of ground being anywhere without them, and in many places the runs were so numerous and intricate as to form a close network over large tracts. I judged from this that they swarmed everywhere in the wood in thousands, but I cannot say I have ever noticed that they did any damage to the Oaks or other trees in summer or winter. Their runs are all close to the surface of the ground, among the roots of the Grass and Bracken on which they probably live. Still it is been recorded that voles have done great damage to plantations in this country, both in England and Scotland; with us they are chiefly destructive to garden plants.

Value of Spruce timber.—"Scotch Fir and Spruce remain a drug in the market, and many very extensive lots are allowed to lie and rot for want of an outlet that will realise sufficient to cover the cost of removal. We hear of some proprietors even offering a premium to remove the timber, but when this wood has lain any time and lost the bark, few buyers will look at it at any price."—*Timber Trades Journal*, May 22.

The Spruce.—Mr. D. J. Yeo is wrong in saying that "really all that has been hitherto proved is that the Spruce does not succeed in every position." This applies to all trees, but what has been proved in regard to the Spruce is that it is all but worthless where it can be grown, and at any time the worst paying timber going.—Y.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

ORNAMENTAL ROSES.

THE term ornamental has so many diverse applications from a gardener's standpoint, that it is necessary to explain what is here meant by the word. Well, when I speak of an ornamental specimen of a Rose, I do not mean a specimen grown in a pot, or anywhere else, and trained in the form of a pyramid or any other artificial shape, nor a Rose on which all the blooms are perfect from an exhibitor's point of view, nor anything of that kind. What I would describe as an ornamental Rose is one I saw the other day, and which, for twenty-one years to my knowledge, has produced a profusion of pure white blooms in such abundance as almost to weigh the branches down to the ground, despite the few rustic props that support it on one side. The variety is the old-fashioned double white Rose, which, when allowed to grow, makes a head of considerable size, and blooms freely on every branch and twig. The bush of which I speak stands against the wall of a cottage of the better class, and having had the advantage of room and light, and good culture at the root, and little of the knife (if any), it is now the chief ornament of the garden and the pride of its possessor. The tree seems as healthy and green to-day as ever it was. I suppose it has been in its present position thirty years at least, and will probably continue to thrive on the same spot for thirty years to come—a landmark in the village and the admiration of every passer-by. Talking to the owner of the garden in question lately and speaking about Roses, he told me that he never had any trouble or anxiety about the "old bush," but his newer varieties, consisting of dwarfs and tall standards, gave him a deal of trouble. The mortality amongst them had been severe, and as he had to employ someone professing to know more about Roses than himself to look after them, the culture and the pruning had been both rather erratic and the general result unsatisfactory. He had, however, a "Glory" that had begun to put out some strong shoots, and he was in hopes that it would, if subjected to the same let-alone treatment as that followed in the case of the old white bush, become in time a good companion to it.

My next ornamental specimen is a Noisette variety, also in a small villa garden, on the lawn and over twenty years of age—how much I do not know. It grew among shrubs originally, which rather impeded its growth, but these were cleared away, and although never getting any manure, it has extended wonderfully, and is now a good many yards in circumference. This bush annually sends up many strong shoots from the base, and some of these are about 9 feet high and proportionally thick. The older branches fall over towards the ground on all sides; the young ones spread out more erect the first year, and in this way the bush forms a large natural specimen covered with blossoms.

My third specimen is a wild Rose that I discovered last year in an out-of-the-way spot among the hedgerows when looking over these among the farms. This bush—the pink variety—grew in a favourable and sunny position in good loam, and was 10 feet high, about as broad,

and quite covered with blooms over its entire surface and of unusual size and colour for a wild variety. A more beautiful object in the form of a Rose bush could not be imagined, and the plant was just in perfection when I saw it. I said to the farmer, "I see you do not meddle with the Roses when mending your fences," and he replied that the fact was he could not mend them very well as fence plants, as they grew naturally tall, compact, and impenetrable. There were many fine specimens on the farm, but this was the finest of them all. Perhaps it looked best in the midst of its natural surroundings, but it would have been a grand ornament on any lawn. What is wanted in order to create such specimens is a good soil, and room, and light. These are the only conditions necessary, and with their aid the plants will take care of themselves. It is not necessary, nor even desirable to cut away the old dead branches. These fall over in time, as the young and vigorous shoots from the root thrust them on one side, and they serve as a framework for the younger growths to rest upon, and are always quite concealed by foliage and flowers. As to the varieties best adapted for this style of culture, I would say almost any variety would do that manifested a sturdy habit and was hardy, and there can be no doubt that the wild and ample habit of growth renders the plants less liable to injury from frost and cold weather than they otherwise would be. S. W.

BEST ROSES FOR WALLS.

REINE MARIE HENRIETTE (red Gloire de Dijon).—Extended experience with this Rose as a climber for open walls clearly proves it to be one of the earliest and best. We have it here against a wall with a west aspect in a sheltered position, and so situated it was well in flower by the middle of May, but, unfortunately, the weather was not warm enough for the blossoms to open properly. In the bud state, however, they have been very good. The colour is much deeper out of doors than under glass. The value of this Rose is also enhanced by its being a free grower, and by its having an abundance of leafage.

REINE MARIE PA. —In my opinion this Rose is not wanted, for, except that it is a shade darker in colour and the shape a little more globular, it may be described as a counterpart of Reine Marie Henriette; and seeing that we have also Cheshunt Hybrid in the same line of colour, this addition is undesirable. It is certainly to be regretted that the Tea-scented section of Roses should be constantly receiving additions of so-called new varieties that are too much like others which we already have. Of this the variety under notice is a proof, and, unfortunately, not the only instance of the kind. On the contrary, the list of Teas will soon be as much overburdened with varieties too much alike as the Hybrid Perpetuals already are. If farther proof is wanted that the list of Teas is unnecessarily extending, we have it in the case of Sunset, a new American Rose, said to be superior to any other in the same line of colour; but I think many will agree with me that that statement is not borne out by the Rose itself. That it is a good Rose of its colour I grant, but if not identical with Madame Falcot or Safrano, it is so much like them that it is not wanted. Moreover, we have William Allen Richardson and Shirley Hibberd, both like those just mentioned.

DEVONIENSIS.—It is much to be regretted that this fine old Rose is such a poor grower; for, while admitting that Niphotos is much the largest, as well as the purest in colour, of all white Roses in this section, I must claim for Devoniensis that, whether in the bud state or expanded, it is, of the two, much the handsomer Rose. With me, whether growing upon its own roots or on those of any other, when planted out under glass, it does not thrive satisfactorily; in fact, I can do better with it against walls in the open. This is undoubtedly a delicate-constituted Rose; no-

where have I seen it thrive so well as in the county in which it was raised and from which it takes its name. In several places in Devonshire I have seen it growing and flowering admirably, and, when seen under favourable conditions in the open, no indoor specimens can compare with it for intrinsic beauty when in the bud state and delightful fragrance. I have noticed that this Rose does better with many in pots than planted out. When grown in pots, it should not be turned out of doors until it has made good growth, and the latter will be stronger when made under glass in a shady position than elsewhere.

MRS. BOSANQUET, although an old Rose and comparatively little grown now, is nevertheless deserving of more notice than it receives on account of the freedom with which it flowers, as well as for the early period of the season at which it blooms when grown in a warm position, and for the handsome buds which it produces. In many places it thrives well as a standard; but it is as a climbing or pillar Rose that it best shows its free-flowering character. Trained to a wall, as I once saw it, with alternate plants of the old pink monthly Rose, it had a grand appearance.

THE RAMANAS ROSE (*R. rugosa*) was the first to flower in open beds this year, several of its blooms being well expanded on the 24th of May. In a strong deep soil this Rose flowers both in early summer and in autumn, and not unfrequently both ripe crimson fruit and flowers may be seen in the autumn on the same plant at the same time. My experience of this Rose is that seedling plants live longer than plants on other stocks, and, as seed is freely produced, there is no difficulty in raising any number of seedlings. Those who have large shrubby borders to fill should set about raising seedlings of this Rose, of which one cannot have too many, for the foliage even is very distinct and beautiful, and a plant of it well laden with ripe berries and prettily tinted leaves in autumn is a pleasing feature in any garden.

The Hybrid Teas and Hybrid Perpetual climbing Roses are not much grown, I fear, for one rarely meets with them. I began with a dozen different varieties of the Hybrid Teas a few years ago, when there were hopes in some quarters that they would become popular, but they proved to be such poor growers, that one by one they dwindled away until we have not one left. Lady Falmouth and the Hon. George Bancroft were the most vigorous, but they were not satisfactory. My first attempt to grow the climbing Hybrid Perpetuals was against a warm south wall, and so unsatisfactory was it that of late years I have given them up altogether. My objection to them is that they do not fill up space well. I could only get two or three strong shoots from a plant, and, if cut back, the same number of shoots again sprang up. These shoots were long enough to please anybody, and for the most part they flowered at the points; but unless I had put in the plants 2 feet apart, how was I to cover a wall 14 feet high? Taken altogether, they do not reach my standard of what a climbing Rose should be.

Amongst Tea-scented Roses with canary-coloured flowers, Marie Van Houtte certainly carries the palm. It is of fairly vigorous growth, and flowers with great freedom. The individual blossoms are sufficiently large for any purpose, without being coarse, and a charming tinge of a bright rose colour overlies the back of the petals. As a wall Rose in a suitable climate it is unsurpassed.

HER MAJESTY. This new Rose promises to be a vigorous grower, for, although our plants of it have not been much more than two months in our possession, they have made satisfactory progress. The size of the leaves indicates it to be a robust grower. It is perhaps a misfortune that it possesses so many thorns; but let us hope that the number and quantity of the flowers will more than counterbalance this little defect.

FORTUNE'S YELLOW is a Rose which everyone should grow who can give it a warm wall, and who are fond of peculiarly coloured flowers. When grown in the open I think it would puzzle

all but an artist to correctly describe its colours. Although it is generally considered to be coppery yellow, that description fails to convey an idea of the beautiful peach tint that overlies the outside petals when there is no hot sun to burn it out. This Rose is very pretty in the bud state, but when expanded it is loose and thin.

Button-hole Roses are always much in request. Amongst Teas the following are perhaps the best, viz., *Devoniensis*, *Marie Van Houtte*, *Madame Lambard*, *Madame Falcot*, *Letty Coles*, *Isabella Sprunt*, *Aline Sisley*, *Catherine Mermet*, and *Homère*. The list of Hybrid Perpetuals does not contain a better dark Rose for this purpose than *General Jacqueminot*, and the best white is *Boule de Neige*. *Empress* is white with an suffusion of pink, and neat and pretty in the bud state. Of other dark varieties I should select *Harrison Weir*, *Dr. Andry*, and *Annie Wood*. Of pink varieties the following are good, viz., *Comtesse de Chabrilant*, *La France*, *Madame Rivers*, and *Marie Louise Pernet*.—J. C. C., in *Field*.

The best white Rose.—I do not suppose that rosarians generally will agree with me in my choice of *Reine Blanche* as the best white Rose amongst Hybrid Perpetuals, but I certainly think it is. Perhaps I am more influenced by its usefulness than by its merits as an exhibition Rose. I am aware that it lacks purity of colour in the outside petals, but, to my mind, this defect is more than made up by the freedom with which it grows and its perpetual character. We have it growing 6 feet high against a wall at the present time and flowering grandly. It is also doing remarkably well in the open on its own roots and fairly well as a standard, and I know of no other white variety in its class concerning which so much can be said.—J. C. C.

Red rust on Roses.—After the blooming season is well nigh over is mostly the season for the plague of rust to fall upon our Roses. But this season the rust has preceded the bloom, and at the present moment (June 12) almost the only colour among Roses in the open air is that of the orange rust. It has come suddenly and with greater virulence than usual, and inquiries as to cause or cure are pouring in by telegram and letter. The first seems almost inscrutable and the second impossible. The cold nights and hot days and sunheat, mixed with the cold of east winds and the hard dry air, seem among the most favourable conditions to its production; and as to remedy, prompt and careful picking, so as not to distribute the spores, and the burning of every infested leaf checks, though it does not cure, this worst of all pests amongst Roses. Overhead washings with clean water on the evenings of bright days seem at times to check or modify the virulence of the attacks. I have never known it to come quite so early, nor in such strong force as this year.—D. T. F.

First-class certificates.—In the report of the last meeting of the Royal Horticultural Society it is stated that a first-class certificate was given for *Iris Victorine*. I have always been under the impression that these certificates were given only to new or rare plants, and therefore was surprised to see that a plant which I have cultivated for some years, and which is quite common in commerce, should have received such a distinction. Such an occurrence as this makes one feel that certificates are of but little value.—J. C. C.

Azalea mollis.—This plant has just one fault: its buds are apt to be caught by late frosts just before they expand. Still this does not happen always nor often, and need not hinder anyone from planting it freely in low shrubberies where the common American *Azalea* is used. Both do well together, but *A. mollis* furnishes the brightest and greatest variety of colour. What a pity it is not fragrant. I consider it a safer subject to plant than some of the so-called hardy *Rhododendrons* of hybrid origin, which fail where the common variety flourishes amazingly, often die in a few years or do not bloom freely. In nurseries

where collections of numerous varieties are grown the quality of hardiness is not sufficiently considered, and it is really everything in such a class of plants.—J. S.

NOTES OF THE WEEK.

The last Daffodil.—Mr. Peter Barr sends us a couple of flowers of *Narcissus poeticus stellaris*, which will, he thinks, effectually close the Daffodil flower season for this year. The flowers sent really have the appearance of being the last of their race, for they are small and starry, and scarcely worthy of the name of the Poet's *Narcissus*; indeed, are Daffodils after all really wanted in the middle of June?

Canna Ehemanni.—This, the grandest of the Indian Shots, is one of the most accommodating plants we have, as it may be grown either in a stove, where its flowers are produced in great abundance, or in a moist, sheltered position out of doors, where it is equally happy and floriferous. It is a plant for every garden of any pretensions, and it may be increased so as to fill large beds in a short time if the rhizomes are freely divided early in spring.

Single white Pæony.—A flower of a Pæony has been sent to us by Mr. T. S. Ware, which is the loveliest single variety we have seen. The flower is 6 inches across; the petals are broad, pure white, crimped and shining with a satiny lustre; while in the centre is a tuft of golden yellow stamens. At first sight we mistook it for *Romneya Coulteri*, and if the Pæony flower was seen without foliage, it would puzzle one not a botanist to tell the difference. There is, without doubt, a great future for Pæonies, both double and single, for their extreme beauty and delicious fragrance will make them as popular as Roses.

Double yellow Rocket.—A bunch of this old border plant has been sent us by Messrs. Laing & Mather, of Kelso, who grow it finer than we have ever seen it. The branching stems are over a foot high, and covered for half their length with crowds of small yellow button-like flowers. The yellow Rocket is *Barbarea vulgaris*, but one would hardly suspect that such a weedy plant would turn out such a showy perennial by the doubling of the flowers. It is a plant that delights in a cool and rather moist soil, and we suspect that the Kelso nurserymen can give the plant just what it requires.

Ghent Horticultural Society.—At the last monthly meeting of this society the following plants were awarded certificates of merit: *Fagus atropurpurea tricolor*, from M. Ed. Pynaert Van Geert; *Pandanus discolor* (the first time in flower on the Continent), from MM. Jacob Makoy & Co., Liege; *Masdevallia macrura*, from M. Aug. Van Geert; *Cypripedium grande*, from M. Jules Hye-Leysen; *Odontoglossum Pescatorei* var., from MM. Vervet & Co., who also showed *Vanda insignis*; and *Sambucus canadensis filicifolia* came from M. Ch. Van Geert, of Anvers.

Bignonia atro-sanguinea, which is a dark red-flowered variety of the North American yellow-flowered *B. capreolata*, proves itself to be quite hardy and exceptionally free-flowering if planted against a warm, sunny wall in a well-drained border. Such, at all events, it is at Kew, a plant having been put out of doors two years ago, and left unprotected even during the severest weather of last winter, and it is now covered with its large blood-red, trumpet-shaped flowers. It should be mentioned that the wall against which this plant is growing is kept warm by a fire in the room on the other side.

Night-flowering Cactus. There is not a lovelier sight among flowers than the Night-flowering Cactus seen in twilight slowly opening its great flowers and diffusing their fragrance throughout the house. Such a sight we enjoyed the other evening in Mrs. Tredwell's garden at Leigham Court, Streatham, where there exists a marvellous specimen of *Cereus grandiflorus*, perhaps one of the finest in Europe. It grows against the back

wall of a long plant stove and extends nearly the whole length of the house, covering a trellis space of about 4 feet in depth. There were some half-a-dozen blooms expanded when we saw it, about eight in the evening, and the house was filled with their perfume. Each flower measured 10 inches across, and consisted of a multitude of sepals and petals, having a cup-like centre, out of which protruded the star-like stigma and tassel of stamens. The outer petals and sepals are much narrower than the inner and are of a warm reddish yellow; the broad inner petals are a pure ivory-white. The loveliness of these flowers is indescribable, and their texture is so fragile, that they seem unable to face the light of day. The buds usually begin to expand at about six o'clock and last open till dawn of day, when they close, never to open again. It is a strange vagary of Nature that such a plant with leafless, fleshy stems should be provided with such magnificent flowers, which scarcely have a rival in the whole plant kingdom.

Billbergia variegata.—This is one of the new Bromeliads obtained for Kew from the famous Morren collection, and there is now flowering in the Victoria house a plant with about half-a-dozen growths in a tuft, each growth composed of green leaves 18 inches long, the margins incurved and bearing very small spines, the bases sheathing. From each growth is borne a flower-spike which is 1 foot long, and bears seven large brilliant scarlet bracts, 3 inches long by 1 inch wide, the flowers being in a raceme towards the end of the scape; they are about 2 inches long, tubular, pale green in colour, with blue tips to the sepals and corolla. The species is apparently allied to *B. Wetherelli*, one of the best of the genus, and this plant at Kew justifies the belief that *B. variegata* will prove of great value as a decorative plant.

Bomarea Shuttleworthi is a pretty-flowered climber, and compares favourably with the best of the cultivated *Bomareas*. Its flowers are borne on loose umbellate cymes, each one being funnel-shaped, 2 inches long, the segments equal in length, with the stamens and pistil just protruding. The three outer segments are coloured a bright orange-red, with a curious green gibbosity on the apex, the colour of the three inner segments, which are seen between the outer ones, being a beautiful parrot-green above, yellow below, a few dots of brown being scattered amongst the green. The stems are thin and rather succulent, and the leaves are ovate-lanceolate, 4 inches long by 2 inches in width. It was introduced from Bogota in 1881. A plant of it is now in flower in No. 5 house at Kew.

The Liverpool exhibition.—Intending exhibitors of plants, &c., are reminded that the entries close on Monday next, the 21st inst. It is expected that this will prove one of the largest and most important of the exhibitions ever held by the Royal Horticultural Society. Great progress is being made in the laying out of the grounds, and many of the hothouses are already erected, the implement exhibition being of great extent. Only fine weather is required to make it a thorough success. Vans will be in readiness at Edge Hill and other railway stations to convey the plants to the exhibition on giving notice to Mr. Richardson, curator, Botanic Gardens, Liverpool, when they may be required, and the several leading railway companies have agreed to carry the plants on the return journey at reduced rates.

Gladiolus watsonioides.—One of the most beautiful of the plants found on the Kilimanjaro Mountain, both by Mr. Thomson and Mr. H. H. Johnson, during their visit to this mountain in West Tropical Africa in the interests of science, was this *Gladiolus*, which grew at a very high elevation, in some situations very abundantly, and of which Mr. Johnson secured good seeds for Kew. These were sown early in the spring of last year, and the plants obtained from them are now flowering in the bulb house at Kew. The species belongs to the group which includes *G. tristis*, *G. recurvus*, and *G. cardinalis*, all of which are handsome flowered, but none of them surpasses in brilliancy

of colour this new one. The leaves are 18 inches long and half an inch broad, gradually narrowing upwards to a point, the bases sheathing and prettily striped with purple. The flowers are borne on a scape about 3 feet high, curved like a crook at the top where the half-dozen or so flowers are developed; they are bright scarlet in colour, and as large as the flowers of the European *G. segetum*. The Kew plants are planted out in a bed of rich soil in an unheated greenhouse, and, judging the species by these, we may safely conclude that it is likely to prove a really useful garden plant.

Rhododendrons.—Mr. John Waterer's annual exhibition of Rhododendrons in Cadogan Gardens, Sloane Street, is as beautiful as any of its predecessors, notwithstanding the fact that the present has been anything but a good Rhododendron season. The arrangement of the show is much the same as in former years; there is the same capacious tent, containing irregular groups and banks of the finest specimen Rhododendrons that the Bagshot Nurseries can supply. There are grand examples of such favourite sorts as Lady Eleanor Cathcart, whose lovely and distinct colour singles it out from all the rest; also of the brilliant John Waterer, one of the finest of its colour. The Rhododendron lover will find here a selection of the finest sorts, both old and new. Foremost among the latter is one named Duchess of Connaught, which is considered by Mr. Waterer to be the finest white yet raised. It bears large compact trusses of finely-shaped flowers, which are white spotted with lemon-yellow. Another variety named Kate Waterer is unquestionably one of the finest of all Rhododendrons, possessing as it does not only noble trusses, but remarkably handsome foliage. The colour of this variety is a clear rose-pink with a pale yellow blotch on the upper petals. Other noteworthy sorts are Mrs. Tom Agnew, white; Countess of Normanton, light pink with black blotches; Mrs. Charles Leaf, pink with white centre; Helen Waterer, in the way of Alarm, but finer; Baron Schroeder, rich plum-purple with a yellow centre; Duchess of Cambridge, white; Duchess of Bedford, crimson with a pale centre; Countess of Cadogan, rose-pink; and Duchess of Edinburgh, crimson-rose. To the last-named colour also belongs Charlie Waterer, a new variety, which, when better known, is sure to become a favourite.

NOTES FROM ASHTON COURT.

A WINTER GARDEN has been added to this establishment since I last visited it; the open space or court enclosed by the wings of the mansion has been covered with an ornamental glass roof, supported by carved pillars and furnished with archways, all of which serve to give an imposing, yet not too heavy an appearance to the building, and also favour the formation of pretty nooks for cascades and ornamental rockwork. Already this winter garden has a well furnished appearance; the various Palms, Ferns, and climbers are well established, and the whole forms an attractive feature. In winter the heating apparatus, which is well hidden, maintains a genial temperature, while in summer, on the contrary, it is charmingly cool. It is also furnished with electric light, some of the burners being ingeniously fixed under the rockwork so as to resemble when lit a reflection of either sun or moon on the water.

ORNAMENTED WALLS.—In several of the lean-to plant houses the back walls are made both ornamental and useful, and that, too, without any great amount of labour or expense being incurred. In one instance a wall about 12 feet high is entirely clothed with a beautiful mixture of Begonias of the Rex type, *B. manicata*, *Tradescantia zebrina*, *Fittonia argyrea*, *Peperomia argyrea*, *Adiantum concinnum* (this being remarkably effective), *Nephrolepis exaltata*, and *Lycopods*; very little peaty soil is used; the plants are principally rooted in Sphagnum Moss, held in its place by means of strong coarse-meshed wire netting. With such a never-ending supply of

material, dinner-table decoration (always well done at Ashton Court) must be a pleasure rather than a trouble, as is often the case when the supply of material is limited. The back wall of another rather cooler or intermediate house is entirely clothed with Maiden-hair Fern. For this nothing but turfy loam is used, enclosed by strong wire netting, and nowhere else have I seen this popular Fern so effectively employed or more luxuriant than it is here, particularly over doorways. Walls or pillars thus furnished must not be neglected, as unless kept constantly moist at the base, many of the plants employed for their decoration may be spoiled in a few hours. At Ashton Court there is a good water supply, and this is abundantly applied to the walls through a hose. It is not, however, the amount of water supplied in which the secret of success lies, but in the frequency of its application, a very little serving unless the limited amount of soil has been allowed to become very dry. We find it necessary to shade rather more heavily than at Ashton Court, but then our mixture of plants includes three varieties of African Asparagus rooting in pots at the foot of the wall, and these must have shade. Another wall at Ashton Court is furnished with a variety of *Begonia nitida*; this, besides being ornamental, is also serviceable for cutting from for indoor use. It flowers in gentle heat nearly, or quite, all the year round; its blossoms are smaller than those of the ordinary form, pure white, and sweetly scented. This class of *Begonia*, as well as *B. fuchsoides*, *B. Ingrami*, *B. scandens*, and *B. hybrida floribunda*, all of which are suitable for furnishing pillars or walls of warm conservatories, require to be planted in a peaty border.

TUBEROUS BEGONIAS.—In the conservatory considerable numbers of well-grown flowering plants are arranged among various Palms and Ferns, conspicuous among them being some good tuberous Begonias. Under ordinarily fair treatment this class of plants is simply invaluable, being almost as showy, quite as continuous flowering, and certainly more choice than zonal Pelargoniums. Some of the bulbs are of Laing's best named sorts, while numbers of good seedlings are also worthy of notice. Why so many fail with these Begonias is simply because they are under the impression that a "stewing" temperature is essential to their well-being, especially when first started. Instead of this, if the bulbs are wintered in a greenhouse and kept sufficiently moist to preserve their plumpness, and eventually started in a very gentle heat, or, better still, allowed to start naturally either in frames or in a cool house, they will grow strongly and soon commence to bloom. At Ashton Court the majority of the plants are very showy at the end of May, and with a little assistance in the shape of weak liquid manure most probably they will continue to bloom till late in autumn. They are not stove, but greenhouse plants—at least quite as much so as zonal Pelargoniums.

THE MOST USEFUL GRAPES.—Although there are vineries in the range of houses situated in the pleasure grounds and near the mansion, it is down in the less favourably located kitchen garden where the principal portion of Grapes, as well as other fruits under glass, is grown. There is nothing sensational in the way of large bunches of Grapes to be seen here, but, what is more to the purpose, there are heavy crops of serviceable bunches, and as the Vines are in good health and vigorous, there is every prospect that they will be well finished. The sorts best liked are Black Hamburgh, of which there is an exceptionally heavy crop on one large Vine extending over the roof of what was at one time a Peach house; Madresfield Court, valuable alike for early and main crops; Muscat of Alexandria, probably the most valuable of all Grapes; Black Alicante, and Lady Downes. The last-mentioned is the best keeping variety, and is much valued accordingly. Other sorts are grown on a much smaller scale, these including the comparatively new Alnwick Seedling. Mr. Austin succeeded in growing very

fine bunches of this variety at Ashton Court, and his successor, Mr. Bethell, experiences no difficulty in setting the berries thickly, but at the same time he is of opinion that it does not pay for the trouble and time occupied in its cultivation. No fault can be found with its appearance, as it invariably colours well, but the quality is inferior, while it is simply useless as a late Grape, the berries shrivelling badly as early as September. In order to insure a perfect set, it is advisable to pass the hand over the newly opened blossoms, thus removing the tiny globules of viscid matter at the point of each, and thereby rendering them amenable to the influence of the pollen. Some of the latter may well be taken from other free-setting sorts, and we have found that Alnwick Seedling thus touched over with foreign pollen requires more thinning out than some of the presumably freer setters.

EARLY PEACHES AND NECTARINES.—I have seen a good many early Peaches in my time, but none that equalled Hale's Early as grown at Ashton Court this year. Fruit of it was gathered from a good sized tree in the end of May, and in spite of the heaviness of the crop many weighed about 10 ozs. each. The majority were highly coloured, and that, too, without much exposure to full light or sunshine, while the quality was first rate. Those who are fortunate in getting the true Hale's Early, such as I have long known the Ashton Court tree to be, will agree with me that it is by far, all things considered, the best early sort in cultivation. A good companion for it is Nectarine Lord Napier, which at Ashton Court was only a few days later. This was also carrying a grand crop of fine, well-coloured fruit, perfectly clear from any blemish. As a rule, Lord Napier is liable to become scarred and disfigured; to avert this we find it advisable to discontinue syringing early, or before stoning has commenced. It is not, however, in early houses, but in unheated structures in which the syringing is injurious.

MELONS IN POTS.—Well ripened fruits were cut here early in May, and I both saw and tasted excellent fruits from the same batch of plants early in June. The plants are fruited in pots plunged in a hotbed of leaves, under which hot-water pipes also run. A brisk top and bottom heat is thus easily maintained, and with good attention, care being taken to secure an early set, ripe fruit can be cut early in May from plants raised early in January. It is surprising, too, the number of fruits that each little house will perfect, the plants being grown almost as thickly as the pots will stand, each perfecting three or four good-sized fruits. The plan answers well for early crops, but it is not so commendable for maintaining the later supplies. This I state both from experience and from what I observed at Ashton Court. I ought to add that the favourite sorts are Blenheim Orange, Cox's Golden Gem, and Duke of Edinburgh, the stocks in each instance being true to name.

PROTECTING FRUIT TREES.—One sunny open wall is becoming well furnished with Peach trees, and in front of these there is a good border, probably about 15 feet wide. Instead of merely protecting the fruit trees when in blossom, Mr. Bethell contrived also to include the border, in which early Peas at wide intervals apart, Cabbages, Lettuces in quantity, and early Potatoes were planted. Light strips of deal were brought from the top of the wall to stakes in front of the border, and over these two or three folds of fish netting were stretched. It is not pretended that this would ward off a very severe spring frost, but it is surprising what a difference such a light covering makes in the temperature beneath it. The radiation of heat is materially checked, and the crops just mentioned evidently were all much forwarded in consequence. It is a hint that I, for one, hope to profit by. I also like Mr. Bethell's method of staking and protecting Raspberries. Instead of stakes or wires strained to strong end posts, he has substituted a light framework, one to each row, consisting of a few moderately strong uprights, to which are fastened three continuous

strips of deal, one about 18 inches from the ground, and the others at the same distance apart, the topmost being fastened neatly to the top of the stakes. Besides supporting rows of strong canes, it also much simplifies the operation of netting over the plantation, in order to protect it from birds. The netting, being well supported by the framework above the fruit, greatly facilitates the work of collecting the crops, which promise to be heavy this year in most localities.

W. I. M.

PARK HILL, STREATHAM.

At one time there were, perhaps, more first-class residences in the neighbourhood of Streatham than in any other locality about London. Before railways intersected the place it was the resort of rich merchants and bankers, being within an easy drive of the city. Some fine houses and gardens still remain, but many have long since been swept away—transformed into streets and houses. Mr. Tate's residence, Park Hill, is unquestionably one of the finest in the suburbs of London, and, though not an estate of great extent, is typical of a first-class place. It is a noble house, and surrounding it is a garden laid out in the charmingly natural style which characterises all Mr. Marnock's work. The most is made of the limited area, for when in the grounds one little suspects the nearness of the common, which is only separated by the high road, so skilfully has the boundary been concealed.

The annexed engraving shows the east side of the house and the carriage drive. Here may be seen a broad stretch of lawn, uninterrupted except by fine trees, some of which are remarkable for size. For instance, there is one of the finest specimens of the Willow-leaved Cockspur Thorn (*Cratægus Crus-galli salicifolia*) to be seen anywhere. It has a diameter of stem of about 18 inches, and the spread of the branches measures fully 40 feet. It is a beautiful tree with a rounded head, the slender branches of which droop gracefully on all sides. It is shown on the right in the engraving. Near it is a Lebanon Cedar, but this is apparently feeling the effects of the great town which is stretching towards it. Indeed, almost all the Conifers are beginning to show signs of distress, although the vigorous Pines, such as *excelsa* and *austriaca*, thrive and seem to make good growth.

The chief part of the garden lies on the western side of the house. There is an admirably designed terrace garden treated geometrically, as the circumstances necessitated. This garden contains the only display of bedding about the place, and, confined as it is to a limited area close to the mansion, it does not in the least mar the natural aspect of the other part. Already the borders are gay with showy bedding and carpet plants, and later on, when the weather is more genial, these will produce a brilliant effect. The garden is bounded on two sides by walls clothed with *Magnolias* and *Camellias*, which flower well and need no protection. The piers of the walls are capped by ornamental vases, and these just now are garlanded with *Wistaria* bloom—a beautiful picture. An old *Wistaria* planted at one end sends a huge limb along the top of the wall, and at each pier it gives off a branch which entwines itself round the vase. Another uncommon feature in the terrace garden is the single *Dahlias*, which are already in full bloom, and will continue to flower till October. Although they remind one of autumn, there is no other flower that could produce such a pretty effect at this season in the position they occupy. The roots are started in heat in February and hurried on, and after being hardened off are planted out at the end of May, and they soon produce a profuse array of bloom—scarlets, yellows, and whites, and a hundred intermediate shades.

The scarlet Cactus *Dahlia* is in bloom already, and its bright effect against the background of *Magnolias* may be readily imagined.

The front lawn is one of the prettiest examples of garden landscape that could be seen about London. It slopes gently from the retaining wall of the terrace to a miniature lake, behind which rises a group of ornamental trees, and it is one broad expanse, interrupted only by a few fine old trees, among them being some lofty Elms and spreading Yews, carpeted beneath with Ivy. The group of trees which forms a background to the lake deserves special notice, as it is the nearest approach to perfection in the way of artistic tree-grouping that could be seen. The tallest trees consist of a Lombardy Poplar, a black Poplar, Birches, and a Copper Beech. Next in size are some Laburnums, Hemlock Spruces, and Arbutus, whose gaunt limbs stretch out over the water in a most picturesque way; while in the foreground are Pampas Grasses, Water Irises, and other aquatic plants. Both in sky-outline and colour this group is charming, and whoever planted it must have had a cultivated taste for such work. Groups of *Rhododendrons* and *Azaleas* are planted along the outskirts of the lawn. Just now the lawn is lit up by a great mass of Oriental Poppies planted among Ghent *Azaleas*, but the Poppy flowers overtop them by a foot or more. The effect of hundreds of great scarlet Poppy flowers rising from a dense group of pale green *Azalea* foliage is very fine. This combination is well worth taking note of by those who have an eye to tidiness in their gardens, for, as everyone knows, the Poppy has an untidy look after flowering, but the *Azaleas* in this case hide all this, and, moreover, the two plants grow harmoniously together. Another beautiful combination here is a bed of *Pyrethrums* and white Japanese *Anemones*. The *Pyrethrums* are in full bloom now, double and single, and very fine they look. In a few weeks their bloom will be past, and then the stems are cut down, and by this time the *Anemones* will be throwing up their flower-stems, while the ferny leaves of the *Pyrethrums* serve as an undergrowth. This bed is in a sheltered nook in company with the hardy Palm (*Chamaerops humilis*); therefore the *Anemone* thrives to perfection, and nothing could be finer than this group was last autumn; the flower-stems were a yard high, and so plentiful were they, that the bed was a mass of white bloom.

A sunk path in imitation of a rocky ravine forms a boundary on one side of the garden. This was the work of Mr. Pulham years ago, and it is a decidedly important feature of the place, now that the growth of shrubs and other plants has added to its picturesqueness. The profusion of rocks, however, in one part arouses suspicion as to its artificial origin, and even Mr. Pulham, who always likes to see his work mistaken for Nature's work, would not probably praise this particular mass of unclothed and unnatural-looking rocks under trees where plants, even the shade-loving Ivy, struggle in vain for existence. An artificial rockery must be carried out with consummate taste when amidst surroundings that do not suggest a natural outcropping of rocks. A little of it in the home landscape is invaluable, but in excess it is harmful. An instance of this occurs in the conservatory here adjoining the house. A natural-looking rocky Fern cave is what was evidently aimed at; but the result is anything but satisfactory. In the centre is a huge incongruous mass of stone (or stucco), and the heavy shade created by this mass renders it impossible for Ferns to grow as they should do at the base of it, and even the fish in the pool below do not seem happy. In rockery building the chief consideration should be how

little material to use in order to make the work look natural.

The rest of the garden here is in keeping with the importance of the place. There is a capital open-air fruit garden, good walls for Peaches and the like, and excellent examples of standard fruit trees. There is a crowd of hot-houses, containing a varied collection of plants selected chiefly with the view to their suitability for affording a large supply of cut blooms and for room and table decoration. The plant stove contains some very fine examples of Ferns and other fine-foliaged plants, and in the fernery there is a remarkable example of that graceful Fern, *Goniophlebium subauriculatum*, measuring about a yard through, and with fronds from 4 feet to 5 feet in length hanging gracefully on all sides of the basket. A corridor with the roof covered with *Lapagerias* is a pretty feature, and in a handsome dome-roofed conservatory adjoining the house are grand specimens of fine-leaved plants. As a fruit garden it is chiefly remarkable, and particularly for Grapes, which every year are the centre of attraction at the chief London fruit shows. It is the Black Alicantes that are the most remarkable, and with these Mr. Howes, the gardener, invariably heads the prize list. Some of the bunches shown by Mr. Howes last year weighed 10½ lbs. each, and were coloured to perfection. These huge bunches were the produce of one old Vine, which alone fills a lean-to house 30 feet by 12 feet. This year it is carrying no fewer than eighty bunches, none of which will weigh less than 4 lbs., and several will weigh 8, 9, and 10 lbs. This old Vine is in vigorous health, but, of course, is fed liberally so as to enable it to carry such enormous crops. A great vinery filled with Muscat of Alexandria is scarcely less remarkable, as it is as fine an example of skilful Grape culture as could be seen anywhere. Other vineries include those devoted to Black Hamburg, just coloured, while the early Peach houses contain a fine crop of ripe fruit; indeed, Peach and Grape culture are two of the chief features of the place.

W. G.

Eurybia argophylla.—This is the old scented Aster (*A. argophyllus*), and is a half-hardy shrub worth a few feet of sheltered wall space in even the best of gardens. The musky fragrance of its silvery-backed leaves is liked by some people, who consider it worth cultivating especially for its perfume, and its leafy shoots are also useful for arranging with flowers in pots or vases indoors. As a wall shrub it is effective, and after rain, or when crushed in passing, its musky fragrance is quite enjoyable. Planted in deep rich soil the plant grows very rapidly, and even if cut down to the ground level by a more than usually severe winter, it pushes young shoots up from the root-stock in the spring, and so takes up a new lease of its life. Cuttings of the young wood root freely if inserted now in sandy soil, under a bell-glass or handlight, or it may be propagated in quantity from seeds sown as soon as they ripen. Its small white Aster-like flowers are not so showy as those of *E. Gunni* and other species, but, as before suggested, the plant is worth growing for its leaves alone.—B.

Veronica Hulkeana.—I agree with "Veronica's" note in reference to this being one of the best of the dwarf New Zealand shrubby Veronics, but the colour—pale lilac—is rather undecided. The bright rose-coloured variety with long, shining lanceolate leaves, and the deep blue with ovate leaves, both much harder, and blooming from this time right through the winter if sheltered, are to my mind much more effective, but at least requiring double the space and height of *Hulkeana*. Some years ago "Veronica" gave me cuttings of this *Veronica*, which rooted freely in a moist border. They were planted out at the foot of a sunny wall, and without protection have been frost-proof since. *Choisya ternata*, about which inquiries are made, is equally hardy with me. —W. J. MURPHY, *Clonmel*.

TREES AND SHRUBS.

FRUIT TREES ON LAWNS.

I HAVE noticed several times communications in THE GARDEN concerning fruit trees planted as ornaments to a lawn. Perhaps you will let me give you a short account of a small lawn of about a third of an acre in front of my library windows. It is in the form of a triangle, the base being one of the fronts of the house. The aspect is south-east, and the ground slopes gently. Twenty years ago I planted one of the sides with Mountain Ashes, Acacias (Robinias), and Worcestershire Damsons. The other side is a natural hedge of Hawthorns, wild Roses, &c., and Elm trees. On the lawn I planted one Siberian Crab, two Green Gages, two Apple trees (a Blenheim Orange and a French Pippin), four Cherry trees (a Bigarreau and three May Dukes), one Quince tree, double crimson Hawthorns, and a Laburnum. From

and fruit. My Siberian Crab has the advantage of opening its leaves with its blossoms, and the blossoms last a long time. I strongly recommend it as a lawn tree. Its fruit forms a pretty show. The Mountain Ashes, both in flower and fruit, are always pleasing to the eye, and in the fall of the year their foliage assumes the richest hues. My Cherry trees also, when the fruit is over, light up the scene with their crimson leaves for a week or so before they fall. To walk among my lawn trees and gather the fresh fruit is also an additional pleasure. I do not recommend Acacias as a rule, as they are very late in coming into leaf, and litter the place very much with their fallen blossoms. Quinces, Medlars, and Siberian Crabs I strongly recommend. Apple trees are very beautiful in full bloom, the best for colour being Cox's Orange Pippin. I find it also to be a good bearer, and the fruit very pretty.

In another portion of my grounds I have a young Mulberry tree, which Mr. Woodbridge

night's time will be a mass consisting of hundreds of blooms. At Trinity College, Oxford, they have lately thrown open a lawn, which is studded with old Apple trees, and very pretty they look.

I have about 40 feet of magnificent Delphiniums coming into full bloom; behind them, the same length of Gladiolus brenchleyensis; and behind these, a similar length of Sweet Peas. Between every Delphinium is a Lilium candidum—how well they look from a distance may therefore be imagined.

RICHARD HOOPER.

Upton Rectory, Didcot.

LAWN SHRUBS.

OWING to the indiscriminate manner in which the majority of shrubberies are planted, and their neglected condition afterwards, ornamental shrubs have but little opportunity to form handsome specimens; but on lawns the case is different—there they have more room. In order to start right, however, the soil must be well prepared,



Park Hill, Streatham.

early spring up till now this lawn has been a perfect picture of beauty. My Damson and Green Gage Plums were the first to gladden the sight with their snowy blossoms. The Siberian Crab is every year a mass of blossom, which is succeeded by beautiful scarlet wax-like fruit. The Bigarreau Cherry has grown to a considerable size, and its blossoms were the admiration of all who saw them. It is loaded with fruit almost every year—this year marvellously so. The peculiar spreading form of the Blenheim Orange Apple renders it a pretty object when in bloom, and its large handsome fruit makes a fine show. My Quince tree I imported from France, and it has grown into the shape of a great bush, touching the ground on all sides. I need hardly say that nothing could have exceeded the beauty of its blossoms about three weeks ago. My double pink (or rather crimson) Mays are now in perfection. On this small lawn from early spring to late autumn I have a succession of pleasing sights in the shape of blooms

struck for me from the old tree at Sion House. That tree was the first planted in England. There is a peculiarity about this tree. It is now (and every year) covered with catkins. I have another ordinary Mulberry tree which has a great show of fruit, but never bears catkins.

Some twenty-five years ago I put in two nuts of a large Walnut tree. They both came up, and are feathered down to the ground like a Cedar of Lebanon. I have never seen a Walnut tree grown like this before, and it surely would be a pretty object in a park, as the branches touch the ground all round. I must mention that on the side of my triangular lawn which I did not plant, *i.e.*, where the trees grow naturally, I have a large wild Cherry tree, which is always a pretty sight in spring; a fine Ash tree also makes a good show. The Elms are spreading Dutch Elms. To people who are fond of wild gardening, I may say that in this plantation, or rather in front of it, I have a wild Rose bush, about 6 feet through, which in about a fort-

and only young and vigorous plants selected for planting, as they will, in most cases, be permanent, and occupy prominent positions. With the exception of a few American plants which I shall name, it will not be necessary to make elaborate preparations for the roots, provided always the staple is such as would be likely to promote healthy root action. It is necessary that all the soil in a space 4 feet square and 2 feet deep should be broken up for each specimen, and it is desirable that this should be done some few weeks before planting takes place, in order to allow the soil to settle down again to its proper level. In the distribution of lawn shrubs some amount of taste and judgment is necessary, or the effect of an injudicious selection for particular positions may be altogether out of character with the surroundings. The angle near where walks meet is a favourite and proper position for two or three well-grown shrubs. In most cases they should be rather low and spreading, but under some circumstances a pyramidal habit would be required. A point of some importance is the necessity of giving preference to small plants

instead of large ones. The latter are so often injured in removal, that it not unfrequently happens some of the principal branches never afterwards assume the position and character needed to make a well-developed plant; whereas, when plants of medium size are chosen, they are more likely to assume proportions and aspects suitable to the position which they are to occupy. If I had the choice of such subjects I would not select one that exceeded 3 feet in height, and I am quite satisfied that I should ultimately get better-formed plants than if I had at first used larger ones.

OF VARIEGATED SUBJECTS the Golden Queen Holly is unsurpassed as a lawn shrub; indeed, it is too good to be planted in any but the most prominent positions. I do not suppose that climate has much to do with the behaviour of this Holly, yet in no part of the country have I seen such bright and highly-coloured foliage on this plant as is to be seen in the west of England. Within a few miles of where I write there are two magnificent plants of it worth going a long journey to see. One in particular stands on the lawn attached to a parsonage house, and is as perfect a specimen as it is possible to find anywhere. It is large in size, and just sufficiently informal to render it pleasing to look upon. The variegation, too, is so bright and clear as to make it very conspicuous. The condition of this plant, as well as that of others associated with it, clearly demonstrates what striking objects many of our choicer shrubs are when planted in a suitable soil, and allowed, as they are in this case, plenty of room in which to grow. Here, too, the golden and silver variegated *Elaeagnus* thrive in the most satisfactory manner, and form huge bushes, which are particularly bright in winter, and 6 feet or more in height. *Osmanthus variegatus*, although somewhat formal in growth, is also very effective. The *Aucuba*, too, is not altogether unworthy of notice in this connection.

AMONGST GREEN-LEAVED PLANTS, perhaps none are more suitable for sheltered positions than *Garrya elliptica*. Its informal habit and abundant leafage render it conspicuous, but its most noteworthy character, perhaps, is the long tassel-like inflorescence with which it is furnished during winter. Several of the *Junipers* are admirably adapted for positions in which plants of slow-spreading growth are desirable. The common English *Juniper* is not to be despised, and the *Savin* is well known to have a low-spreading habit. *J. hibernica compressa*, a dwarf form of the Irish *Juniper*, is well suited for positions in which plants of medium height are required. The Golden Yew is a capital lawn shrub if planted in the full sun, as under such circumstances its golden colour is retained during the greater part of the year. Amongst other subjects fitted for this kind of decoration may be mentioned the *Arbutus*, which suits a prominent position well if given space sufficient to allow it to develop into a large bush. *Berberis Darwini* and *B. dulcis* are fairly ornamental plants, and should be used where variety is required. The *Laurustinus* is too well known to need comment. *Yucca aloifolia* and *Y. gloriosa* are both suited for gardens of limited extent, as is also *Arundo conspicua*, a Grass but little inferior to the *Pampas* itself, a few specimens of which should find a place in every garden.

AMONGST AMERICAN PLANTS, *Kalmia latifolia* makes a grand specimen where the conditions suit it. It is rather slow in growth, and therefore it is some years before it attains a large size. *Andromeda floribunda* is a neat dwarf shrub, much valued when in flower, and it will stand uninjured through the most severe winters. The hybrid forms of *Rhododendrons* must not be omitted from this list; they make striking objects as single specimens. I do not know how high they may grow in the course of time, but we have one here nearly 30 feet in height, with a proportionate diameter of branches. A suitable soil will have to be provided for this class of plants, and, where full development is desired, they must be afforded ample room. Deciduous flowering shrubs are not

often used in prominent positions on lawns, but in large places they are quite admissible. Take a well-grown *Moutan*, for example, or the crimson-flowered *Ribes*, and see what effective objects they are when in flower; and so are well-grown specimens of *Weigela rosea* and *Hydrangea hortensis*. The various varieties of *Althæa frutex*, although somewhat formal in habit, are very suitable for certain positions in ornamental grounds, for the decoration of which there need be no lack of subjects. J. C. C.

A VALLEY IN THE GRAMPIANS.

DALLALY DEN is one of many beautiful ravines or passes opening from the south into the Kincardineshire Grampians. In this small valley and on its slopes there are more picturesque specimens of the common Spruce and Silver Fir than are to be met with in whole counties. Such a delightful spot is seldom, if ever, met with within so small an area. Every form of tree, from the bold and upright trunk, with stiff and horizontal branches, to the bent and deformed trunk with contorted and unwieldy branches, but trying, as it were, to lift its head beside its more noble compeers, whose tall, well-balanced trunks have wide-spreading pendulous branches, is to be found here. The Silver Firs have a singularly majestic outline. The stems are tall, straight, and pyramid-like; the branches are strong, rigid, and horizontal; whilst the foliage is of a beautiful silvery sheen when lit up by the sunshine. But the wonder of the locality is the prostrate and creeping stem of a Spruce, which must have been blown down many years ago. It is lying against an abrupt ridge, and has taken root at a distance of some 14 feet from the original root, at a point in the ridge where the trunk came in contact with the ground. Here the tree has formed a new station, spread its roots on all sides, and has grown into a shapely tree quite 70 feet high, and at least 12 inches in diameter at half its height. The former trunk now has the appearance of a huge lateral surface root. I have before often met with blown-down Spruces which have developed many stems from the prostrate trunk, but I never before met with one that had taken root and formed such a perfect tree. J. F.

The variegated *Althæa*.—This shrub, about which someone makes an enquiry (p. 543), is grown here, and has proved itself equally as hardy and vigorous in constitution as the green-leaved form; but for all that I do not consider it very effective, for the variegation of the leaves is confined to a narrow margin of white, and even that is often seared by the summer's sun. Our garden, however, is hot and dry; too much so, indeed, for the *Althæas* (or, more correctly speaking, *Hibiscus syriacus*), which prefer a soil that is, even during the heat of summer, at least fairly moist. When in a flourishing condition they are about the best of late summer and early autumn flowering shrubs, and there is also a great variety in the colour of their blooms, which range from pure white to deep purple. Both single and double-flowered kinds are also in cultivation. I have particularly noted as very desirable varieties *Celeste*, a large single flower of a pretty shade of light bluish purple; *albus*, white, with crimson blotch in the centre of the flower; *totus albus*, pure white; *atropurpureus*, deep purple; *Lady Stanley*, cream, striped red; *Boule de Feu*, of a bright reddish tint; and *purpureus variegatus*, purple and white. There is a great number of other varieties to be met with in the various nurserymen's catalogues, some of which are no doubt equally as beautiful as those here mentioned, and had I the entire collection in bloom it is more than probable that the list would be increased.—ALPHA.

Impoverished Conifers.—In the case of specimens coniferous trees on lawns how often do we see them deprived of all natural aids they might get from the decay of their own leaves and that of weeds and the droppings of birds, all these being carefully swept up and carried away, while even

the Grass which grows at their feet and deprives the soil of part of its nourishment is closely and regularly mown and removed. The regularity of their whorls of branches and the density of their heads cause them to throw off all rain-water beyond the reach of most of their rootlets, so that the soil becomes dry and hard and almost impenetrable. Contrast the impoverished state of single trees with that of trees planted in groups, where the intersections of branches enable them to convey water in the direction of each other's boles, while at the same time the fallen leaves, the debris of the smaller branches, and the undergrowths often decay on the spot, thus furnishing a continuous supply of new food to the roots. To meet the cases of single trees, such as *Pinus excelsa*, *macrocarpa*, *Pinaster*, *Douglasi*, *Pinsapo*, and the Cedars, it is recommended in preference to all other top-dressings to give a compost of turfy loam which has been two years rotted. This is to be applied to a thickness of not less than 4 inches, and much more if necessary, by removing the turves in November, laying on the compost, treading it well down, and immediately replacing the covering. The newly-added compost, even when laid on to a thickness of 1 foot or more, is frequently found filled with roots before the end of the second year. It is very evident that in the case of isolated and dense-headed trees with regular whorls of wide-spreading branches liberal waterings should be given from time to time, as when these stand in sheltered situations no rain can reach their inner roots.—B.

Evils of potting trees.—One of the evil results arising from growing young trees in pots previous to planting out is that of gumming. Mr. Barron, of Elvaston, says respecting it: "I have seen Cedars of Lebanon, after growing well for several years, become unhealthy, with portions of resin oozing out of the stem, caused by the compressed vessels of the roots being unable to pass it; in most cases such plants became sickly yellow in their foliage, and frequently died. Thousands of such plants have been lost to the country from this cause alone. I can scarcely travel a few miles in any direction without seeing proofs of it in different stages. Some Cedars of Lebanon, which I knew near Derby upwards of twenty years ago, are not much larger than when I first saw them."

***Juniperus rigida*.**—The name of this *Juniper* refers to the stiff sharp-pointed leaves, and has nothing to do with the habit of the plant, which is entirely devoid of any stiffness or formality. It forms a low tree, broad at the base, and gradually narrowing towards the summit, the branches being slender and ascending, but the branchlets and the whole of the young shoots are strictly pendulous so as to form a specimen of pleasing and graceful outline, at times somewhat irregular in shape by reason of some of the branches growing with far more freedom than others. The leaves are about half an inch long, very narrow, stiff and terminated by a sharp point, so that the plant is almost as difficult to handle as a *Furze* bush. The colour of the young foliage is light green, but when mature it deepens in tint, though it never assumes a dark tone. In the winter the plant becomes slightly tinted with brown. A distinctive characteristic of this *Juniper* is that each leaf is marked on the upper side by a conspicuous glaucous furrow. It is a native of Japan, and being perfectly hardy in this country is well suited for planting as a lawn tree or in similar situations. Here, in a light sandy soil on gravel, but so situated that it is not roasted up during summer, this *Juniper* succeeds perfectly.—W.

The Tartarian Maple (*Acer tataricum*).—This forms a tree from 20 feet to 30 feet high, with numerous branches disposed in a compact head, sometimes 20 feet through, and densely covered with leaves of a lively green. It is a native of Tartary and the south of European Russia, particularly along the Volga and its tributary streams. The Tartarian Maple grows freely in any good soil, but prefers one that is rather moist. It was first introduced in 1579. The leaves are heart-shaped and somewhat pointed, but sometimes those on young plants and on the stronger shoots are visibly three-lobed; they are of a bright green above, irregularly serrated on the edges, and distinguished by a peculiar veiny appearance on

the upper side, particularly when young, but when matured they are smooth on both surfaces, and just before they fall are of a reddish yellow or brown colour. The flowers are of a pale yellowish green, sometimes tinged with red, and are produced in erect, compound, crowded racemes in May. The fruit or keys when young are covered with a short down and are slightly tinged with red, but when ripe in August quite smooth and of a brown colour, with small thinnish carpels and large parallel wings but slightly separated. This is a very desirable Maple for planting in shrubberies, on account of its coming into leaf very early in the spring. The length of a full-sized leaf is $5\frac{1}{2}$ inches, including the footstalk, which is about $1\frac{1}{2}$ inches long, and the breadth $2\frac{1}{2}$ inches.—W.

WEIGELAS AND HOW TO GROW THEM.

THE frosts in the spring injured the flower buds of many of the Weigelas a good deal, yet still they have made a goodly show of bloom this season. From Continental raisers numerous new varieties have been sent out, but some of these differ but slightly from each other or older kinds. The fact is, there are far too many sorts already in cultivation, and to anyone needing just a few of the most distinct it is embarrassing to wade through a long list of names.

Of white-flowered kinds the best is *W. candida*, a free, vigorous, somewhat upright-habited bush, that flowers most profusely. It is, I believe, a seedling of Continental origin, and is rapidly becoming popular, not only in this country, but also in the United States. It has a far more robust constitution than the Japanese *W. hortensis nivea*, which for a long time was considered to be the best white-flowered Weigela, and even now it is well worth a place, differing as it does in so many particulars from *W. candida*. The Japanese kind is of a loose spreading growth, while the leaves are much larger and more wrinkly on the surface. Besides these distinguishing features *W. hortensis nivea* is more particular in its cultural requirements than the other, and will not strike root so readily from cuttings. The blossoms of *W. amabilis alba* are not, as might be supposed, white, but have a delicate pinkish tinge; indeed, it is about the best of any of that hue. Of striped or parti-coloured blooms may be mentioned *Van Houttei*, a deep rose-tinted form, spotted more or less with white. The flowers are marked in a rather irregular manner, some being much prettier than others, but even when at their best they are scarcely so effective in the open ground as self-coloured blossoms. Another parti-coloured flower is *Grönwegeni*, which is of a rosy tint, striped more or less with a deeper hue. *W. rosea* is the best known of all the Weigelas, and is unsurpassed by any of the same colour, unless it be *A. Carrière* (a seedling from an older kind), whose blossoms are larger and brighter coloured than those of its parent. This *A. Carrière* is indeed one of the finest of all Weigelas, deserving a place in any garden. Of darker flowers there are great numbers, but, as mentioned above, the choicest too closely resemble each other. A great number of these are in bloom here together, and of them I would select the following as the best: *Dr. Baillon*, a strong growing variety, the branches of which are completely laden with deep claret-coloured blossoms. It resembles in flower an older kind (*Lavallei*), but its growth is less straggling, which is a great point in favour of the newer one, as *Lavallei* is not of a desirable habit. *P. Duchartre* is a more slender, upright-growing bush than the last-named, with amaranth-red blossoms. The foliage is of a pale, almost yellowish, green, against which the dark-coloured flowers contrast in a marked manner. *Emile Galli*.—This forms

a free compact bush with a more dense arrangement of the branches than is common with Weigelas, but as a set-off the shoots are much more slender. The flowers are borne most profusely, and their colour (a clear bright crimson) arrests attention when in company with other kinds. The darkest Weigela is generally recognised to be *Edouard André*, the buds of which are of a blackish crimson tint, but when expanded they are, of course, paler. At any stage, however, the blooms are too dark and dull in hue to be effective. I obtained another variety last season (*Jean Mace*), announced as the darkest in cultivation, but what few blooms were produced appear, like the preceding kind, to be dull in colour. Though the blooms of these dark-flowered kinds are borne quite as freely as those of the old *W. rosea*, they are individually rather less in size.

There are two or three variegated Weigelas, but the only one I consider worth growing from a foliage point of view is *Looymansii aurea*, whose leaves, when first expanded, are of a pale greenish yellow colour, but with exposure to the sunshine they become deeper, and under the rays of the summer's sun are of a rich golden hue, and then this Weigela is one of the finest of golden-leaved shrubs. In giving this list of a few Weigelas I do not mean that they should be grown to the exclusion of all others, but rather where but few kinds are required they may be relied on as a distinct and representative selection, for, as above stated, if a collection is grown, some of the sorts will be indistinguishable from others.

With regard to soil and situation the Weigelas are in no way particular, as they thrive fairly well in hot sandy spots, but are seen to the greatest advantage when more liberal treatment is accorded them. They bear pruning well; indeed, they can be cut back hard immediately after flowering without destroying the following season's display of bloom. In common, too, with many shrubs an old plant of Weigela is apt to become somewhat crowded up with exhausted wood, and a thinning out occasionally will impart fresh vigour to the plant and increase its floriferousness. The propagation of the Weigelas is by no means a difficult matter, as they can be increased in various ways. In the first place, where but a few are desired it is often possible during the autumn after the leaves have fallen to detach a few of the branches springing from the base of the plant, with their attendant roots, and if these are pruned back a little and planted they will in many cases form nice little bushes the first season. Another plan is to layer some of the most convenient branches, which will root well in a year, and are then fit for removal. With regard to layering, I may mention that the most attractive plant of *W. A. Carrière* that has come under my observation was one that had the whole of the outside branches layered for propagating purposes, but when rooted they were not removed, so that quite a plantation was formed in this way, as a fringe of young plants encircled the parent. Cuttings do not root so readily as those of other shrubs if put in the open ground during the autumn. The most successful method I have tried is to make cuttings of the young growing shoots during summer, put them in pots of sandy soil, and keep them in a close frame till rooted. They will need attention in the matter of shading during sunshine, watering when necessary, and an occasional examination for the removal of any decaying leaves. If they are potted off into small pots as soon as rooted, they will become established therein the first season, and may then be planted out before growth recommences in the following spring.

Another way by which Weigelas can be increased is by seeds. Some three years ago I

gathered a quantity of seed, which was sown at once in a cold frame, and the young plants quickly made their appearance. When large enough they were pricked off and continued to grow rapidly, so that many of them flowered last season and the remainder this, but in no cases did they turn out to be any advance on existing varieties. There was, of course, a good deal of difference among them, but not more than might be expected, considering that the seeds were gathered from a large and varied collection. As the capsules quickly open when ripe and discharge their seeds, a sharp look-out must be maintained about that time. A good way is to gather the seed vessels just as they commence to burst open, and lay them out in a dry, airy place till all the seeds are shed.

T.

Berberis stenophylla.—Barberries are ornamental generally, but probably *B. stenophylla* is the handsomest of all, and it is as suitable for covering a wall of moderate height as it is for any other purpose. At Belmont, Taunton, there is a magnificent specimen of it growing on rather a raised position with ample space around it. Here the branches arch over in such a graceful manner as to render the plant conspicuous, and the freedom with which it flowers every year is not the least of its merits. It is not unusual to see the Belmont plant with branches 3 feet long, and covered all that length with charming golden blossoms.—J. C. C.

Self-sown Rhododendrons.—Considering how deficient our woods generally are in respect of evergreen underwood, not to speak of parks bare of shrubs, it is surprising that the common *Rhododendron* has not been made more use of for planting than it has been. No doubt the cost of the plants explains this to some extent, but owners of estates could help each other in this respect if they were to try, and with mutual advantage. The common *Rhododendron ponticum* sows itself in many places, and on some estates with which I am acquainted young plants of all sizes, from tiny seedlings one year old up to a foot, exist in thousands. The soil being light and favourable they seem to spring up like weeds, and transplant readily. I have had thousands of these in one year from 6 inches to 9 inches high at about 20s. per 1000, 20s. to 30s. per 100 being the lowest the trade can offer the same at after defraying the cost of raising and transplanting. I am informed I could have any quantity of the same kind. Our plants came from the south, and had apparently been simply pulled up by the hand and tied in bunches like spring Cabbage plants. The roots were mostly in the shape of a flat disc of fibres, and in transferring them to our soil they had to be planted very shallow, but all took and did well planted in April and May last year, made growth, and will be good plants this summer fit to go anywhere. We can hardly over-estimate the value of the *Rhododendron* for covert purposes, for, together with the Yew and the Privet, nothing could be better for the purpose, all the three being good growers and rabbit-proof.—J. S. W.

Hybrid Forsythias.—I notice in THE GARDEN (p. 457) that "H. P." asks if any reader has flowered *Forsythia intermedia*, a new Continental variety supposed to be a hybrid between *F. viridissima* and *F. suspensa*. Allow me to say that the variety to which "H. P." alludes cannot be a hybrid, because *F. suspensa* is only a variety of *F. viridissima*. Twenty years ago I set out a plant of *F. suspensa* with many other kinds of shrubs on a rocky ridge among old forest trees, and where cultivation, beyond an occasional digging around the shrubs, was out of the question. My object was to make a kind of wild garden, intermingling exotic shrubs among the indigenous. A few years since I noticed that the old *F. suspensa* growing among the rocks was inclined to produce fertile seeds, affording an opportunity of determining whether it was really a true species

or only a variety. I destroyed every other plant of this variety in my own grounds, and from a careful search in the neighbourhood I became satisfied that there was not another specimen of *F. suspensa* within five miles of my place. The few plants of *F. viridissima* and *F. Fortunei* in my grounds are many rods distant from the old plant of *F. suspensa*; besides, the latter is growing in a warm, sunny spot, and blooms two weeks in advance of the former; consequently there can be no intermingling of pollen carried by bees or other insects. Recently I have raised a large number of seedlings from this isolated plant of *F. suspensa*, among which I find many with the stout upright canes and large leaves of the *F. viridissima*; while others retain the slender stems and trailing habit, with the small and more rounded and less deeply serrated leaf of the parent plant. Quite a number of the seedlings appear to be intermediate between this species and *F. suspensa*—that is, if we are to consider *F. viridissima* to be the original type or species. The flowers of all the seedlings that have bloomed up to the present time are yellow, and quite similar to those of the parent plant; but as I have a hundred or more yet to come into bloom, I hope to find some pronounced variation among them.—ANDREW FULLER, *Ridgwood, Bergen, N.J.*

NOTES.

THE IRISH SHAMROCK.—Every now and then the question arises, "What plant really represents the Shamrock of Ireland?" and the answer is, *Trifolium repens*, which, without doubt, is the plant selected and worn on St. Patrick's Day by Irish people all the world over, for I need scarcely say that little tufts of this plant are posted far and wide, and the custom is increasing year by year. What the identical plant was by which St. Patrick himself used to illustrate the principle of the Trinity is another matter, and it may have been any trifoliate leaf which is a native of Ireland. Thus in turn the Buck or Bog Bean (*Menyanthes*), the Wood Sorrel (*Oxalis Acetosella*), and different kinds of Clover (*Trifolium*) have been selected, and some have gone further and suggested that St. Patrick may have torn the three leaflets only from the tip of any imparipinnate leaf, such as that of the common Watercress, which would, of course, have served his purpose nearly as well. *Medicago lupulina* is also used as the Shamrock in Ireland; and in London we find the dark purple-leaved Clover, with leaflets varying from three to five, sold for the same purpose. Threlkeld, who is "the earliest writer on the wild plants of Ireland," gives Seamar-oge (young Trefoil) as the Gaelic name of the white field Clover, and expressly states that it is the plant worn by the people in their hats on St. Patrick's Day ("Cybele Hibernica," p. 73). Some early writers mention that the Shamrock was a leaf which might be eaten; hence some have argued against the Clover, and have leaned towards the Watercress, the Wood Sorrel, or the Bog Bean, the leaves of which were formerly eaten by country people for the sake of the bitter tonic principle (gentian) which they contain. As St. Patrick's Shamrock may have been Clover, and as we have no proof to the contrary, we had better stick to custom in the matter.

THE AZAROLE HAWTHORN.—There should be at least one good Hawthorn on the lawn of every country house in England, and it is not easy to get a better kind than this Italian variety, which is just now like a snowdrift of blossom. In leafage, as in flowers, it is a trifle larger than our native forms, although in whiteness and in perfume it is practically the same thing. Perhaps having the Hawthorn in every hedge in England makes us tire a little of a thing so common, howbeit so beautiful; but there is no doubt that the Hawthorn at its best is a noble flowering tree, smaller

than the Chestnut, but not less beautiful on that account. Perhaps nowhere can the Hawthorn be seen in perfection better than in the Phoenix Park at Dublin, where it attains the dimensions of a small tree, and is extremely variable in leafage, habit, and time of flowering. To walk through whole groves of these fragrant trees, with the dappled deer resting beneath them, and here and there a startled rabbit popping into a clump of Brambles, or a few fluty notes from a blackbird overhead, is an idyll in June well worthy of one's calm enjoyment. These Hawthorns are classic, like the Oaks of "merry Sherwood" or the Bluebells at Nuneham; but for the dressed lawn of a quiet country house give me a good specimen of the Azarole Thorn. There is a tradition that the Hawthorn is a lucky tree to have near the house; at any rate, it is a favourite tree for the birds, the blackbird having an especial affection for the snow-white Thorn, so that we get beauty and bird-song by planting it near our dwellings.

ALPEN ROSEN.—The dwarf Rhododendrons of the Alps are now very beautiful in the garden—soft masses of dark green leaves thickly studded with crimson buds, or deep rosy flowers. Well established in good borders, or in low-lying parts of the rock garden, these dwarf kinds of Rhododendrons form a picture every year about this date. There are two kinds, *R. hirsutum* and *R. ferrugineum*, which are said to represent each other on the Alps in different localities. They grow almost anywhere on good deep soils well enriched with leaf mould, and are so fresh and beautiful as to deserve any amount of attention; massed on the turf they are at all times sightly, even although out of flower. Upon the hills around shooting lodges these Rhododendrons grow very luxuriantly, and but few other plants are more appropriate in such localities than are these and the numerous forms of hardy Heaths, or Ericas. I have noticed that these plants generally seem happy wherever the common wild Heather is at home, and this may serve as an encouragement to would-be planters. Some dense bushes of the above varieties are now rosy masses of bloom, and are much admired by lovers of the alpine wild flowers, who are a little astonished to see these plants so happy at sea-level and in what one may fairly call a town garden.

LIBERTIA GRANDIFLORA.—Well grown tufts of this are now very effective as massed near clumps of the great crimson Poppy, which intensifies the snow-like whiteness of the *Libertia*. Wherever it grows well, it is a plant at once distinct and handsome, and, seeding most abundantly, it is by no means difficult to keep up a stock of strong healthy plants. Being evergreen, its tufts of erect Iris-like leaves are not unsightly, even when the plant is out of bloom. On some soils it grows and blooms well without any especial attention, and I have never seen it more healthy and luxuriant than in the shrubbery borders of the people's gardens in the Phoenix Park at Dublin.

VICTORIA ANEMONE.—This is a good strain of the French race of *Anemone coronaria* having single flowers or semi-double ones, with from five to ten sepals, each varying from 1 inch to nearly 2 inches in breadth. The largest flowers are very much like single Dahlias, and are about 5 inches across. They vary in colour from white and rose coloured to all shades of purple and red approaching crimson, and some forms are spotted or striped in a pretty way. Well grown, they are very effective in the flower garden, and they yield a good supply of flowers for indoor uses. As grown from seed they would be very handsome—indeed, the full capabilities of the garden *Anemones* are only to be developed in that way.

The great fault of all *Anemones* is their variety in the seed bed. If we could get races to come true, red or purple, as the case may be, it would be a decided gain. As it is, one colour kills another, and a bed of these flowers is gay and bright, but a little confusing.

PLATYSTEMON CALIFORNICUM.—Plants of this annual Poppy-wort from seeds sown last autumn are now very much admired. It is a pale glaucous-spreading plant, bearing reddish buds and pale sulphur flowers quite star-like in form, and very distinct and showy as seen fully open in the sun. Botanically, it is interesting as having its floral leaflets in threes instead of in twos, but as a good garden annual it deserves culture for its soft pale beauty alone. Like many other annuals, however, it is never so good as when either self-sown or as sown in positions where it remains to flower without being transplanted. Each seedling forms a tuft 12 inches to 18 inches across. Now that the Poppies are again taking their place as beautiful garden flowers, this little American should find a place more often than is now the rule. One of the most distinct of Poppies now flowering is *P. pilosum*, which forms tufts of narrow hairy leaves covered pretty thickly with buds and flowers. The latter are in colour quite unique—a sort of apricot-vermilion—wholly unlike any other Poppy known to me. *P. spicatum* is a coarser plant, also distinct when in flower, but just now nothing is finer than the great flowers on the deep blood-coloured *P. bracteatum*, the flowers of which are nearly 12 inches in diameter. As a garden plant I like this better than *P. orientale*, which, being much larger in habit, smothers up the borders too much, killing all things near it, and so leaving great ugly gaps when it dies down.

CELSIA CRETICA.—This fine old plant has been figured in *THE GARDEN*, and right well does it deserve such honour. On warm dry soils it is one of the best of hardy biennials, and although it was cut down to the ground level here last season, it sent up its flower-stems this spring, and these are now thickly studded with wax-like yellow flowers. Even where not hardy, it well deserves pot culture as a plant distinct and effective, and even more showy than is *C. Arcturus*, an old greenhouse species of elegant habit, and a plant far too rarely seen. *C. cretica* is easily reared from spring-sown seed; indeed, we treat it exactly as we do hardy Primroses, sowing it in boxes in a cold frame, or even in rows in an open-air seed-bed. The seedlings are pricked off and planted out when large enough in the borders. As seen growing strong and vigorous, each stout stem close-set with its *Oncidium*-like flowers, but few of our visitors recognise it, and we find that very few pass it without admiring its quaint old-fashioned sort of beauty. I remember once seeing a group of this plant in the utmost vigour flowering on a manure heap, on which some unnamed seeds had been scattered on the chance of their growing. I never saw the plant so bold and beautiful before nor since.

FLAG IRIS.—The time of Irises is one of the most pleasant in the whole year. The great soft lilac blossoms of *I. pallida dalmatica* are now most lovely fluttering in the warm June air, and dear old Victorine in purple and ermine is also in all her glory, although a little vain in her old age at being awarded a prize for her beauty only a week ago. Who can give us the early history of this fine old garden Iris? *I. florentina* is past its best for this season, but has in truth been most beautiful, and now the pure white *I. Princess of Wales* takes its place. What a blossom of elegant form and snowy purity this is as cut in the bud state and brought indoors to open near the

eye. It is a delicious breakfast-table flower. We have a soft pale yellow Flag Iris now in bloom, a beautiful thing with no streaking of any kind, good in habit and fresh green in leafage. What is it? There are but few early summer flowers which rival these great Flag Irises for cut bloom, and their culture is worth attention. Mr. Walker sent me a beautiful dark purple last year called *I. atropurpurea*, which contrasts well with the milk-white *I. florentina* or the yellow forms. When is the best time to transplant or to divide these Flag Irises? I noted quite recently someone recommending that the German Irises should be planted in damp situations. My own opinion and experience is in favour of a dry sunny position for them, and I also find that the clumps do not bloom so well if left undisturbed too long, whereas nearly every transplanted piece will flower. Some large masses of *I. germanica* which were top-dressed with manure last season have not bloomed so well this year as those which received no such attention.

FEATHER COLUMBINES.—These old-fashioned Feather Columbines are botanically known as *Thalictrum*s in the garden, and some of the tall-growing kinds are very effective as seen in bloom. They grow from 4 feet to 6 feet high—more, perhaps, in deep rich loam—and as seen with their soft plume-like flower-heads swaying in the warm breezes of June or July they are strikingly handsome. *Thalictrum medium* may be taken as the type of the yellow kinds, and *T. aquilegifolium* of the white-plumed varieties; but of the last-named species there is a rosy form, given to me from a dear, old-fashioned cottage garden years and years ago. It is now in bloom and is much admired. When massed in nooks, backed up by dark-leaved shrubs, these feathery Columbines are very handsome, and are effective a long way off, and the white and yellow varieties are strong enough to take care of themselves when once well planted. Grouped along with the big crimson Poppies they tower up lightly above them, and so make a brave show; or they look well beside their allies, the Columbines proper. A group of the Munstead White *Aquilegia*, now in bloom, having speared up through the outlying leaves of a big green *Ferula*, is just now very fresh and beautiful—cool-looking even in the sun.

IBERIS GIBALTARICA.—All the shrubby or sub-shrubby kinds of Candytuft are valuable garden plants, but this and *I. corifolia* are, as I think, two of the best. Both are readily raised either from cuttings or from seeds, and as now seen form spreading masses of colour not easily surpassed. *I. corifolia* is pure white, and forms fleece-like carpets on the rockery stones or borders, but this variety from Gibraltar has pale lilac-tinted flowers much larger than those of the other variety, and as seen at its best it is a most effective thing. Once well established, it is a strong growing plant, either on rockwork or on the ordinary border. It seems to grow and flower best in full sunshine, some plants which were accidentally planted in shady places being lax in growth and but few-flowered. On a sunny bank among the different kinds of *Cistus*—especially the white Rose-like *C. florentinus*—this *Iberis* would be quite effective, or it might be planted on the tops of low retaining walls with the advantage that the blossoms would thus be brought nearer to the eye. As seen at its best, it is such a bold and distinct plant, that it should be added to every collection wherein Candytufts are grown, being, as I think, one of, even if not the very best of all the species now grown in gardens.

ANEMONE DICHOTOMA.—This species is very useful as bridging over the period after *A.*

syvestris ceases flowering until *A. rivularis*, *A. narcissiflora*, *A. polyantha*, and that *Venus de Milo* among hardy flowers, viz., *A. japonica alba*, come into bloom. This white *A. dichotoma* does not seem to be a very common plant in gardens, although, like *A. syvestris* and *A. japonica*, it produces stolons or underground stems in a plentiful way, and the smallest bits of its roots grow into plants. The Pasque flower (*A. Pulsatilla*) is still beautiful, and amongst our seedlings I notice one especially as having branched sepals, the divisions of the floral leaves being tridentate, as are the bracts below. What is the plant called *Anemone alba* of some lists, and where can plants of it be obtained? A plant of *A. sulphurea*, which bore fourteen fine blossoms two months ago, is now nearly as much admired for its shining seed-heads, which remind one of those of the *Clematis Vitalba*, or Traveller's Joy. *A. Pulsatilla* is also very pretty in a similar way, and its seeds grow quite freely as sown in rows in a sandy seed-bed in the open air. I see a solitary seedling of *A. sulphurea*, also the result of seeds sown a couple of years ago. Perhaps the seeds of these *Anemones* with long-awned seeds should be sown as soon as they ripen, or, like *Primula* seeds, they lie long in the ground.

SHRUBBY PENTSTEMONS.—Two of the strong-growing shrubby species of *Pentstemon* are now in flower. The best to my mind is *P. Menziesii*, which is neat in growth and bears dense clusters of rosy crimson buds and blossoms. Even quite small cuttings of the young wood or growth rooted last autumn are flowering, although only 2 inches or 3 inches in height. For little pockets or niches on rockwork these little plants are very useful, and it is a good plan to propagate a few of them every year, the more especially as the old bushes are apt to die off quite suddenly after a hard frost, while these newly rooted sprigs of growth rarely fail. The same is true of *Veronicas*, *Onosmas*, *Cistus*, and many other garden plants besides these. Our plan is to insert cuttings of the young wood in coarse sea sand and to cover them with a handlight, à la *Carnation* pipings. The other species of *Pentstemon* alluded to above is *P. Scouleri*, a larger growing kind, forming a spreading shrubby mass 4 feet in diameter, its flowering growths being laden with pale lilac flowers much larger than those of *P. Menziesii*. Young plants of this are best also, and although *P. Menziesii* is our favourite, yet this is also well worthy of careful culture. Both are especially useful as flowering thus early in the year. What is the lovely blue species now in bloom? Can it be *P. Cobaea* true? The spikes are 2 feet high, and it is beautiful. VERONICA.

INSECTS AND FLOWERS: A QUESTION.*

BY C. E. MEETKERKE.

NEARLY four years ago a paper was published in *Chambers's Journal*,† purporting to give a short summary of the discoveries which had been made up to that time by a great many careful inquirers on the subject of insect agency in the fertilisation of flowers. Since then the Knight-Darwin theory, as it is called in Germany, has progressed with such a rush in one direction that a reaction is already setting in, and it is now almost beginning to be doubted, not only if cross-fertilisation is necessary to the life of plants, but even if it is particularly advantageous to them. When Sprengel, Knight, Delpino, Müller, and a host of other writers asserted that the aid of insects was necessary for the complete fertility of plants, and when Charles Darwin undertook his own practical researches on the subject, little doubt was left upon the minds of unprejudiced people as to the intimate relations existing between the animal

and vegetable kingdoms. Darwin was supposed to have freed himself from what were held to be the mistakes of Sprengel and the early investigators, but even he had ventured to affirm the general truth of their conclusions before he had himself engaged in any very critical researches. Some contradictions arose, and it was remarked that the records of botanical literature are vitiated by a larger intermixture of falsity and fiction than might be imagined possible in an experimental science. Sprengel's work was published in 1793, and in 1862 Darwin wrote his "Fertilisation of Orchids," which was enthusiastically received, but which gave rise to the well-founded objection that in most Orchids the operation of insect visitors was only indirectly concluded from the structure of the flowers. "Criticisms near the mark or further from the mark, or even altogether far and away from any mark," only led to the conviction that there is much more in the shape of a petal and the position of a plant-hair than was formerly supposed, and that insects do not merely loiter about brilliant blossoms in idle satisfaction or for necessary sustenance, but that they have a mission to increase the beauty and prolong the life of flowers, and, it is added, that so well is this mission understood, that flowers, in their turn, learn to distinguish between profitable and unprofitable visitors, and grow to provide special arrangements for allurements or exclusion. This being stated, we must either allow subtle, secret meanings to colour, shape, and all the beautiful, familiar things taken once upon a time for granted, as a part of natural development, to be one of the forces in the great heaving life sea, or else reject the whole theory as extravagant and mistaken. Going still further, we are told that it is to insects we owe the beauty of our gardens, the sweetness of our fields, and that to them alone flowers are indebted for their very existence; and when we come to this, the most casual inquirer is led to find out what grounds exist for it, how far it is borne out by evidence, and if we are really bound to accept as truth, that should butterflies, flies, and bees be exterminated, the world would no longer know the beauty of flowers. Fairly to examine

THE TRUE KNIGHT-DARWIN THEORY, it will be well to learn from their own words to what conclusions these able men arrived as the result of their researches. We shall then be in a position to remark that the rolling stone of a new doctrine, once set in motion, is never in want of a friendly push. We see how hasty conclusions are made to harmonise with preconceived ideas, and extravagant notions are issued as true coin. The favourite text of Darwin's interpreters is his much misapprehended maxim, "Nature abhors perpetual self-fertilisation;" and, as if foreseeing that such an axiom might lead to mistakes, he defines his meaning with precision in some introductory remarks to his work on "Cross and Self-Fertilisation." These are his words: "In 1862 I summed up my observations on Orchids by saying that Nature abhors perpetual self-fertilisation; if the word perpetual had been omitted, the aphorism would have been false." And in another place: "From my own observations on plants, I became convinced many years ago that it is a general law of Nature that flowers are adapted to be crossed, at least occasionally, by pollen from a distinct plant." This opinion was ratified by Andrew Knight in these words: "In no plant does self-fertilisation occur for an unlimited number of generations." It will be remarked how wide a difference exists between the guarded expressions of these careful inquirers and the rash law-giving of later writers, who, although working on the lines laid down by Darwin, have assuredly studied only the contrivances which are favourable to cross-fertilisation, and neglect to make mention of those facts, so weighty and so numerous, which tell so dead against them. They appear to forget that there are many plants whose pollen is wafted away by the wind, and which are wholly independent of insects. That there are great numbers which are propagated by grafts, buds, layers, bulbs, tubers, and cuttings, besides over thirty

* From the *Medical Bulletin*, May.

† *Chambers's Journal*, June, 1882.

Natural Orders of cleistogamic plants, closed to all-comers, necessarily self-fertilised. In 1869 Severin Axell divested some hasty conceptions of their one-sidedness, and, besides the facts just mentioned, he drew out a list of plants in which self-fertilisation inevitably takes place, mentioning those also which are aquatic, and which under ordinary circumstances expand their flowers at the surface of the water and are cross-fertilised by the wind, but which remain closed when the water is unusually high, and then fertilise themselves, producing seeds which propagate the species. Even the history of the Orchids, that stronghold of insect agency, tends, from recent observations, to show that intercrossing is not so advantageous as it is supposed to be, since many tropical kinds, cited as especially adapted for intercrossing, are found to an enormous extent utterly barren, whilst several species which exhibit remarkable adaptations for close fertilisation produce abundance of seed. This would appear a startling contradiction to Darwin, until it is recollected that, with his usual candour, he points out the sterility of many English Orchids, and remarks that the Bee Ophrys is excellently constructed for self-fertilisation, and that the Fly and Spider Orchises are never visited by insects. It is known that a great number of alpine plants grow beyond the height at which they can produce seed, and those growing on mountain pastures generally propagate themselves by bulblets. Many of our own very common plants do not set seed. The Horseradish never produces any. The Periwinkle spreads largely by runners. The varieties of Peas keep true because they are not crossed by insects. The St. John's-wort rarely sets seed. Poppies produce plenty of capsules when insects are excluded. An argument, which may be used either way, is adduced by Darwin, whilst insisting on the greater size and vigour of the offspring of crossed flowers. "It might have been expected," he says, "that the seedlings from plants, the flowers of which were excessively sterile, would have profited in a greater degree by a cross than the seedlings from plants which were moderately or fully self-fertile, and, therefore, had no need to be crossed; but no such results followed." He also admits that there are no signs of degeneracy in the bee or other self-fertilised Orchids, and that they are all vigorous growers. The assertion that brilliant hues and full cups are designed as allurements to insects is abundantly contradicted by foreign botanists, who describe plants with conspicuously beautiful flowers, which are as much adapted to secure self-fertilisation as others are for crossing, and many of our own native flowers secreting much nectar and producing much pollen are wholly disregarded by butterflies, flies, and bees.

THAT COLOUR VARIATION is wholly attributable to insects is exceedingly doubtful, and that all the brilliant colours descended from the primeval yellow are due to their selective agency is so evidently a fallacious doctrine, that very few words will be required to refute it. The doctrine is this, that the colours of flowers are intended to attract insects, and that certain colours are definitely intended to attract certain kinds of insects. That flowers which lay themselves open for fertilisation by miscellaneous small flies are white; those which depend on beetles are yellow. Butterflies prefer red, lilac, or blue, and bees blue, blue flowers being, as a rule, specialised for fertilisation by bees. One of our recent poetic botanists asserts that as the bee flowers grew bluer, the bees must have grown fonder and fonder of blue, and, as they grew fonder of blue, they must have more and more constantly preferred the bluest flowers. Thus the special tastes of insects are supposed to be the selective agency for developing white, pink, red, purple, and blue petals from the original yellow ones. But, we cannot help asking, how could insects exercise any selective agency unless the petals had first shown any tendency to vary? We find no satisfactory answer to this question; but we have the following facts before us, which speak for themselves. The pigments of coloured petals are stored in the ordinary tissues

of the plant, and a very small number is required to produce a seemingly endless variety. The coloured substances are in many cases the same as those left in the foliage from which chlorophyll has disappeared; so that bright petals are often exactly like leaves which have turned yellow and red in autumn, or the very red and yellow leaves of early spring. White, which is the dress of so many flowers, is due simply to the reflection of light through colourless air-filled cells and tissues.

BLACK SPOTS on flower or seeds, as, for example, on the garden Bean, owe their origin merely to a concentration of dense violet pigment; and the blackness of so many berries is produced in the same way by violet thickly heaped on in patches, which become, therefore, impenetrable to light. The apparently black berries of Deadly Nightshade contain a splendid violet, easily soluble in water and alcohol; with acid it becomes a purplish red, and with ammonia, green. Setting aside chlorophyll green, which is only exceptionally a flower colour, the remaining pigments are yellow, red, and blue; the two latter exist in the cell sap. Yellow is identical with the substance which, in the animal kingdom, goes under the name of lipochrome; and the colour of the rind of an Orange is due to the same pigment as is found in the yellow of the Buttercup. It is only a denser deposit of it. The red of Roses, Pinks, and Poppies is due to a single pigment; it is just a matter of difference in intensity. It may be affected by the presence of an acid in the cells, and sometimes by the addition of a small quantity of lipochrome; not that a mixture of the two colours takes place in the cells, but that rose-red in the sap and yellow in the protoplasm, found together in scarlet flowers, present just such a combination to our eyes, as when we set a red glass and a yellow one side by side, we see before us a mixture of two colours. By diminishing exposure to light, a complete alteration can be produced in the relative amount of colouring matter, although no invariable rule can be laid down as to its influence, since some flowers retain their colour in darkness, whilst others lose it. Indeed, it has been affirmed that flowers produce their intensest colours in the dark, even if the whole plant is kept in the dark, but in such cases there can be no production of chlorophyll green. It may be mentioned that chlorophyll green is always accompanied by chlorophyll yellow, which is much less sensitive to light, and remains after the disappearance of the green.

SOIL INFLUENCE ON COLOUR.—It is well known that the soil has an immense influence on colour, inasmuch that many variations can be produced at will, and the mere transplantation of a plant will alter its colour. Much care has to be taken as to the material in which Tulips and other florist's flowers are grown, since if they should be too highly nourished they are apt to lose their distinctive stripes, to which they owe their marketable value. These brilliant stripes are due to bad variation, and it may be noticed incidentally that when branches become variegated by bad variation, and the variety is attempted to be propagated by seed, the seedlings are rarely variegated. But variation is much surer and more powerful than any change that can be effected by the crossing of flowers. Even a leaf inserted by its footstalk into the bark of the stock is sufficient to communicate variation to it, although the leaf soon perishes. Gärbner relates that branches of white and dark-fruited Vines, which were split longitudinally and then joined, produced distinct bunches of Grapes of the two colours, and other bunches with berries either striped or of an intermediate or new tint. Darwin alludes to this, and observes, "these facts are the more remarkable because Andrew Knight never succeeded in raising variegated Grapes by fertilising white kinds by pollen of dark kinds." He also draws from this and similar cases the highly important physiological fact that the elements which go to the production of a new being are not necessarily formed by the male and female organs. They are present in the cellular tissue in such a

state that they can unite without such aid. That insects, attracted by conspicuous petals, or from a distance by scent, always presupposing that they are possessed of similar organs to our own, may have influence in the maintenance of coloured species is not denied, for that would be to impair the rational doctrine of the survival of the fittest. The cultivator who carries out a like selection corroborates its wisdom, but he does not depend alone on choice, and is well aware that he must make use of the many other means to attain his end. It is quite admitted that to the horticulturist the value of intercrossing is great. He may obtain finer flowers, to fetch a higher price, but it is much more than doubtful if in the bare struggle for existence the help of insects is indispensable; on the contrary, such absolute dependence on external agency must naturally be as much a source of hindrance as a want of self-reliance is to a man who desires to get on in his struggle for life.

THE QUESTION is this, Is cross-fertilisation actually necessary for the perpetuation of plants, or is it even so desirable as we are told that it is, and is colour in flowers a mere expedient for getting themselves cross-fertilised? We know that brilliant hues undoubtedly exist, when, so far as we can see, they confer no benefit on their possessor; that some flowers are at their brightest when fertilisation is over, and that there are large families which are wholly independent of insects, and yet show no signs of degeneration or extinction. There is still another question, Is the development of beauty of no account in the plan of the universe? It is now distinctly stated that gay colours in fruit and flowers serve solely as guides to birds and beasts, in order that the fruit may be devoured and the seeds disseminated, and that it is a fallacious opinion that mere beauty and variety are objects in Nature; but if such be the case, we must also give a reason for the rich attire of clouds, the harmonies of woodland shades, the sparkle of the streams, no less than for "the flower-inwoven mantle of the earth." These utilitarian theorists, however, have not yet taken all the world by storm; there still exist careful observers who do not hesitate to believe in "Uselessness divested of a use the finest," who see that the veil is not yet lifted, and who acknowledge that the greatest wizard is the man who best knows the secrets of the vegetable world.—*Pharmaceutical Journal*.

FRUIT GARDEN.

APPLES AND APPLE ORCHARDS.

THE BEST SITE FOR AN ORCHARD.—The Apple tree is very hardy, and will grow and produce fruit on almost any site that is not too bleak or on a level with stagnant water; but this proof of its accommodating nature does not dispose of the fact that some situations suit it much better than others. If we consult old writers, we find them recommending every aspect from south-east to north-west, and growers now living in this part of England assure me that they have secured excellent crops from orchards facing the north when others open to the south have failed. One of the best writers on Herefordshire orchards preferred a south aspect, inclining rather to the rising than the setting of the sun, and many of our orchardists of the present day, under the impression that this aspect gives a better supply of light and warmth, still follow his advice. Much, however, depends upon soil, altitude, and the general surroundings in this part of the country especially, as west winds from the Bristol Channel sweep up many of our valleys with great violence. Apart from this, fruit growers generally prefer getting away from the east, and for reasons well known to every gardener who has to protect his blossoms from the sun on bright frosty mornings, they incline to an aspect facing the west. Farmers also should know that trees or plants exposed to the rising sun when frozen will suffer, or perhaps perish, while others which

can be shaded until they are gradually thawed by the slowly rising temperature will recover, and tender blossoms set their fruit. An orchard, it is unnecessary to say, cannot be shaded when its blossoms are crisp with frost; but forewarned, the planter yet to come may avoid the necessity or anxiety by selecting a south, south-west, or west site for his trees; if on the side of a naturally drained hill or rolling ground so much the better, as shelter from the north and east can be readily received from belts or groups of Scotch Fir, Spruce, or Larch. Having arrived at the conclusion that we must avoid exposure to north or east winds, we must run shy of low damp situations or promising nooks near water. The soil, it is true, may be deep and rich, and fruit occasionally may be seen doing well, but such sites are treacherous, for the trees have to encounter the cold, damp fogs at night, which, falling on the blossoms in May, become hoar-frost in the morning. In nine seasons out of ten these troublesome spring frosts destroy the crop of fruit; but the mischief does not end here, for these damp valleys are several degrees colder than the hill-side, which the fog never reaches, and consequently none but the hardiest kinds of Apples can live, while choice varieties canker and perish.

SOIL.—The experienced planter when seeking a suitable site for his trees will not allow the soil and subsoil to pass unnoticed. The first, if elevated above the frost line, can always be improved by the judicious planting of trees, or allowing the hedges to grow tall before the orchard is planted. The improvement or correction of an unsuitable soil, on the other hand, is not only expensive, but in many places an insuperable operation, and when the fee simple has been spent on the land, the colour, quality, and density of the fruit will be found inferior. If, then, a good site can be found and the soil is a deep clay-loam of the old red sandstone, there he may safely plant his choicest varieties. There, all other conditions being satisfactory, he may look for size, colour, and high flavour, which will enable him to hold his own against all comers. Very good Apples can be grown on the limestone formations, but experience justifies the assertion that they are neither so rich nor so highly coloured as fruit from the red sandstone clay soils, and for cider making, comparatively speaking, they are altogether out of the question. Hundreds, nay thousands, of acres of orcharding in this county on thin calcareous soils may be seen, and there Moss and Lichen, dead twigs, and Mistletoe hold sway. Sometimes unlikely soils give satisfactory results, but if I were selecting land for a new orchard, I should avoid the limestone for Apples, no matter how good the site, if deep red loam, which is warmer, could be had, notwithstanding the fact that sheltering plantations might be needed. If anyone doubts the remarks which experience in this varying district enables me to substantiate, let him turn to that excellent little book, "Fruit Farming for Profit," by Mr. Bunyard, of Maidstone, and there at page 12 he will find that experienced pomologist saying: "For general fruit nothing can be better than the very deep brick earth that is found in the valley overlooking the Medway." Again: "Leaving this favoured part for the heavy lands in the Weald, where there is, more or less, a loamy soil resting on the clay, we find some of our finest Apple orchards, the weight and colour of the fruit being remarkable." Still nearer home, let him examine the magnificent Blenheim Orange Pippins grown in the deep rich soil of the vale of Gloucester. Further, he may visit Devonshire, where, as in Herefordshire, he will find the finest fruit growing on the same kind of soil, that is the deep clay-loam of the old red sandstone.

PLANTING.—Assuming, then, that we have found site and soil to all appearance satisfactory, what must we do to convert them into a profitable orchard? First of all, we must drain deeply, and break the soil up 2 feet or more in depth. If foul or stubborn, we may take a green crop or Potatoes off it, and plant the following autumn with clean straight standards, bought the year before and carefully tended in the home nursery. If the soil is rich and good no manure will be needed, at least below the surface, but a good mulching will greatly benefit the trees after they are planted. If all strong and damaged roots are shortened back when the trees are received from the nursery, they will lift with an abundance of healthy fibres, which must be spread out horizontally and covered with some of the finest soil in a rather dry condition. Heavy treading, particularly if the soil is wet, should not be practised, but water, the best of all settlers, if at command, should be used for washing the soil home about the fibres. Staking, to keep the trees in position and prevent wind-waving, is an important operation, and for this reason should immediately follow planting. If one stake only is used it may be driven home before the tree is planted, but two, or even three, put in afterwards are preferable. These details are very simple, and any handy man can carry them out to perfection, but there are certain rules which must not be neglected. If the planter would succeed he must never plant deeply, and where the soil is wet he must plant on the surface. A good start is half the battle; the roots should therefore be prevented from striking downwards; and in the event of the soil being less rich than that from which the trees have been removed, a little well-decomposed manure may be worked in at the time of planting. Manure in excess is a great mistake; while poverty causes the trees to stand still for a year or two, when they become hide-bound and form blossom buds instead of wood, a condition from which nothing short of a heading back will induce them to recover.

ARRANGEMENT OF THE TREES.—Apples should always be planted in lines, and the rows alternated, the distance apart being regulated by the varieties. An endless number of second rate varieties planted indiscriminately having already been repudiated, it is only necessary to say that the planter should make himself thoroughly acquainted with the habit and rate of growth of his trees before he sets out his ground. Then, if practicable, whole rows of one variety, or varieties of kindred habit and vigour, should be planted. Some grow slowly and take a conical form, others are widely spreading, but by keeping them in lines and allowing plenty of room, an orchard always gets plenty of sun and air, gathering and other details are simplified, and it looks well because the trees are evenly balanced. Moderate or upright growers may be planted 20 feet to 24 feet apart, an arrangement which will require 75 to 108 trees to the acre. Strong spreading growers like the Blenheim, or that fine old Apple Flanders Pippin, should be placed 30 feet from stem to stem, when 48 trees will cover a statute acre.

Eastnor Castle, Ledbury.

W. COLEMAN.

Autumn fruiting Raspberries.—Nearly all the kinds of Raspberry which I have ever grown have shown a disposition to produce fruit in the autumn on the current year's growth, but not to such an extent as to enable me to rely on them as dessert fruits for September and October. For that purpose I find it best to grow some variety specially suited for autumn bearing, and to subject it to a mode of pruning different from that which is found so successful with the summer fruiting

kinds, viz., to cut them down close to the ground at the winter pruning, give them a good coat of rich manure, and let the young growth of canes grow untrained or checked in any way. I have tried several sorts, but as yet have found none to equal a variety grown in this locality called Rogers's Victoria. It is the most abundant rooter and cane-producer I ever met with, sending up a great quantity of canes, furnished along the sides and tips with large bunches of Raspberries, that when ripe are quite as large and dark as Mulberries, and at this season form a most agreeable dessert fruit; for culinary purposes, too, this Raspberry is invaluable. As it does not grow more than from 3 feet to 4 feet high, no stakes or trellises are necessary for it; the best way in which to grow it is in single rows across the fruit or kitchen garden quarters, so that a fish net can be dropped over it, small birds being very partial to its fruit. I may add that this kind, having such an abundance of fibrous roots, is specially benefited by copious supplies of liquid manure, and exhibitors of large collections of autumn fruit would find it, if well grown, no mean addition to their list of fruits in season.—J. G., *Gosport*.

PACKING STRAWBERRIES.

IN THE GARDEN (p. 562) "S." asks an opportune question. He says, "Will someone tell me how to pack Strawberries for a long railway journey." Many people go wrong through fear, not only with Strawberries, but also with Figs, Peaches, and Grapes. Because they are extremely tender and easily damaged by pressure with the fingers, they arrive at the conclusion that they must be packed or rather laid in the box or basket in a way that they will barely touch each other. In this condition they start all right; but woe to the man who trusts to the tender mercy of railway and delivery companies; the first rude shock is delivered at the receiving station and the finishing touch is put on at the terminus. Growers for market in the home counties gather their fruit under rather than over-ripe; they pack in baskets or punnets, using plenty of leaves, and, as a rule, send them up by road. Private gardeners living one hundred miles from the table at which the fruit is to be used cannot adopt this plan; moreover, the Strawberries must be quite ripe, otherwise a shot is fired from the housekeeper's room and the anxious gardener is driven to desperation. Let us see what can be done in the matter. We will assume that, say, six pounds of fruit are wanted in London on a certain day, and light shallow trays that will hold two pounds each are to be used. Of these we shall require three, 12 inches long, 6 inches wide, and 2 inches deep. The case for their reception must be 12 inches by 6 inches, what our joiner terms "full," that is to say, an easy fit for the removal of the trays. Furnished with trays and case made of light odourless wood (some use tin, but I prefer white wood), we lay in a good stock of soft, but full-grown Strawberry leaves a few hours before they are wanted, quite dry, of course, and place them in a dry airy room to become limp. If the Strawberries have been forced we like to remove the pots to an airy house the day before the fruit is wanted, to dry and stiffen the berries, dryness being an important factor. If we have to gather from the open ground we defer picking until the morning, provided the weather is settled and fine, otherwise we pick overnight, place the fruit singly in padded baskets, and keep it dry and cool. If the weight is wanted, we weigh all the baskets and jot down the gross weight. When the packing is finished we again weigh baskets and rejected fruit, deduct the lesser from the greater, and we have the net weight without disturbing the fruit more than once.

PACKING.—With a basket of fruit near the right hand and leaves on the left, we slightly tilt No. 1 tray on the right; a good layer of soft, limp leaves is then placed over the bottom and along the sides. We then take a perfect fruit by the stalk, lay it on a rather large leaf, place it firmly in the left-hand corner, follow with a second, and so on, until the first line across the end of the tray is made up. If at all slack, a leaf or two doubled forms a suitable wedge, as every row must be made tight before the next is proceeded with. When the box is full of sound, perfect fruit, with points slightly upwards, a few leaves are spread neatly over the top, kept in position by a doubled sheet of silver paper, and, aided by a strip of matting or twine passed round it to enable the housekeeper to draw it out again, it is let down into the case. Nos. 2 and 3 are packed in the same way, their bottoms forming lids for each other; and we have three layers of fruit firmly padded above and below in their own foliage, with which they can in due course be dished for table. Plenty of leaves are placed on the top of the last tray to make all tight without producing undue pressure. The lid is fastened with two small screws in preference to nails, and it is ready for cording. The full address and a printed card—"Perishable fruit; this side upwards"—are then attached with tacks to the lid, and we rarely receive a complaint from the consumers. There are, of course, many modes of packing good ordinary Strawberries; some use small baskets and pack them in a case, others place two layers of fruit in a box; but Strawberries fit for a choice dessert or exhibition always travel best when packed fairly tight in single layers. The same rule applies to Peaches and Figs, of which I may have something to say at some future time. Practice in packing is, of course, an important matter, and much valuable experience may be gained by those who can witness the opening of their boxes after they have run the gauntlet of public carriers.

W. COLEMAN.

STRAWBERRIES TESTED BY FLAVOUR.

I LIKE the idea of special notes on special fruits, and you cannot begin better than with the Strawberry. I question the wisdom, however, of testing its relative worth by flavour only. For example, there is perhaps no higher flavoured Strawberry than British Queen; but in at least 50, probably 75, per cent. of the gardens throughout Britain it cannot be successfully or profitably cultivated in the open air; hence those who selected the British Queen for flavour would find themselves minus Strawberries of any sort. The same may almost be said of Dr. Hogg, a hardier sort than British Queen, but still a poor bearer in many places. Such sorts, again, as the Quatre Saisons, had they a good flavour, which they have not, are too small to become popular in England. So much for negatives, which are not what you want, and I have only time this week before starting on a journey to recommend two Strawberries as on the whole the best flavoured and the most useful of any with which I am acquainted—a goodly number: these are the old Keen's Seedling and President. As a proof of how widely tastes differ in such matters I have met with many who prefer the former to the latter, though most of us would not hesitate in judging to award a first prize to President and exclude Keen's Seedling were there sufficient Presidents or British Queens to absorb all the prizes; and yet there is a great deal to be said in favour of the rich luscious aroma of Keen's Seedling well grown and perfectly ripened. There was also a mealy texture and flavour about some of the older Strawberries, such as the Rose, that one seldom finds in many of the newer and larger sorts. I have known some veterans to prefer Grove End Scarlet to any other, and not a few who have a taste for Hautbois think all other Strawberries insipid.

D. T. F.

MULCHING STRAWBERRIES.

I AM glad to learn that it is proposed to give up a certain amount of space to a discussion of the merits of various kinds and varieties of fruits, commencing with Strawberries, as this cannot fail to be both interesting and instructive to numerous readers of THE GARDEN, and if the experience of some of our brethren in America is also recorded, this likewise will prove most acceptable. Doubtless what succeeds best in their country may not be of much use here, and their systems of cultivation may materially differ from ours, owing to the extremes of heat and cold to which they are subject; but we have still much to learn from them. I do not think it is either necessary or wise for us to mulch the beds as a protection against frost, unless it be in the case of the delicately constituted, yet highly flavoured, Sir C. Napier; but unless we mulch in anticipation of drought the chances are the crop will be both light and poor in quality. Undoubtedly a heavy mulching of manure, applied before the plants are in bloom, serves to keep the temperature of the ground about the roots lower than it would otherwise be, straw especially being a bad conductor of heat. The sunshine affects the top growth, but does not reach the roots to any appreciable extent, yet this does not appear to be unfavourable to the production of heavy crops of good fruit; on the contrary, unless this mulching is given early, especially on poor soils, the crops will most probably be, as I have just said, light and poor in quality. Unmulched plants may be the first to ripen their fruit, but this earliness hardly compensates for loss in weight. Strawberries must have plenty of moisture at the roots, and this is more easily preserved by early mulching than it is supplied by waterings either through a hose or watering-pot. I spent several years among growers of Strawberries for the London markets, and took particular note of their very successful method of cultivation. The conclusion at which I arrived was, that they can always beat private growers, both as regards weight of produce from a given space and quality of fruit. It is useless to attempt

THE PROFITABLE CULTURE of Strawberries on a large scale on shallow or hot land, as trenching is out of the question. Loose, deeply-trenched land usually results in the formation of by far too much foliage to please those who grow for profit. Abundance of strong bloom, followed by clusters of fruit, is what is wanted, and this is best secured by planting on fairly well-manured land, and it is immaterial whether this be dug or ploughed in, the latter being preferable, as being the cheapest. Let any gardener pay a visit to one of the large Strawberry fields either in Kent or Essex at the present time, or about a fortnight later on, and, unless I am much mistaken, he will be very much surprised at the weight of fruits that he will find swelling off. He will find it to be almost impossible to thrust a walking-stick into the land, which is never dug nor deeply stirred from the time of planting till the plants are cleared off, which usually happens after three crops have been obtained from them. The firmness of the ground prevents grossness and encourages floriferousness; the soil, being undisturbed beyond cleaning, preserves the abundance of rootlets formed near the surface; and early mulching keeps down weeds, preserves moisture, feeds the fibres, and forms, after being well washed by rains, a good bed for the fruit to rest upon.

EARLY IN AUTUMN the plants are trimmed round, all old leaves, runners, and rough litter being removed; they are then ready for the winter, and it must be a very severe one indeed that would kill such sturdy plants. The old Alice Maud, a variety raised near Frome, is still one of the best for open fields, but not for enclosed gardens. Sir J. Paxton forms a good succession and does not produce too many coarse leaves. President follows, and is a very heavy cropper; while for late crops British Queen is still most valuable, none surpassing and few equalling it in point of quality. I have seen grand crops of Queens in open fields, and perhaps Londoners are much better supplied

with Queens than the majority of the proprietors of private gardens. If the market growers' system of culture is not the best, how is it they succeed with British Queen when so many private growers fail completely with it? Dr. Hogg is a fine, firm Strawberry and of good flavour, but this again is not much grown in private gardens; and very rarely is Eleanor, or Oxonian as it is also called, grown to a presentable condition, yet in open fields it crops heavily and is good to eat. In conclusion let me recommend would-be successful Strawberry growers to rely less upon deep trenching than formerly, but instead of this, to plant on firm, good land and depend upon early mulchings of manure to maintain fertility and preserve in the soil the necessary amount of moisture. W. I. M.

GARDEN FLORA.

PLATE 549.

THE ARISTOLOCHIAS.

(WITH A COLOURED PLATE OF A. ELEGANS.*)

ALTHOUGH many of the plants belonging to the large genus *Aristolochia* have attractions in the strange and peculiar forms of their flowers, as well as in their colours and, in some, enormous size, they have not hitherto found favour as garden plants, owing, no doubt, to their powerful and often objectionable perfume. It is, however, easy to grow them in positions where their flowers might be observed without their odour making itself perceptible, and it is even possible that the wonderful size and structure of the flowers of some of them would make ample amends for the offensiveness of their odour. It is, however, of little avail to contend against a prejudice founded on so important a character in flowers as their perfume, and although to the writer the worst smelling *Aristolochia*, viz., *A. Goldieana*, is of all plants the one he would most prefer to see in flower, objections to such odours must be allowed to have their full weight. But some of these plants have no perfume of any kind, whilst others are too small flowered to be considered as flowering plants, and are recommended on account of their handsome foliage. The best of the inoffensive kinds is that here shown in the plate, and which, in our opinion, is one of the prettiest and most interesting climbers of recent introduction.

Before passing on to say a word or two about the principal species in a garden sense of the genus *Aristolochia*, it may be well to say something as to the genus as a whole. There are about 180 species known, most of them being natives of the Tropics all over the world, a few only being found in North America and temperate Europe. They are most abundant in Tropical America, fifty species being found in Brazil alone. The flowers are usually more or less shaped like a tobacco pipe, but whilst some of them are only an inch long and narrow in the tube, others are of gigantic dimensions, one species, *A. Goldieana*, being placed in the first position as the largest-flowered plant in cultivation. Some of the species were once used as antidotes against snake-bites, but they are now no longer considered of any value on this account, though several of them are important medicinally. In the following select list of species, only those kinds are included which are known in gardens and which are useful therein:—

A. ELEGANS.—As a decorative climber this new introduction is likely to prove much the most serviceable plant of the species of *Aristolochia* hitherto brought into English gardens; it is a small-growing species with handsome green foliage, and bears upon its young branches in autumn numerous beautiful and uncommon-looking flowers. Dr. Masters, who has described and named this

* Drawn in Mr. Bull's nursery, Chelsea, in July.



ARISTOLOCHIA ELEGANS.

species, says, "The plant flowers in a young state has cordate ovate leaves, glabrous above, glaucous beneath, and long-stalked flowers, whose slightly distended tube is suddenly bent up at a very acute angle. The uppermost part of the tube is dilated into an obliquely cordate-ovate somewhat cup-shaped limb $2\frac{1}{2}$ inches long by 2 inches in width, the colour of which is like that of cream thickly sprinkled with dendritic markings of a rich purplish brown colour; the wide aperture of the tube is of a golden yellow colour, surrounded by a deep blotch of velvety texture and rich purple colour. The interior of the tube is lined at the base with white cottony hairs, and on one side, just below the bend of the tube, are two crescentic raised blotches of a purple colour. The



Aristolochia tricaudata.

column is about quarter of an inch long, six-parted." The beauty of the plant as we saw it in bloom among Mr. Bull's new introductions in his nursery was of a very high order. Plants of it have also been sent to Kew by Dr. Capanema, who found it in Paraguay some years ago and brought it to Rio Janeiro, where, owing to its beauty, it soon became a common garden plant. It thrives in an intermediate house, where it should be trained upon a trellis. There is nothing, as has been stated, at all objectionable in the odour of the flowers.

A. ALTISSIMA.—A hardy climber with glossy green foliage and elegant habit. Its shoots grow to a length of about 10 feet and are perennial, and its leaves are heart-shaped, pointed, and 3 inches across. The flowers are small, brown, striped with red, with a yellow blotch on the lip. The tube of the flower is bent round almost to a circle. On a sheltered wall with an eastern aspect this species has proved quite at home, but it is only as a handsome foliaged plant that it deserves attention, its flowers being comparatively small and unattractive. It is a native of Greece and Algeria, and flowers in this country during summer and autumn. A plant of it may be seen on one of the walls at Kew.

A. CLEMATITIS is often found wild in some parts of this country, though it is not really a native. It is a low-growing shrub, with heart-shaped leaves about 4 inches in diameter and green, the flowers being borne in clusters in the leaf-axils; they are small, yellow, and trumpet-shaped, and are produced abundantly all summer.

A. FIMBRIATA has an erect slender stem, bearing small kidney-shaped leaves $1\frac{1}{2}$ inches long and axillary flowers with a siphon-like bend in the middle. The tube is green, the top spreading about an inch across, the inside marked deep vinous purple with yellow reticulation. The margin

of the limb is fringed with long succulent hairs with a conspicuous gland on the tip of each. It is a native of Buenos Ayres, from whence it was introduced and flowered for the first time at Glasnevin in 1839, where it was grown in a cool house. It is figured in the *Botanical Magazine* as *A. ciliata*, and in Maund's "Botanist" as *A. ciliosa*. For small houses this species may be recommended as a convenient example of the genus. It has been stated that in sheltered situations this plant would grow out of doors in England, but we do not know of an instance of its being thus grown.

A. FLORIBUNDA.—A free-growing climber, and one of the prettiest and most interesting of stove plants. It bears green, heart-shaped foliage 5 inches long, in the axils of which the flowers are produced in crowded clusters, each one being about 3 inches long, the tube bottle-like, with the neck bent at right angles and coloured yellow; the limb is 2 inches by $1\frac{1}{2}$ inches in width, its colour being purple-red, with yellowish lines and mottlings, the centre being clear yellow. This plant was exhibited before the Royal Horticultural Society in 1873, and won much admiration from the fact of its forming such a pretty specimen when trained on a wire trellis and bearing such a large number of flowers, as many as from 500 to 600 having been borne by one plant. It has the one blemish so frequent in the plants of this genus, viz., a bad odour, which, however, does not reveal itself except in close quarters. It is a native of Northern Brazil, and thrives in a moist stove with us.

A. GIGANTEA is an extensive climber with heart-shaped, dark green leaves, whitish on the underside. The flowers have long stalks, with a curious perfoliate bract in the middle, and each flower is nearly a foot long, pipe-shaped, contracted about 4 inches from the base, and then suddenly puffed out into a sort of bladder, above which the large spreading shell-like limb expands to about 8 inches in diameter. The colour of the tube is pale yellow, tinged with green, that of the limb being creamy white, beautifully reticulated with broad purple lines. There is no disagreeable odour in the flowers of this species, an omission which those who object to the powerful stench that arises from some of these plants will look upon as providential, although no doubt the odour, objectionable though it be to us, has an attraction for those insects or whatever small animals are wanted to aid in the fertilisation of the flowers. Brazil, in the province of Bahia, is the home of this species. It thrives only in a tropical stove, where its flowers are developed about May.

A. GOLDIEANA is a native of Sierra Leone, and was introduced into Europe and flowered for the first time, at Glasgow, in 1867. The enormous size of its flowers is sensational, no other cultivated plant approaching it in this respect. It is a climber, its annually-produced shoots springing from a bottle-shaped perennial root-stock and growing to a length of about 20 feet. Large roundish, Potato-like tubers are formed on the roots, and these may be removed and used for propagating purposes. The leaves are large, kidney-shaped with an acuminate point, dark green, and the shoots twine freely. The flowers are developed on the young shoot when it is only about 2 feet high, and till the flower-bud has matured no further growth is made. If buds are formed and the shoot afterwards continues to grow rapidly, it may be taken as a sure sign that these buds are not going to develop into flowers. A plant at Kew which bore flowers in 1881, and again in 1883, gave the following dimensions: Length of whole flower, 32 inches; width across the cup-shaped limb, $18\frac{1}{2}$ inches; depth of cup, 12 inches. The tube is cream-yellow in colour, that of the limb being yellowish green, with prominent purple

nerves running all along the outside from the base to the edges, the inside of the cup being ochre-yellow with a close reticulation of broad chocolate-coloured lines. A powerful and very disagreeable odour is given off by the open flowers.

A. GRANDIFLORA.—This is the proper name for the species figured in the *Botanical Register* as *A. gigas*, and known in some gardens as *cordifolia*. Until the arrival of *A. Goldieana* this was the largest of all known flowers next to the gigantic *Rafflesia*, to which it also approaches in its powerful and very disagreeable odour. It is a free-growing climber, with large, heart-shaped, downy leaves and drooping flowers of vast size. The bud is bent like a siphon, so as to resemble the neck and body of a bird, the upper part being thrown back in such a manner as to suggest the resting attitude of a pelican. When expanded, the flower, including the long tail, is over 2 feet in length, the limb or spreading top measuring about 10 inches across. The colour is yellowish white, thickly mottled and veined with blood-purple, with a wide band of this colour all round the large orifice of the tube. If planted in a bed of rich soil this species soon covers a large space, and when once it begins to flower it goes on blooming freely all the summer through. Humboldt found this plant on the Magdalena, where its flowers were sportively used by the children instead of hats or bonnets. It was flowered at Kew for the first time in 1848.

A. LABIOSA.—A large-flowered kind with vigorous climbing stems and pale green kidney-shaped leaves. The flowers are on twisted stalks springing from the leaf axils, and they measure about a foot from the base of the tube to the end of the lip. The tube is 5 inches long, 2 inches broad, bladder-like, and coloured pale yellow with streaks of chocolate-brown; the neck is suddenly bent back on to the tube and is widened out at the top, where it is divided into two large lobes, the top one 6 inches long and broadened towards the end, where it forms a handsome shield with the texture and appearance of the flowers of *Iris susiana*, the colour being tawny yellow beautifully lined with purple. The grotesque form of these flowers, apart from their beauty, should mark them out as interesting in a garden sense, and if they do not smell pleasantly, the shoots can be trained along the roof of the house, so that the flowers can be seen without their odour being noticed. This species is figured in Paxton's Magazine as *A. hyperborea*.



Aristolochia Sipho.

A. LEUCONEURA.—A large-leaved stove climber of exceptional value as a foliage plant for covering pillars in large houses, its heart-shaped leaves,

8 inches across, being a rich green colour, with broad yellowish lines along the seven principal nerves. The flowers are very small, and are produced in clusters on the old corky stem; they are deep purple lined and veined with golden yellow. A native of New Granada. This plant may be cut in severely every autumn if room cannot be spared for it to extend very far. Its young leaves are strikingly handsome.

A. MACRURA is the plant known in gardens as *A. caudata*. It is a stove climber with cordate three-lobed leaves and small curved pitcher-shaped flowers, inflated rather widely below where the colour is a dingy brownish green, the upper part expanding into a large rich black-brown lip, of which the apex is suddenly attenuated into a slender twisted tail, 18 inches or more long. It flowers in June, and the odour of the flowers, although not agreeable, does not obtrude itself unless one gets very near it. This species is a native of Brazil, and has been in cultivation in English gardens many years. It is a free-growing climber, covering a pillar or rafter with its leafy shoots in a short time, and never failing to flower abundantly. There is an old specimen of it in the Victoria house at Kew. In Paxton's Magazine and also in the *Botanical Register* this plant is figured under the name of *A. trilobata*, a species to which it is very similar both in leaf and flower.

A. ORNITHOCEPHALA, now called *A. brasiliensis*, is another large-flowered climber, very similar both in foliage and flowers to *A. labiosa*, differing principally in its larger size; indeed, I have seen the former represented by plants which might have been called by the latter name with equal propriety. The large form of the "Bird's-head" species is, however, a handsome plant, and it is exceptionally serviceable because of the sturdiness of its growth and the rough treatment it may be subjected to without suffering. In large stoves it may be used either for draping pillars or festooning along rafters, positions in which it is most at home, whilst its flowers are large enough to be attractive even when seen at a distance.

A. RUZIANA, better known as *A. Duchartrei*, has a woody stem with a grey corky bark, and develops annually succulent climbing slender shoots, bearing long-stalked leaves, which are reniform, with pointed ends and coloured dark green. The flowers are developed on the old stem, about six flowers being clustered together on a short raceme; old healthy plants produce a good many such racemes. Each flower is about 4 inches long, and is bent double in the middle, the top spreading out to form a flat saucer-like limb 3 inches across. The colour is a pale brown, with numerous large irregular blotches of a darker shade, the throat being cream-yellow. This curious species is a native of the Amazons. It thrives only in a tropical house, and requires to be kept almost dry at the root during its resting season, that is, when the annual shoots have withered.

A. SERPENTARIA is a hardy dwarf shrub from North America, and is interesting chiefly because of its medicinal properties. It has a short creeping rhizome, from which it sends up stems 15 inches high with halberd-shaped leaves, and small purple flowers an inch long and inflated at both ends. It had formerly a high reputation for the cure of the bites of venomous serpents, but it is now regarded as worthless in this respect. It has also been recommended as an antidote against the bites of mad dogs, but in this, too, it is of no value.

A. SIPHO.—This, like the last, comes to us from North America. It is one of the most attractive of hardy trailing or climbing plants owing to the large size and beautiful green of its foliage, and it is often grown as a screen plant upon arbours, old walls, &c. Upon old tree trunks it may be made to form a grand mass of foliage. In THE GARDEN recently the various important uses of this plant have been called attention to both by figures and description. It is known as the Dutchman's Pipe and Pipe Vine, and has been a well-known garden plant in England since 1763, when it was figured in the *Botanical Magazine* and de-

scribed as a tree. The stem is sometimes 2 inches in diameter at the base, and the leaves are often a foot across. The flowers are small, the tube green, bent, and narrowed at the top, where the limb is flattened out like a wafer, and coloured brownish yellow.

A. TRICAUDATA is a large-growing Magnolia-like shrub, with strong, wiry branches and ovate leaves 5 inches or more long, deep green above, glaucous below, and rough as sandpaper. The flowers are borne on the ripened wood from the nodes, generally only one flower from each node; in form they are as strange as those of *Masdevallia Chimera* or *M. elephanticeps*, as the limb forms a broad open mouth with three tail-like lobes at the base, each tail measuring 4 inches in length and twisted corkscrew-like. The colour is yellowish on the tube and in the throat, all the rest, including the tails, being a deep vinous purple. A plant of this strange-flowered species is now in bloom at Kew. It is a native of Mexico, and was introduced about twenty years ago.

A. THWAITESII.—A dwarf shrub with a thick woody rootstock and erect stems 2 feet or so high, bearing numerous lance-shaped, dark green leaves 5 inches long. The flowers are in erect clustering racemes from the rootstock; they are 3 inches long, the tube narrow and bent upwards, and the mouth is narrowed to less than an inch across; the colour is green and yellow, with purple blotches inside. This species was first recorded to have come from Ceylon, and was named after the late director of the botanical gardens there; it is now, however, known to be a native of Old Calabar. This plant is now in flower at Kew.

A. WESTLANDI and *A. LONGIFOLIA* are two recently-introduced plants from Hong Kong, the latter with purplish flowers about 3 inches across and long, lanceolate, rugose, dull green leaves. It thrives in an intermediate house, where it may be trained against a pillar or upon a trellis, as although not a true climber, its stems are too weak to support themselves. The flowers are developed on the old wood about the base of the stem. *A. Westlandi* is about twice as large in all its parts and a much stronger grower than *A. longifolia*. Both these plants may be seen at Kew.

W. W.

WORK DONE IN WEEK ENDING JUNE 15.

JUNE 9.

IN respect of weed destruction we have an unchanging rule that at this season no favourable opportunity for surface hoeing shall be lost; hence, to-day being dry and sunny, several hands have continued that work. Planted out Tomatoes on walls; those planted on a south border are already showing fruit, and now require strong stakes and a mulching of long litter, which they will have as soon as hoeing is finished. Fixed netting over Cherries on walls, and continued laying in the new growths of Peaches. We are stopping the growths—pinching out the points of new shoots—of Apricots more hardly than usual, for there is so little fruit that wood growth is much greater. Planted out dividing lines of *Coleus* in foliage beds; *Alternantheras* we have also started to plant, which when done completes our bedding out, but the labour of keep begins, and this is not little, taking into account tying up, pegging down, pinching, mulching, and watering, none of which we shirk, but strive to do everything as soon as needed, and thus keep well abreast of the work. Grape thinning still prevents much progress being made with other indoor or work connected with houses, but this was stayed to-day in order to arrange *Chrysanthemums* in their permanent summer growing quarters, which is a large open space well open to the south and west, and the plants are secured to strained wire fences, in lines 5 feet apart, the tallest growers being, as a matter of course, arranged in the back rows; our space is so limited that the plants are but 18 inches from each other in the row, but as at most only four shoots will be left on each plant—in many cases only two and three—this space will, I think, prove ample. Dwarf decorative and

Pomponé varieties that are being grown as bush plants have their pots plunged in ashes. All have been already pinched back twice, and now want tying out to afford room for sturdy development of shoots.

JUNE 10.

Though our hoeing was not finished, the weather this morning was so threatening for rain, that after the usual scythe mowing till breakfast time, planting of tender plants was again commenced, also stake cutting for tying up Dahlias and herbaceous plants. Many of the latter need this attention now, or they will suffer should we get a heavy rain. A number of them is now in fine flower, and worthy the bestowal of much labour to preserve them in beauty. Pyrethrums, large Poppies, Potentillas, and particularly *Pæonies*, are in extra fine flower, and the gentle showers of this afternoon will greatly improve them, though it has somewhat hindered our other work. Cut pegs of Hazel and Birch spray for pegging down bedding plants. *Gnaphaliums*, *Verbenas*, *Petunias*, and *Tropæolums* all need this before the arrangements can be viewed with pleasure by a person with a tidy eye and methodical notions. Being dull, we have made great headway in the work of Grape thinning, *Gros Colmar*, a few *Alnwick*, and *Lady Downes Seedling* being now all we have to thin; they have all set so thickly, that thinning out is a very difficult matter. Planted out another batch of Melons, and plants are ready for succeeding another lot that are now verging on maturity.

JUNE 11.

A drying sunny day—the best of weather to second our efforts at weed destruction by surface hoeing kitchen garden crops. Seakale, Horseradish, Globe, and Jerusalem Artichokes have all been gone over to-day, and the seed stems cut off Seakale and Horseradish. Thinned out Beet, also Lettuces; planted out some of the thinnings of the latter, a plan we do not care to practise in the summer, as the Lettuces come much finer when left to mature where sown, but having through carelessness missed a sowing we had no alternative but to transplant. Planting out *Alternantheras*, tied up *Abutilons*, *Castor-oils*, and single Dahlias, and began to mulch with cocoa fibre all slow-growing bedding plants, which, besides being of value as a mulching, produces a neat and finished effect. Happily, we are nearing the end of Grape thinning, and pots are being washed and soil prepared for potting on several kinds of plants that have lately been neglected for more pressing duties. Pines must be first to be overhauled, suckers and successions be potted, and the heat of the beds renewed by adding fresh leaves mixed with a small quantity of litter. We have several fruits colouring, and these will not again be put in the fruiting house, but be taken to the fruit room to retard them till required for use.

JUNE 12.

A recurrence of showers, but not sufficient to stop us from planting out *Alternantheras* or the trimming up that we like to do on Saturdays. *Herniaria glabra*, which forms the upright edgings of all our parterre flower-beds, has been cut quite close to the ground; also clipped variegated Thyme, picked flowers off *Violas*, *Calceolarias*, and *Verbenas*, to encourage wood growth, and all will be pegged down at the earliest opportunity. Thinned Plums on walls; some varieties are a great crop, and most an average one. Fly is troublesome, and as we cannot reach all our trees with the hose, those out of the reach of it we have syringed with soap-suds and Tobacco water, and a couple of days hence all will have a heavy syringing with clear water. Though there is scarcely a tinge of red on the fruit, thrushes have begun to peck at the Strawberries, and nets have been put over the earliest—*Vicomtesse Héricart de Thury*. This variety is as fine for preserving as it is for forcing, and a more productive kind is an impossibility. At last Grape thinning is ended for another year, and we shall hope now to get, and keep, the houses generally in something like

trim condition. The plant stove has had a thorough cleansing and rearrangement, and, being too crowded, a quantity of small Ferns for table decoration has been taken out and placed in a close frame for the summer season. The growth of Peach trees has outrun our labour, and there is now any amount of stopping and tying down of shoots required. In the earliest house, now ripe, this work has to be done carefully lest the fruit gets bruised. We now leave the ventilators open night and day to allow of the fruit ripening up slowly, which also ensures quality and colour. That excellent, recently introduced variety, Alexander, we have now ripe in the second house; whereas Bellegarde, in our first house, that was started fully six weeks before the second, is not yet quite ripe. This will show what a very early variety the Alexander is.

JUNE 14.

Fine, but dull and cold for this advanced date. Planted sundry odds and ends of bedding plants in mixed flower borders, and in the same borders planted out other clumps of Zinnias, Stocks, Asters, and Everlastings. Hitherto Roses have given us no trouble in respect of insects or mildew, but a plague of maggots has at length set in, which we attacked to-day by hand-picking, curled leaves as well as maggots being destroyed. A better promise of a fine Rose season could scarcely be, and it would be a pity to let the plants get crippled for the sake of a few hours' timely picking for the destruction of maggots. Roses in pots that have been forced have, up to the present, kept quite free of insects, but now they have been stood outside both fly and maggot are on them, and all have been picked over, and a few of the most lanky plants cut hard back and all of them denuded of flower-buds; they will now be top-dressed with rich soil and have the best attention as to watering and overhead syringing, when they may be expected to flower well at the end of summer and early autumn. Potted on Fuchsias and Marguerites for late summer flowering; staked Lilies—the lancifolium and auratum types—that are being grown in pots for late flowering. A rich top-dressing will follow, and these, and also Marguerites and Fuchsias, will be plunged in ashes to save labour in watering. Stopping and tying down the shoots of Peaches in first and second houses. Figs, too, have again been pinched, and as many of the fruit are ripe and others ripening, syringing is for the present discontinued, and abundance of air given and the fruit exposed to light by turning the larger leaves aside, bending them under the naked stems of the trees or wires of the trellis.

JUNE 15.

A drying day, which has enabled us to finish all the hoeing we wished to do for the present, and also to earth up late Potatoes. Sowed Peas, British Queen and Ne Plus Ultra, and dwarf French Beans, Canadian Wonder. As the early Potatoes are cleared, the ground is being planted with Cauliflower, no preparation being necessary except levelling the ground. Other outside work has been the putting in neat order the flower garden by clearing away pots and boxes, and sweeping and rolling turf and walks; pegging down and tying of plants will be done at leisure. Put indoors the last batch of Strawberry plants and thinned out the fruit on all of them. Runners are already quite fit for layering for next year's fruiting, work which we shall commence as soon as time can be afforded to prepare soil, &c., as early layering is the first essential of successful Strawberry forcing. The remainder of our time to-day has been devoted to Peach houses, tying down and pinching back laterals, and cutting quite out some of the shoots that were overshadowing others. HANTS.

Cutting back strong shoots.—"W. W. H." says (p. 149) that a strong shoot which will result in the production of two or three cropfully strong ones; but the fact is the two or three shoots thus obtained would collectively be no stronger than the single one removed. If "W. W. H.'s" statement was correct, it would be useless to attempt to regulate the strength of the branches of a tree so as to prevent strong ones starving the weaker ones.—T. B.

FRUITS UNDER GLASS.

VINES.

ONCE more the busiest time in this department is on the wane, and thinning in another week or so will have been brought to a close. Lady Downes, Muscats, and other varieties subject to scalding now approaching the stoning process must be closely watched until they have passed this stage, particularly during hot, stormy, and unsettled weather. This critical period does not last more than a fortnight, but serious mischief which cannot be got over is often the result of a few hours' neglect, and many handsome bunches are not infrequently marred for the season. Scalding, in the general acceptance of the term, is generally brought about by allowing the sun to strike the roof of the house before air is admitted to carry off superfluous moisture which may have settled on the foliage; but the scalding of the berries cannot be laid entirely to the charge of this capricious luminary, as we frequently find fine berries scalded in positions where it is impossible for the sun to reach them. Moreover, scalding is more prevalent in houses that are kept cold and damp than in others to which fire-heat is liberally applied. This being the case, the best preventive measure will be found in keeping the roots active in well-drained borders by maintaining a brisk temperature to prevent the berries from becoming cold through the night, and by timely and abundant ventilation on bright mornings and throughout the early part of the day.

Watering and mulching.—When the thinning of a house of Grapes is finished, a thorough soaking of the internal borders, preceded or followed by a substantial mulching, is generally considered necessary; but why nine-tenths of the Grape growers adopt this plan it is difficult to say. One thing, however, is certain; it is a step in the right direction, and the oftener it is repeated in reason the better for the Vines, as it is hardly possible to overwater a well-drained border through the summer months. Vigorous Vines do not often require stimulants before the Grapes are thinned, but unless they are very strong indeed, and the roots have an extensive run, warm diluted liquid may be given to them once a fortnight until the berries show signs of changing colour, when pure water only must be used. Old Vines, on the other hand, which cannot be overfed, will take stimulants and thrive on them from the start to the finish. One of the most remarkable feeders I have met with is an old Vine at this place, a Black Hamburgh, which fills an early house, and is now carrying about one hundred and fifty pounds of ripe Grapes. It was planted nearly fifty years ago, has always been forced early, and never makes more than one set of laterals, although heavy mulchings of rotten manure are repeatedly placed on the internal and external borders, and every supply of water throughout the year contains stimulating liquid. The external and internal borders are renovated alternately with fresh maiden loam. The old canes do not increase in size, and bunches from two to three pounds in weight are borne by bits of wood no thicker than reeds.

Mid-season vineries, in which Grapes are now beginning to colour or approaching that stage, must be looked over for the last time, and in the event of any of the bunches showing signs of binding, an inferior berry here and there may be carefully removed with a finely-pointed pair of scissors. Heavy shoulders may also be raised to give relief to the centres. If laterals have been allowed to ramble, all the strongest must be shortened to allow the air to circulate above as well as below the main foliage, but not to an extent that will check the flow of sap or expose the berries of black varieties to the direct influence of the sun, as the best colour and finish are always secured where the bunches are shaded by a good canopy of healthy leaves. Early Muscats and other white varieties, on the other hand, require plenty of sun heat and light to put on the fine golden tint and finish which all desire, but do not always secure. Night air is an important

factor in laying on colour and bloom, but this must not be purchased by lowering the temperature to an extent that will produce condensation of moisture in the house during the hours of darkness. Sun heat should now be sufficient for swelling the berries when the house is closed on fine afternoons, but gentle fires will still be needed through the night.

Early houses, from which the Grapes have been cut, must be well syringed twice a day, not only to cleanse the foliage, but also to encourage a good break of fresh laterals, the best of all safeguards against premature ripening and an untimely break in the autumn. Air in abundance will be necessary through the day, and it may be gradually increased as nights become warmer, but not to an extent that will check or chill the main foliage before it is properly hardened. If a thick body of the external covering still remains on the borders, remove it piecemeal until a good mulch for the surface roots only is left, as much mischief often follows the premature removal of exhausted fermenting leaves or litter when the system of protecting from the elements is unjustly blamed. External borders, after the past heavy rains, will be quite wet enough, but the internal roots must be well cared for, as they are solely dependent on the watering-pot and hose. If the Vines are old and have been heavily cropped, mulch well and wash in with warm water, tinged with soot or good liquid, and repeat the applications until the foliage begins to ripen. Young Vines may not require stimulants, but they must have plenty of water, as spider cannot be kept in check when the roots are allowed to become dry.

POT VINES

intended for forcing will now be well advanced and plumping up the buds from which the crop of fruit is to be secured. Keep them well syringed, mulched, and fed, as success greatly depends upon the retention of the main leaves until the embryo bunches are formed. In order to facilitate this important process, pinch all the lower laterals and sub-laterals for some time to come, but maintain a safety-valve by allowing those near the top to ramble over the upper part of the trellis. When the canes become hard and of a bright cinnamon colour, cut out the lower laterals close to the main buds, carefully preserve the old leaves, and gradually reduce the supply of water. Trade growers often remove their fruiting Vines to the open air to ripen up, but I prefer keeping them under glass until the foliage falls and the roots as well as the canes are properly matured. This end secured, weak canes as well as strong ones will show fruit from every eye and the bunches will be perfect.

PEACHES.

Early houses.—As soon as the fruit is gathered from the trees, steps must be taken for securing a good set of flower-buds for another year. Cleanliness is the first point to be considered, but this is not a difficult matter, as the hose can be laid on with considerable force, certainly from the interior and also from the outside where the lights are portable. The best time to hose the trees is late in the evening, when the foliage will remain wet all night, and spider, an insect which never ought to gain a footing in Peach houses, will very soon be reduced to a harmless condition. A more troublesome pest is black fly, in some places and on certain cold, crude soils very prevalent. This the hose will not dislodge from the curled points of the shoots, but rather strong tobacco water, to which a small lump of soft soap has been added, will make a bath which will be safe, simple, and efficacious. The roots must, of course, be well supplied with water, not necessarily warm, and the quantity must be sufficient to penetrate every particle of soil quite down to the drainage, the outlet from which should be ample, as water *ad lib.* must be given at short intervals throughout the season. Many people give their trees one or two good waterings, take off the lights, and leave them to the mercy of the elements; but this rule-of-thumb method cannot be recommended, as the season may prove hot and dry, or wet and cold,

when perfect maturation of the wood and roots becomes a matter of uncertainty. It is, no doubt, a good plan to take off the lights for painting and cleansing in the autumn, but never until the wood is thoroughly ripe and the blossom buds are bright and prominent. Bud dropping in the spring is the great stumbling-block to many young beginners. Some advisers say your wood was over-ripe; others say it was not ripe enough; a third steps in and says you did not give them enough water. The second and third may be right; the first need not be afraid of over-ripening if he will only give his forced trees plenty of air, light, and water. Last year the heat and drought extended over eleven weeks; I never stripped a single Peach house, but gave plenty of air and the hose was never idle; I never experienced so little bud dropping, and the set this spring was excellent. Knowing from the many questions which come under my notice that this bud dropping is the cause of much anxiety, I have said rather more upon the subject than I had intended, as it is of no use locking the door after the steed is stolen. In other words, next year's success greatly depends upon the way in which the trees are treated from the present time up to the fall of the leaf. Still further to favour the formation and maturation of sound flower-buds, every shoot no longer of any use should be cut out as soon as the fruit is gathered, not only to favour the full development of the foliage, but also to let in sun and air, for without these elements hard brown fruitful wood cannot be secured.

Succession houses.—The treatment of the trees in succession and late houses is simply a repetition of preceding details. Good syringing twice a day, copious supplies of water, stimulating or otherwise, and heavy mulchings compose the bill of fare. Plenty of air by day and a chink through the night will keep the trees fresh, clean, and healthy, and the young growths will be short-pointed. If the latter have been well thinned and heeled down, a little freedom or looseness of growth until after the fruit is stoned will be found preferable to close training, as weak shoots, while shading the fruit, will gain strength, and strong ones can be pinched to maintain the proper balance of the trees. The borders in narrow cases against south walls, where the trees have been root-pruned, especially will now require several inches of good mulching to feed and protect the roots, to exhale genial moisture through the day, and to prevent waste of water when the hose is laid on in dry weather.

FIG TREES UNDER GLASS.

By this time the first crop of fruit will have been gathered, and the second well advanced towards the flowering stage. If the give-and-take principle of favouring the ripening of the first and swelling the second has been adopted, it is more than probable the borders will be slightly on the dry side. If so, repeated moderate waterings with good warm liquid will soon restore them to a growing condition, and spider will make slow progress. A return to free, generous culture will not, however, entirely destroy it when thoroughly established in dry, out-of-the-way corners, but good syringings twice a day will speedily bring it into a weak and powerless condition. Other enemies are brown scale and mealy bug, and troublesome enough they are when allowed to spread from the wood to the foliage and fruit. The proper time to annihilate these is at the winter dressing, but once established on old trees and in the walls they spring into new life when severe measures cannot be brought to bear. Hot water at a temperature of 100° is a safe summer remedy, provided it is immediately followed by water 20° colder; or they can be kept in check by the camel's-hair brush dipped in methylated spirits. Free cropping varieties of Figs like Brown Turkey, when grown on the spur or close-stopping principle, produce heavier second crops than they can swell to a large size or carry to maturity. These should therefore be well thinned, not only to secure quality, but also to husband the strength of the trees for the coming year. Discontinue

syringing in succession houses when the fruit begins to ripen, and leave a little air on the apex ventilators, also a gentle circulation on the hot-water pipes to prevent condensation of moisture and the spotting of the fruit. Turn the foliage aside to let in the sun, as good colour and perfect flavour cannot be secured without it. Gather when the fruit is perfectly dry and not over-ripe if it is intended for packing and travelling. Roll each fruit in a dry soft Vine leaf, then in a square of silver paper, and pack in shallow boxes. The best packing medium is dry, well-beaten Moss, but where this cannot be obtained soft paper shavings is a good substitute. Wadding, particularly that which is glazed, is not a good packing material, and confinement causes it to become moist and hard on the journey in hot weather. When Figs are wanted for home use they should hang until they are quite ripe and show signs of cracking; then they may be carefully detached, and they will keep for a few days if placed on a hair sieve in a dry, airy fruit room.

Figs in wall cases are unusually late this season, but they are swelling plenty of fruit, and under good management will no doubt come in useful in August and September. They will not, however, produce more than one crop, and quality being of more importance than quantity, they should be well thinned and generously treated. If the trees have been root-pruned and the aspect is due south, mulch well and water copiously, as drought, or anything approaching it, is fatal. Keep the young growths closely trained to the wall or trellis, and cut out unfruitful shoots to prevent the foliage from becoming crowded. Figs, it is unnecessary to say, will stand any amount of solar heat, but they should be well aired through the early part of every fine day and shut up at a high temperature with plenty of atmospheric moisture.

FIG TREES ON WALLS

have been severely punished, not so much by intense cold as by its long continuance. Where well protected, they at one time promised to produce a light crop of autumn-set fruit, but its passing the flowering stage is now doubtful. If it ripens, well and good, but the main point this summer must be the restoration of the trees to a satisfactory condition for another season. W. COLEMAN.

Eastnor Castle, Leicestershire.

KITCHEN GARDEN.

PEAS AND CELERY TOGETHER.

WHEN I first came to England I was told that I would find the so-called economical plan of growing Peas on the Celery ridges pretty commonly followed, and I was so far deceived by the idea as to discard my Scotch precept on the subject and try it, but only once. In the first place I proved, as I had been told I would, that the shade from the Peas neither improved the flavour nor the constitution of the Celery, both of which depend on abundance of light and air, and the Celery naturally loves sunshine, which hardens its tissues and enables it to endure damp and frost when earthed up during winter. What Celery needs to make it solid and good flavoured is open exposure. Next I discovered that the "catch crops" alluded to by "D. T. F."—Lettuces and Radishes—could not be consumed before the Peas needed staking, because, as common sense might have told me, the Peas grew as fast or faster than the Lettuces at least, and that putting off staking the Peas to save the Radishes was followed by disastrous results to the latter. Next the ridges got so dry in summer, that the Peas became mildewed before they were ready, and were partly a failure also. In short, the whole scheme of this *multum in parvo* cropping was a failure. Then I went back to first principles, and grew my Celery on one quarter and my Peas on another, with Cauliflower, Spinach, or some other crop between the Peas, where these were far apart on account of the height, and this plan cannot be beaten for economy. It is seldom we can take out our Celery trenches before they are

wanted, the ground being always occupied to the last moment, but when there has been time to get a crop off before earthing up became necessary we have sown Lettuces on the ridges. Should these not be ready, the central portion of the ridge may be left standing as long as possible till they are. A short sun will make the economy clear. By "D. T. F.'s" plan you have a Celery trench 1 foot wide, holding only one row of plants (for such a narrow trench will not grow two, as he says) and one row of Peas every 4 feet or 5 feet; whereas by growing the Celery on the ground alone, you get at least three times the quantity from the same ground and about six times the quantity at "D. T. F.'s" rate of putting two rows to the foot. This is the practical result, and comment is superfluous; and this takes no account of the Lettuces before mentioned up the centre of each ridge if anyone chooses to sow them there. Good kitchen gardeners, like farmers, know that economy in cropping is not effected by taking uncertain catch crops, but by growing every crop in such a way as to secure the highest yield possible from a given piece of ground. We are at present taking out our main Celery trenches where the winter Spinach has yielded daily pickings until now; the main crop of Celery will be put in as soon as the trenches are finished, and earthing up will begin next month. J. S.

PLANTING IN HOT WEATHER.

It is quite as practicable to get plants to do well when transplanted in hot, dry weather as at any other time, if the work is gone about in the right way. It is merely a question of taking a little pains and of not being in too great a hurry, for it generally happens that the greater the haste the less real progress is made. In the first place, no plant should be lifted unless the soil in which it is growing is moist, and neither sun nor air should be allowed to play on the roots during removal. In the case of young seedlings this is an easy matter; when larger plants are in question more difficulty will be experienced; but it is to be remembered that it is not so much the amount of work done as the success which attends it that one has to look to in planting or transplanting. To set out a number of plants in a day, and then see them languish, and in some cases die, is not in the long run gratifying. In setting out young plants of any kind in time of drought, we like, where possible, to form beds 4 feet in width, thoroughly stir the soil, and in the evening, previous to planting, to give it a good soaking. Then, if pointed over with the fork and levelled in the morning, it will be fit to plant. With everything in readiness, a number of plants may be set out in the hours of morning which precede the heat of the day. A watering afterwards with a sprinkling overhead in the middle of the day, and in the course of two or three days root action will again become sufficiently active to enable the foliage to bear the sun without flagging.

When the ground cannot be previously moistened, the best way is, having marked out a line on the soil, to cut out a trench with the spade, in depth about equal to the length of the roots of the plants to be set out. In planting, press the roots firmly against the side of the trench, fill in about two-thirds up, pressing the earth firmly round and over the roots. Then give each plant a good watering, fill up the trench, making the soil firm round the crown of the plants, but leaving a crumbly surface. In this way not half the water is required as when the earth is filled up level. When watering is left until the soil is filled in level much more water is needed, and one never feels so sure that enough has been given. When the soil has been very dry at the time of planting, we have known an apparently good watering to fail in reaching the roots, so that the plants flagged for some days every time the sun shone on them. If the removal is carefully effected, and the soil about the roots at once moistened, and the foliage sprinkled once or twice in the course of the day, there will be but little signs of distress, and generally in the course of two or three

days they will be quite safe. We find that in summer weather, when the soil is like a hotbed, root action recommences in twenty-four hours, so that all that one has to do is to preserve them from injury and supply them at once with sufficient water.

By bearing this in mind, we have transplanted winter greens in a very hot time, when the sun could hardly be borne in the open, and scarcely a leaf flagged, although they were not shaded. In order to transplant successfully under such circumstances, it is imperative that the plants be well provided with a quantity of roots in an active state. Badly rooted plants, or such as have been several years in the same place, would suffer severely, if they did not die outright, if moved at such a time, unless some protective measures against the sun were taken. When plants in this condition are to be moved in the summer, or, indeed, at any time when they are liable to be affected by sudden climatic changes, the only safe way is to lay them in thickly in some sheltered place, where they can be frequently sprinkled or shaded till they have made fresh roots. In the course of a week or ten days they will do so, and although this may seem to entail extra labour, it saves it in the long run, as when the plants are eventually placed in their permanent positions they do not need a tenth of the attention they would do if put there without previous preparation. There is, moreover, the satisfaction of seeing them make better progress. A little shade is of course very helpful at such times, and if it can be given, labour is lightened in other ways, and the plants start away sooner into growth again. Branches of Evergreens stuck in on the sunny side for a week or so are as good as anything, and where plants are put out singly at wide intervals or in isolated patches it is almost the only way of affording shade. Flower-pots put over them during the heat of the day and removed as soon as the sun wanes will do, but not so well, because they create a close atmosphere, which is apt to exercise a weakening effect. In the case of small plants which are set out together, nothing is so good as scrim canvas, which, laid lightly over them, does not injure them, and can be quickly put on and removed. Whatever may be used in this way, it should be discontinued as soon as new growth shows that the roots have begun to take hold of the new soil. J. S.

RUNNER BEAN CULTURE.

THE runner Bean crop is, without doubt, one of the most important and useful of our kitchen garden crops, and one which will well repay a little extra attention at the present time. Some soils and situations are naturally more suited to its growth than others, but with proper care the runner Bean will succeed in most places. When there is choice, a moist part of the garden should be selected, and a site where there is easy access to water will be so much the better. The greatest drawback to planting in damp situations is the common enemy of young plants—the slug; but when this difficulty has been overcome and the growth firmly established, there need not be much doubt of a continuous supply until the early frosts come and arrest all further progress. In situations such as that described, where the soil is

moist, deep, and strong, preparation will merely consist in digging deeply in the winter season and throwing it up roughly for exposure to the frost and other atmospheric influences. Where the soil is of a drier and poorer character, to gain a good result well-rotted manure should be dug into a trench some 18 inches in depth and 1 foot or more in width. This, if done in the winter or early spring, will be all that is necessary until the planting takes place. As to planting, by some it is preferred to set aside a certain area and cover it with double rows of Beans, in the same way as any other crop. On the whole, it is a plan which I cannot altogether recommend. When the Beans are grown upon very damp soils, which may not be so well adapted to some other garden crops, it may perhaps be advisable to follow this system; but in the ordinary way I prefer planting in single rows upon the previously trenched and prepared spots, and leave some yards between each row,

the season. Last year, which, when the Beans were in bearing, turned out to be very dry, I found that a portion of a row for which I had no stakes was more prolific than rows which had been staked in the ordinary way. Being left to grow on like this, they occupy a little more ground, but by keeping the runners well pinched back, the difference was scarcely appreciable. The advantage seemed to be that being nearer the ground, and the leaves being in much thicker masses, the moisture in the soil was retained much longer than was the case with those which had been staked. When the plants were exposed to the full influence of sun and air, and the Beans upon them were bleached and tough, there was always a supply of fresh green pods, and of a larger size, upon those which had never been staked at all than upon those staked. In a dry season a good supply of water, manure water if it can be had, will be a great factor towards keeping the plants in full bearing. There is nothing more fatal to the runner Bean than a short supply of moisture. When it is available, a few gallons of soap-suds from the laundry I have found to be an excellent thing to sustain the production of this vegetable. Diluted liquid from the pigsties, when such is within reach, is also a capital manure during dry weather, and its use will be well repaid. M.

GREEN CROPS.

WE are now experiencing in the metropolitan district a green crop famine. Readers in country districts will doubtless be surprised to hear that right in the very midst of a county of market gardens, Cabbages, and indeed green vegetables of any kind, are at a premium—indeed can only be had through the intervention of the dealers who bring apologies for Cabbages from the London markets, and ask for them a high price such as only the well-to-do can pay, and even then, when the outside hard leaves are removed, find little left for their money. It may be wondered at that market growers do not find it profitable to grow real spring Cabbages, such as one finds in private gardens. The fact is, that no one seems to find it profitable to allow any kind of crop to remain too long on the ground; hence the objections against late Broccoli and Cabbages. The former cannot be utilised until they have headed; the latter are early marketed, and in large quantities. Perhaps we are suffering somewhat this



Aristolochia ringens.

the space being occupied by Potatoes or other garden crops. Where the garden is much exposed to the winds and the soil is naturally dry, the planting should be made somewhat more thickly than in more sheltered spots. Most authorities agree that from 5 inches to 6 inches in the row is thick enough for the young plants to remain, but, as the result of trying both ways in exposed places, sowing at half this distance has produced the better crop. When grown in single rows in this way, there is certainly a saving of space, as a row a foot in width with a few inches of room on each side will be ample, and will give full scope for gathering the Beans without inconvenience. In dry soils it will be well to make the sowing as nearly as may be on the level. It is generally the practice to stake all except dwarf Beans before they begin to throw out runners, but whether this turns out to be beneficial will depend much upon

season because of the drought of last summer, which rendered the putting out of all kinds of winter plants so difficult, even later killing acres of plants wholesale after they had been put out, and thus producing heavy losses. Then the long winter, and especially the later portion of it, seriously injured what green vegetables there were left growing, so that the moment Cabbages presented anything approaching a proper size they were tied up as Lettuces are, cut, and sent into market as rapidly as possible. Market growers reason in this way: they see that market prices are rising; hence with them the bird in the hand is always worth two in the bush. Their Cabbages, although not more than half grown, will sell fairly well, while if kept a month later they might prove a drug; hence they market whilst the chance offers itself. They like also to be enabled to summer-crop all their land if possible, and when Cabbages are

pulled in April or early in May, a crop of late Potatoes, Runner Beans, or even of Peas may follow. If the Cabbages are left standing till June it is then too late for any summer crop to follow, except, perhaps, white Turnips—never a very popular crop so near London. The soil has become hard, and the Cabbages have in this last month of growth taken more out of the soil than in all their previous growth. Generally the market grower, who may seem to be, according to outside view, sadly wanting in regard for his own interests, knows pretty well what he is about. It is poor work for the man who in this vocation is unable to follow the course of the markets and has to trust to the judgment of others, but when a grower is his own salesman he begets experience, which, wisely applied, is of the greatest value, and gives him knowledge which his stay-at-home neighbour can never obtain. Usually at this season of the year the great gap now being found in the market supply of green vegetables has been filled up by large consignments of Cabbages coming in from the country districts; but these have largely failed this year, and the Cauliflower crop is late. Then we should in some seasons have been well into first early Peas by this time, but these are, on the average, quite a fortnight later than usual, arising from the general backwardness of the season. The heavy rains which have fallen so generally also, whilst giving the soil much-needed moisture, have so promoted growth that Peas look almost too well, and the growers look anxiously for more of sunshine and warmth to force the plants to pod and fill. It is worthy of remark that all very early sowings of Peas this year show no advance upon those sown quite a month later; whilst the rains have proved rather in excess for Peas, they are most useful in helping to establish Potatoes and other later crops, and have made the getting out of all kinds of greens for next winter's supply comparatively easy. Weeds grow apace, but with the weeds other things grow also. There is now ample labour for all, and the vegetable prospect is a very fair one. A. D.

INDOOR GARDEN.

IVY-LEAVED PELARGONIUMS.

THIS class of Pelargoniums has made such rapid progress within the last few years, that now we have great diversity among them, some of the varieties rivaling the zonals in brightness. Ivy-leaved Pelargoniums at shows are seldom seen to the best advantage, as in most cases they are trained in a narrow pyramidal fashion and stiff and formal in appearance, instead of displaying, as they ought to do, their natural grace and elegance by allowing them to ramble at will. Of course, such plants could not be moved about so well as formally trained specimens. One of the best displays of Ivy-leaved Pelargoniums which we have seen was a collection grown on a shelf in a greenhouse devoted to flowering plants. The shelf ran along the front of the house, and the plants drooped therefrom to a considerable distance, their long pendulous shoots forming a screen or curtain studded throughout its whole extent with brightly-coloured blossoms.

A pretty way of treating the more vigorous kinds is to employ them as a screen for covering the end of a greenhouse or in some such spot; thus treated, owing to their being well exposed to the light, they flower profusely. Out of doors their trailing habit fits them for planting in vases for use in balconies, or in baskets of various kinds. They are also very useful for maintaining a supply of cut flowers, as with a little care and attention they may be had in bloom nearly throughout the year; the blossoms last a good while in perfection, and are withal so pleasing in appearance, that they may be used in conjunction with any flowers, however choice. For supplying bloom during the dull days of autumn and winter, we strike the cuttings in spring or early summer, so that by the end of June they are plants either established in or fit for shifting into 5-inch and 6-inch pots.

They are then set out of doors, in order to encourage short, well-ripened growth. By the beginning of September (at which time they will be bristling with bloom buds) they are moved under glass, and, if kept in a minimum temperature of 60°, will flower more or less continuously throughout the winter. The only insect pests to guard against during any of their stages of growth are aphides, and these may readily be kept in check by occasional fumigations.

Though it is only about ten years ago since the first double-flowered Ivy-leaved Pelargonium made its appearance, and no more than half that time since the many brightly-coloured forms have been sent out, yet there is now an almost endless number of varieties to be found in various catalogues; so much so, indeed, that the quantity is quite confusing to anyone in want of about a dozen distinct kinds. After trying all the old and new varieties, we consider the following dozen to be about the best and most distinct, viz.: Abel Carrière, light crimson shaded violet; Comtesse Horace de Choiseul, soft satiny rose, and the plant a more decided trailer than any of the rest; Congo, lilac, with a deeper shade; Emile Lemoine, the brightest of all, being light scarlet; Galilée, pale lilac; Gloire de Nancy, cerise flower, very large; Gloire d'Orleans, a kind with pretty little double magenta blossoms, and one of the oldest of the class to which it belongs; Isidore Feral, soft satiny rose; Jeanne d'Arc, white, slightly suffused lilac; Madame Crousse, salmon-pink; Madame Jules Menoreau, bright rose; and Madame Thibaut, also of a rosy hue, but quite distinct from the preceding.

Pelargoniums of this class may be readily raised from seed if a little care be taken in the matter of artificial fertilisation. If the blossoms are too double in character to produce pollen, they may be crossed with the single or semi-double flowered varieties. I have a great quantity raised in this way just coming fully into bloom, and very interesting they are, nearly all shades of colour and character of flower being represented by them. The blooms were fertilised last season, and the seed sown as soon as ripe, so that the young plants were established in 2½-inch pots before winter, when they were kept on a light, dry shelf in the greenhouse, and are now good sturdy plants in 5-inch pots. The advantage of proceeding in this way is that no time is lost before the character of the seedlings is proved.

The single-flowered kinds are also very beautiful, a few of the best being Bridal Wreath, white, slightly marked with pink; Mrs. H. Cannell, purplish; Col. Roudaire, light scarlet; Beauté de Lyon, bright crimson shaded violet; Multiflore, bright pink; and Le Vésuve, salmon-rose. T.

Calceolaria Burbidgei.—From an ornamental point of view, this is greatly superior to either of its parents; indeed, in the greenhouse it forms quite an ornamental feature. This hybrid was raised between *C. fuchsifolia* or *deflexa*, as it is often called, and *C. Pavoni*. *C. fuchsifolia* is a much-branched, shrubby-growing species, with pale yellow flowers produced during autumn and winter. It was thought at one time that it would become a popular greenhouse plant, but it could seldom be induced to thrive in a satisfactory manner, and consequently it has almost dropped out of cultivation. *C. Pavoni*, on the other hand, is a bold strong-growing kind, that will flourish almost anywhere; but though the large hairy foliage is ornamental, the flowers are but small, indeed insignificant, compared with the vigour of the plant. *C. Burbidgei*, from a foliage point of view, bears more resemblance to *C. Pavoni* than to its other parent, while in manner of growth it comes about midway between the two. The flower is like that of *C. fuchsifolia*, but larger and deeper yellow. Some plants of *C. Burbidgei*, planted in a sheltered border, commenced to flower last September, where they continued in bloom till the frosts of about a fortnight before Christmas proved too much for the flowers, though a little protection just over the crowns will carry the plants

safely through an ordinary winter. Those to flower indoors should be grown in pots and plunged in a bed of coal ashes out of doors during the summer. This *Calceolaria*, like most of its class, can be struck readily enough from cuttings taken at any time when in suitable condition, or a plant of it may sometimes be divided without difficulty. —ALPHA.

PLANTS FOR HANGING BASKETS.

MANY kinds of plants are available for hanging baskets, and if reasonable care be taken in the selection and planting of them, satisfactory results may be expected. Among plants that can be grown in this way Ferns, of course, stand first. The greater number of them do well in baskets if liberally supplied with moisture at the roots, and some are never seen to so good advantage as when elevated. Other plants suitable for baskets are *Achimenes*, all of which do well grown in that way, and make a goodly show therein during the summer months. They do best when allowed to start into growth before being planted in the baskets, and they must be kept in a growing temperature till they show flower. *Aeschynanthus* flower well in autumn, and do well suspended in baskets, but they are not vigorous enough to be associated with strong-growing subjects; the better way, therefore, is to give each a basket to itself, and plant it in an open peaty compost. Cuttings of them strike readily, and if well rooted before being planted and afterwards kept in a moist stove, they will grow freely. *Russelia juncea* looks well elevated in baskets, provided it is not allowed to suffer from want of water, which sometimes happens if the baskets are difficult to get at. The least susceptible to drought among basket plants are the many beautiful varieties of *Epiphyllum*, which are seen to great advantage when grown in that way. As they strike root readily, they can be stuck in the sides of the basket, or wherever required, and will soon establish themselves. *Coccydium discolor* is a free-growing, creeping plant, whose shoots depend for some distance, and when laden with dark blue berries is very pretty. The two or three species of *Cyrtodeira* are bright when in flower, and their foliage is at all times attractive. They thrive well, even under heavy shade; and the same remark applies to the mottled-leaved *Pellionia Daveana* and *pulchra*, the foliage of which is less distinctly marked where exposed to bright light. A great many of the smaller growing climbing Aroids make useful basket plants, and should, if of considerable length when planted, be pegged around the exterior of the basket, when they will root at most of the joints and produce young shoots therefrom, thus soon forming a tangled mass of foliage, which will maintain its ornamental appearance for a long time, with but little trouble further than a liberal use of the syringe. The common variegated *Panicum*, the striped-leaved *Tradescantia zebrina*, and its variety multicolor grow under almost any conditions, and root so freely that they quickly become established. *Hoya Paxtoni* makes a capital basket plant, but one that must not be associated with strong-growing subjects; it succeeds best in a basket by itself. Another class of plants that show themselves off to advantage when suspended in warm stoves are the Pitcher plants, and in many places they are largely grown in that way. They will only thrive where a humid atmosphere is maintained, and therefore are largely benefited by a liberal use of the syringe. In the cool end of the stove may be suspended *Begonias* for winter flowering. Perhaps the best amongst them are *B. foliosa*, *fuchsoides*, and *glaucophylla*, but others will succeed under the same kind of treatment. Some of the more pendulous habited of the tuberous-rooted section also make capital basket plants, but they only require the temperature of a greenhouse, while all the plants above mentioned need a stove.

Amongst *Begonias* for greenhouse decoration, choice must be made of those that grow and ramble most freely. This style of plant was formerly more common than now, the taste at the

present time being for large massive blooms; still, from a quantity of seedlings, some suitable for baskets can generally be selected. Where large showy arrangements for conservatories are desired, Pelargoniums of the Ivy-leaved section may be used; both single and double-flowered kinds do well treated in that way. Among double flowered kinds there is a tendency to encourage a shorter and more sturdy habit of growth, which, however desirable for pot culture, is just the reverse for hanging baskets. The different forms of the old Unique, especially the scarlet-flowered and Rollison's, grow and flower profusely when grown in this way, and soon furnish a large basket. Tropæolums can well be used in arrangements of this sort, as also may the strongest growing kinds of Lobelia. There are a few greenhouse plants strictly pendulous in habit, which may be either elevated by means of raised brackets or suspended in baskets. To this class belong *Fragaria indica*, a species of Strawberry, the shoots of which hang down for a considerable distance, and which, when studded with pretty whitish flowers or bright red fruits, have a pretty appearance. *Lythrum Grafieri* is a charming plant when grown as a trailer on rockwork, but when suspended in a greenhouse it is even more attractive. Thus treated, its long slender shoots hang down nearly a yard, and during the greater part of the summer are furnished with a profusion of pretty purplish blossoms. It is of the easiest possible culture, and may be wintered in a cold frame. *Fuchsia procumbens* arrests attention by its quaint look in summer, and its large reddish fruits render it interesting in winter, though at that season it is nearly leafless. The small creeping kinds of *Ficus*, such as *repens*, *radicans*, and *minima*, are all well suited for permanent baskets. Many subjects, indeed, do well in this way, provided they are well supplied with water. In the case of *Mesembryanthemums*, mostly good basket plants, this latter consideration is not of such great importance, and therefore they often succeed where moisture-loving plants would fail. *Othonna crassifolia* has peculiarly thick glaucous foliage, and when studded with yellow composite flowers is very pretty. The shoots of this hang to a long distance from the pot or basket from which they proceed. The pale blue-flowered *Convolvulus mauritanicus* grows freely and blooms profusely when treated as a basket plant. For outdoor baskets in balconies or similar places, to be effective at all seasons, there are but few subjects to choose from, except the different varieties of Ivy, and very pretty they look when thoroughly established. In planting them, use good-sized pieces, and peg them around the outside of the basket. After this is done, if they can be kept in a somewhat sheltered spot till established so much the better, as they do not start into growth so well when much exposed. If for summer effect alone, of course great numbers of subjects are available, notably most of those recommended for greenhouse culture, and many of a herbaceous character, such as the common Creeping Jenny.

H. P.

FUMIGATING PLANTS.

So many inquiries are put to gardeners on this subject by amateurs and others, and so much has been written about plant pests and their destruction, that doubtless anyone who has a garden is more or less interested in the subject. Here I mean to confine myself chiefly to the subject of fumigating plants under glass with tobacco. Smoking is an operation that may cause much mischief to plants, but at the same time it affords the readiest and most effective means of destroying such pests as greenfly and other aphides and thrips—two of the most common that attack plants; and if ordinary care is taken, the smoke will not hurt the most tender foliage. Everything depends on the state of growth and the strength of the fumigation.

SMOKING MATERIALS.—The basis of all these is tobacco. Different kinds of mixtures or brands for horticultural purposes are recommended, but they all take the form of tobacco paper or rags in some shape

or other. I have tried them all, and find nothing better than common tobacco paper, which anyone may prepare themselves if they choose. The best we ever used came direct from the tobaccoist, who, we found, steeped paper rags in tobacco liquor, as we ordered the article, and sold it to us at 10d. and 1s. per pound. By buying the "liquor," we steeped it ourselves at one time, and found it to come much cheaper. Rough brown paper is best for the purpose, and it should be well saturated and allowed to drain, or gently pressed to squeeze the surplus moisture from it, after which it should be stored in solid layers in some cool place where it will not turn mouldy and lose its strength; but it is best not to make too much at one time. A good deal of the stuff sold by seedsmen is too old, and so dry that it blazes and burns away without doing any good. The paper should not be so wet as to prevent it igniting, neither should it be so dry as to blaze. As to fumigating apparatus, there are not a few patent machines that answer fairly well, but I do not believe in their economy, and the operator has to go inside the house with most of them, and remain there—a most disagreeable task. It matters not what kind of apparatus is used; a certain quantity of paper must be consumed to get a certain amount of smoke. Economy consists, not so much in burning a small quantity of the paper, as in preventing the smoke from escaping from the house before it has effected its purpose. To this end every crevice should be effectually stopped, and smoking should not be attempted on a windy day. One of the handiest smoking appliances is a small shallow wire basket with a handle or hoop. Into this a small quantity of red-hot cinders should be placed, and the tobacco paper on the top of them, in sufficient quantity to cover them well. A good volume of smoke will quickly rise from the basket, and the operator can stand outside and watch it. All he has to do is to add more paper as it burns away, and prevent a flame; when the house is filled with smoke the fire may be put out, and the unconsumed tobacco taken care of for the next time. Any number of these baskets may be fired at one time for large houses, but they should not be placed near the foliage of plants.

In smoking any kind of plants, the safe plan is to give three or four gentle applications every day in succession, keeping the house as close as possible during the day all the time to keep the insects from reviving between the smokings. What we call a gentle smoking is one in which the smoke appears only as a thick mist; but hard-leaved plants or mature foliage will stand more. After smoking, it is a good plan to syringe the plants thoroughly; but before smoking it is needful that the foliage of all plants be quite dry, otherwise much injury may be done. As a rule, it is not wise to smoke plants in flower, as the smoke causes the petals to fall immediately. This rule must be particularly observed in the case of Peaches and other fruit trees when setting their fruit. I have known crops quite lost through smoking at the setting stage, and even after setting, in the case of Peaches especially which are apt to show green fly just as the leaf buds break. The best plan under such circumstances is to syringe only, to keep the fly in check, and smoke as soon as the petals have fallen, but very gently. After this stage, fly generally ceases to be troublesome on Peaches under glass. Greenfly and aphides are easily destroyed by tobacco smoke; very little sickens them and arrests their progress, and two, or at most three, moderate applications will clear a house at one time. Thrips are more difficult to destroy, but they, too, succumb in the end. Stiff-leaved subjects, like Azaleas, and even Vines, will endure rather strong fumigation. Thrips may be killed by two or three applications, given in close succession on as many days. Dull still days should be chosen if practicable, and the house should be kept closed during the day, and, if necessary, shaded in the daytime to secure this. With conservatories it is an excellent plan to provide a shed adjoining, in which to smoke affected plants.

S. W.

Roscoeia purpurea (p. 541).—This is not only a good greenhouse plant; it is quite hardy. I have had it for years out of doors; it is very strong, but will not bear huddling.—H. N. E.

GRASS GUM TREES.

THESE plants form one of the most striking features of the wild flora of Australia, and we have, therefore, in the courts devoted to the Australian colonies at the Exhibition a number of living examples of several species, as well as paintings on the walls, in illustration of their appearance as seen wild. The "Black-boys" of Australia are amongst the first objects of interest to visitors to that continent, but it is only recently that living specimens have been established in English gardens, for although attempts have often been made, the plants appear to have invariably perished soon after their arrival. There is one exception to this in the form of a fine healthy specimen of *Kingia australis* in the College Gardens at Dublin, where, we learn, it has existed for many years. There has been some misapprehension in regard to the treatment necessary for these plants, their parched appearance, together with the dry arid nature of the conditions under which they are said to grow in Australia seeming to suggest dry treatment for them here. But this has apparently been fatal to them, and we now learn that Sir F. Muller has pointed out that *Xanthorrhæas* must be treated liberally to rich peaty soil and plenty of water if they are wanted to thrive. This information is valuable at the present time, and the numerous living plants of *Xanthorrhæa* at the Exhibition may now perhaps be permanently established in English greenhouses. Some of these specimens are now in flower, and there is also a healthy flowering specimen in the succulent house at Kew under the name of

X. PRIESTII.—The stem of this is 8 inches high and 1 foot in diameter, semi-globose, and bearing a dense tuft of graceful, Rush-like foliage, stiff and brittle in texture, 3 feet long, one-eighth of an inch broad, the edges slightly serrated, and the middle raised to a sharp ridge on both sides, so that a section shows the leaf to be quadrangular; they are glaucous green in colour. The flower-scape is $3\frac{1}{2}$ feet high, and the upper 2 feet is covered with dark brown scaly hairs, through which the white star-shaped flowers protrude in great numbers. The whole scape is suggestive of a very thick Bulrush. This species is found only in West Australia, whilst the species it most resembles, viz.,

X. QUADRANGULARIS, is limited to South Australia. A specimen which flowered at Kew in 1875, and then died, may be seen in the Timber Museum. It has a stem 4 feet high and narrow quadrangular leaves; whilst the flower-scape is 8 feet long, the flower-head being green instead of dark brown, and the flowers white.

X. AUSTRALIS may also be seen in the Kew museum, a specimen with a stem 7 feet high and 18 inches in diameter at the base, the whole being charred black with the bush fires which occur so frequently in some parts of Australia. The leaves are in a tuft on the top of the stem, and they are about 2 feet long by a quarter of an inch broad, keeled below and channelled above. This species is a native of Victoria.

X. HASTILIS is remarkable for its tall, straight flower-stalk, which is used by the natives as a spear-shaft, stout plants producing flower-stems 20 feet long. A plant which flowered at Kew in 1853 bore a scape 6 feet high, with flowers and bracts only on the topmost foot. It has very narrow leaves and short stems, and is a native of New South Wales.

X. MINOR is found in South-west Australia and also in Tasmania. It is distinguished by the absence of a distinct stem, the leaves springing up in Rush-like tufts; they are only about 1 foot long, very slender, filiform, dilated at the base, and keeled only on the under side. The spike is about the same length as the leaves, and bears a short head of green flowers and hairs.

X. SEMIPLANA is also a tufted stemless plant with broad based foliage. Plants of it are in the Kew collection.

The grace and elegance of the leaves of these plants and the singular appearance of their stems

should recommend them as useful greenhouse plants in this country.

FLOWER GARDEN.

ROCKWORK AT WINTERBOURNE, TEIGNMOUTH.

UPON a piece of ground about 40 yards in length, and about 20 yards or 30 yards in width, has been constructed an interesting piece of rockwork, from which an excellent view of the English Channel can be obtained, while inland a pleasant glade attracts the eye. On this piece of ground rocks, plants, and water combine to form a pleasing picture so true to Nature, that it seems difficult to imagine the whole to be really a work of art. By means of planting large trees as a background, climbers, Ferns, alpine plants, and Moss, a character of apparent antiquity has been infused into the work. Closer inspection, beginning with the part nearest to the residence and pleasure gardens, reveals a small irregular pond, fed by a streamlet which emerges from under a rustic bridge. In the pond are Water Lilies, *Aponogeton distachyon*, *Villarsia nymphaeoides*, *Cyperus longus*, *Calla palustris*, *Hottonia palustris*, *Alisma natans*, and others, and the smooth lawn surrounding it appears here and there broken by bold pieces of rock protruding from the surface, and adorned with Ferns and other rock plants. Traversing the bridge with its railing of gnarled and knotty Oak, a peep is obtained from the other side of a little waterfall; under the shade of two huge Elm trees, over pieces of rock exquisitely arranged and forming the overflow of another pond of larger dimensions. This second pond is reached by means of a few rough steps apparently hewn out of the rock, and from here starts a path resembling the bed of a streamlet dried up years ago. Winding in and out among the boulders and fissures of the rockery, filled in every crevice with charming alpine and herbaceous plants and Ferns, this finally leads one to a deep recess between the two projections, that closely resemble a natural grotto, in which the stump of an old tree forms a comfortable seat. From this point one may conveniently view the large pond and its picturesque surroundings. About the centre, nearer the outlet, is a rocky island planted with *Azara microphylla* and a variety of beautiful specimens of Ferns and Grasses. The water of this pond is so clear, that the shells and pebbles on its bottom can be distinctly seen associated with such water plants as *Menyanthes trifoliata*, *Nymphaea alba*, *N. odorata*, *Sagittaria sagittifolia*, and *Butomus umbellatus*. An irregular shore-line is planted at intervals with choice flowering shrubs, such as *Carex pendula* and *Bambusa Metake*, while a pleasing

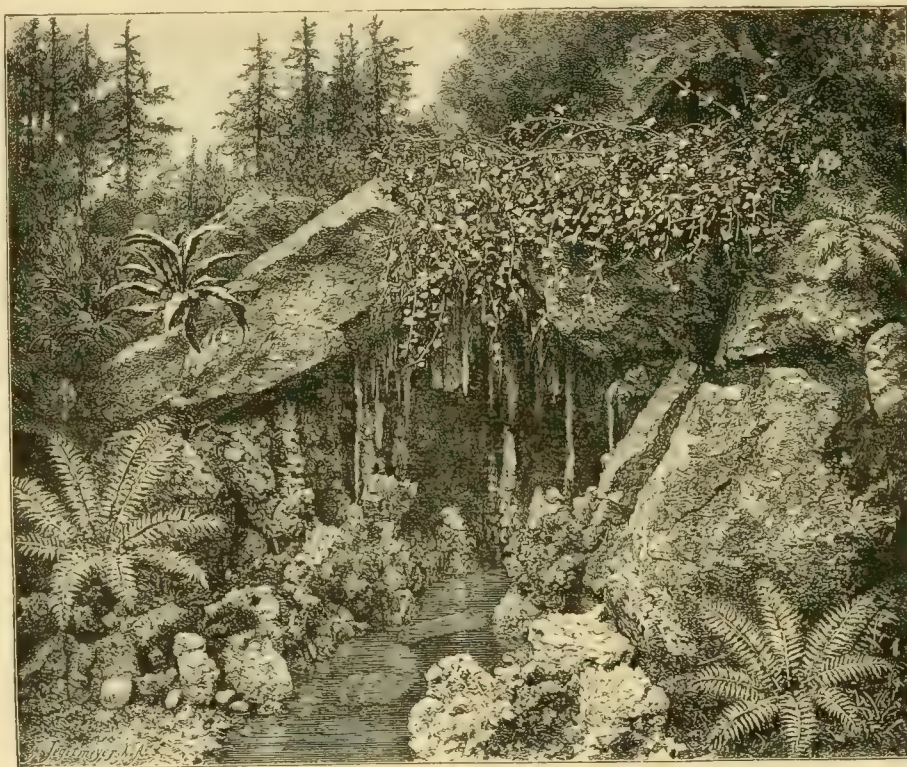
effect is produced by a large and graceful specimen of *Eulalia zebrina*. Quitting the "grotto," which is made to appear as having formed at one time the natural source of the dried-up stream previously referred to, a picture not easily forgotten meets the eye, namely, the centre piece of the work—the cave of stalactites, in front of which descends a grand cascade of water, emerging from a deep fissure overhead in the densely covered background. In addition to the artificial stalactites, two formed by Nature have been fixed in this cave, thus affording the visitor an opportunity to compare the works of Nature with those of Art. By an ingenious contrivance, water is introduced to the roof of this cavern, and, dripping from the stalactites on to their corresponding stalagmites below, forms step-like basins which, like the beautiful ponds in the Cheddar cave, reflect the fairy-like surroundings. In front of the cave is an arrangement of "Saxony fossils," a novelty in this district, imported from Thuringia. These "fossils," so

pond, a particularly bold projection of rocks is passed planted with *Yucca recurva*, *Ivy*, *Olearia Haasti*, *Choisya ternata*, *Desfontainea spinosa*, *Hymenanthera crassifolia*, *Abelia floribunda*, *Andromeda floribunda*, and others. After this point is reached the rocks become more scattered, having greater intervals of lawn between them. Beyond these scattered rocks a large bank of trees and shrubs is varied by a rocky recess, and here a rustic seat affords an admirable view of the most important points of the work. This rockwork and its interesting surroundings have been constructed by Mr. Meyer, a landscape gardener employed by Mr. Robert Veitch, of Exeter.

ANEMONES OR WINDFLOWERS.

THE different varieties of *A. coronaria* everyone who has a garden should grow, as they make when in bloom a magnificent show, the flowers being not only large, but brilliant in colour. By some they are known as Poppy Anemones. Besides their remarkably

gay appearance, what adds to their value is their early flowering, for so persistent are they in this, that I have frequently seen them peeping out from the snow; and though they hang their heads when frost occurs, as soon as the sun comes out they become erect again, and seem none the worse for the icy hand of winter having laid hold of them. To get them into bloom at the season mentioned no time must be lost in having them sown; but before doing this special preparation must be made for them, and a good site chosen, the most suitable spot being a sheltered border sloping to the south, where, if the soil is fairly light and dry, they are sure to do well. The way to insure this in such a situation is to procure some thoroughly rotten manure—that from the cow being the most serviceable—and dig it in so as to bury it below, where the roots of the plants will find it when most wanted to feed on.



Rock garden at Winterbourne, Teignmouth.

called, consist of Reeds and Grasses of former ages, which have become encrusted with calcic carbonate, deposited from the water of the swamps in which they once grew. The water from the cascade forms a charming rivulet, and under a large stone, forming a bridge, it disappears into the pond. Beyond this bridge one is brought before scattered fragments of rock, one higher than the others, which, although jutting above the surface in a natural fashion, yet form a series of convenient steps half covered with a variety of Sedums, Saxifrages, Creeping Jenny, Speedwells, *Erodium Reichardi*, Thyme, and similar plants. Among the large trees of which the background is composed are excellent specimens of *Abies grandis*, *A. cephalonica*, *Thuja borealis*, Lebanon Cedar, *Sequoia sempervirens*, *Thuja Lobbi*, Douglas Firs, Junipers, and Cypresses. Descending the rocky steps, and returning on the other side of the

The border having been manured and dug, the next thing is to level it and finely rake the soil, when all will be ready for sowing the seed. This should be done in shallow drills, drawn about a foot apart, which is better than scattering it broadcast and having the plants all over the ground, as in rows they are easier to get amongst to gather the flowers and keep them free from weeds; besides which, the seed can be covered readily in the drills, where it may be put in in tiny patches without going to the trouble of separating it, which is rather a difficult matter, as it is covered with a down-like coating that holds it together. All the attention the plants require when up is to thin them out sufficiently to leave them standing 6 inches or so clear from each other, and to keep them watered occasionally during the summer, as the more leaf and growth they can be induced to make then, the stronger will they flower when the winter comes round. Although these Anemones are perennials and have tuberous roots that send up fresh foliage and

bloom every year, somehow or other they seem to do best treated as annuals or biennials instead of keeping the old plants long, as seedlings flower so much more freely, and therefore fresh beds should be made. *Anemone fulgens* is so double, that it does not seed, and can only be increased by the tubers it forms; but as these are made freely, it is not a scarce plant, although it is not grown nearly as much as its merits deserve, for it is one of the first harbingers of spring, and so vivid is its scarlet colour, that it attracts the eye from afar.

For cutting, this and the other *Anemones* referred to above are quite unrivalled; for, though they close their petals early in the day outdoors, they remain open in a warm room, and last quite as long, if not longer, in water as they do on the plant. The time for planting *A. fulgens* is during the autumn, or as soon as the foliage dies down, when the roots may be dug up and divided and put in again. To grow the plants well, the soil must be light and dry, and the position a warm, sheltered one, as the leaves are made early, and are apt to get hurt by the wind. Another *Anemone* that cannot well be too highly praised is *A. japonica*, which in habit is very distinct from those already mentioned, as, instead of being dwarf, like them, it forms quite a bush, and has large foliage and tall stout stems on which the flowers are borne. These are large and salver-shaped, with a bold, prominent disc, the petals being of a lilac colour; there is also a white variety, under the names of *Honorine Jobert* and *A. japonica alba*, which is a very choice plant, worthy of a place in any herbaceous border, where it makes a fine show, its time for blooming being the autumn, when, if fine weather prevails, it lasts long in perfection. The quickest and easiest way of propagating this beautiful *Anemone* is by division, which may with safety be effected in spring, just as the plants begin to grow, when they send up many offsets, and any of these, removed with the roots attached, may be taken and transplanted at once, after which they should be watered to give them a start. To have fine specimens, the ground where they are to be planted in must be deeply dug and manured, which enables the plants to get down and take care of themselves. S. D.

THE HOLLYHOCK AS AN ANNUAL.

LET me say at the outset that I do not wish it to be understood that as fine spikes of Hollyhock flowers can be obtained from plants treated like annuals as from those raised from seed or cuttings in the previous autumn. But, provided the treatment is right, I have no hesitation in stating that a very satisfactory display of flowers may be obtained from plants raised from seeds sown the same year in which the plants are to flower. It must, however, be understood that the seed should be sown early in January in a warm temperature, and that through all the stages of growth the treatment must be of the most generous kind.

Prepare, in the first instance, one or more seed pans, according to the number of plants required, but, in estimating the space to be planted, remember that the seed should be planted an inch apart, so that when the plants come up they may have room to grow on for some time, and get furnished with a good few leaves and plenty of roots before they become so thick as to require to be moved. As soon as sown, the pans should be placed in a temperature of 60°, even a few degrees higher will do no harm, but it should not be below that point; and if the pans can stand on bottom heat until the seedlings appear, the seed will vegetate all the quicker. As soon as the young plants come through the soil (and that will not be many days), the pans should have a position on a light bench or shelf, in order to prevent the plants from becoming drawn. About the middle of March they will be large enough to be put singly into 4-inch pots, in which they may remain until the time comes to plant them out, as the less the roots are disturbed the more progress they will make. It is a good plan to harden the plants a little before they are potted off. This can be done by placing them in a cooler tempera-

ture, say in a warm corner in an ordinary greenhouse, and the same position will suit them after they are placed in their pots and until the end of April. After that, a fortnight's gradual hardening in a cold pit or frame will prepare them for planting out. While in pots, a rather light sandy soil suits them best, and they certainly make more roots in a compost composed of half leaf soil than they do when loam forms the chief part. The same description of light soil should also be used for the seed pans.

The Hollyhock reproduces itself pretty correctly from seed, but if the flowers do not come precisely the same as those of the parent, the percentage of good flowers will be far above that produced by any other double-flowered plant.

POSITION AND SOIL.—It is useless attempting to grow Hollyhocks in the way in which they were grown twenty years ago. At that time we planted them amongst shrubs in mixed borders, and they produced fairly good flower-spikes. In a similar position we used to grow them here, but under such treatment disease attacked them, even though the ground was well manured. We have now to be content with shorter spikes, and these sometimes with leaves terribly disfigured by Hollyhock fungus. Hollyhocks can, however, be successfully grown now where the position is open, the soil rich and deep, and root moisture plentiful. Of this there was abundant evidence in one of the Exeter nurseries last year. There I saw two long lines of plants equal in every respect to any I ever saw when the plant was so popular twenty years ago, and when we used to plant it anywhere in ordinary soil, and then get flower-stems 5 feet and 6 feet in height. The plants which I saw last summer doing so well had grown upwards of that height, for they were from 10 feet to 14 feet in height, and bore a proportionately large number of flowers. It cannot, therefore, be said that this grand flower cannot sometimes be grown as it used to be. All that is necessary is to adapt our course of proceeding to the exigencies of the case, and then success will follow; but ordinary results may be obtained without an extravagant outlay of either time or patience. Those who wish to be successful should begin now. First sow the seed, and while that is growing positions for the plants can be prepared—first by digging up deeply the places which they are to occupy. If they are to stand singly, a hole 2 feet square must be got ready. If in lines, a space 3 feet wide must be trenched up 2 feet deep, and then a layer of well rotted farmyard manure should be spread on the surface and forked in, so as to mix it up well with the staple. If the soil should be naturally dry and light, some good heavy loam should be added to it. Fresh manure they do not like, but it may be as strong as it is possible to get it. It must, however, have lain at least six months in a heap, so that every part of it is in proper condition for the roots to lay hold of, and it is important that a layer of it should be placed 9 inches under the surface.

PLANTING OUT AND SUMMER MANAGEMENT are both easy enough. Whether the plants are to stand singly or not, they should be planted in a sort of basin, so that the roots may get all the benefit of any water that may be given. A favourable time for planting out should be selected towards the end of May, and the pots out of which the plants came should be left close by, so that they can be turned over them at night for the first week, and also if the sun should be strong or the wind cold during the day. It is necessary to pay attention to these details, and also to see that the roots are kept supplied with moisture, because it is important that the plants should have every encouragement early in the season. As soon as they have got a fairly good hold of the soil, a heavy mulch of rotten manure should be spread on the surface, and extend 18 inches or 2 feet away from each plant. As soon as the flower-stem begins to rise, the cultivator may be sure that the roots are active, and that they require to live sumptuously. At this time, if the weather is at all dry, they will be gratefu-

for a good soaking of manure water twice a week. In favourable soil, the Hollyhock is a strong and deep rooter; it will send out large and long white roots 3 feet away from the centre, so that when applying water the cultivator must be prepared to give enough to reach to a good depth and width. Supports of sufficient height and strength they must have, and for single plants the stakes must be very strong. If in lines, stakes may be driven into the ground at every 10 feet apart; along these two pieces of wire should be stretched, one at 3 feet, the other at 6 feet from the ground, and the spikes should be tied to the wires, which will be all the support they want.

THE FUNGOID DISEASE on the leaves is a serious business, as applications to destroy it must be used as often as new leaves develop themselves. For those, however, who can battle with it, I may mention that the simplest remedy I have found is to wash the foliage with Gishurst compound at the rate of 2 ounces to one gallon of water; either sponge or syringe frequently both sides of the leaves with this solution. J. C. C.

SWEET PEAS, OLD AND NEW.

I HAVE often wondered what was the exact form of the Sweet Pea that was introduced from Sicily nearly two hundred years ago. We may perhaps conclude that the original Sweet Pea bore purple flowers. Now the Sweet Peas are grouped under the head of *Lathyrus odoratus*, and there is a large group of varieties that are constantly receiving accessions. It is perhaps remarkable that we were content to go on so long satisfied with some six or eight varieties; but then they were pretty and useful, and appeared to satisfy our forefathers. The peculiar formation of the blossom of the Pea makes it difficult for insects to fertilise it, and that is probably the reason why such a long pause took place in the production of new varieties. I have in my possession a copy of an old seed catalogue that gives six varieties of Sweet Peas—viz., the black, Painted Lady, purple, scarlet, striped, and white. In course of time came the Scarlet Invincible, a fine selection from the original scarlet; Purple Invincible, a selection from the purple and the purple striped. Then followed Butterfly, pure white edged with lavender-blue; Crown Princess of Prussia, bright lilac, a distinct and beautiful variety; Violet Queen, of a charming hue of violet; and Fairy Queen, rosy white—all good and distinct additions. One of the prettiest is the old Painted Lady, with its rose-coloured crest and white wings and keel.

The foregoing varieties made up our collection when various hybridisers took the Sweet Pea in hand. By crossing the most distinct varieties, they obtained a large number of seedlings, some of them distinguished by great beauty and distinctness of character. A few of these were selected, and put into commerce, among them Bronze Prince, a fine variety, the standards of which were of rich shining bronzy maroon, the wings deep bright purple, large and very fine; Lottie Eckford, a pretty variety, the standards white, suffused with purple, and the white wings distinctly margined with blue; Queen of the Isles, the standards large and stout, bright scarlet in colour, flushed and mottled with white, the wings flaked and margined with rosy purple on a white ground; Cardinal, bright shining crimson, scarlet standards and wings; Indigo King, dark maroon-purple standards and clear indigo-blue wings; and Princess of Wales, the wings and standards white, shaded and striped with mauve on a white ground. Then there is the Carmine Invincible, a brilliantly coloured selection from the Invincible Scarlet, and regarded as the finest coloured of all the scarlet types. Thus a collection of something like eighteen distinct varieties of Sweet Peas can now be made up.

During last summer has also been submitted for inspection a batch of eight new varieties, as follows, viz.: Charmer, the standards of which are of a lovely shade of delicate mauve, the white wings delicately tinted with mauve; very pleasing and pretty. Duchess of Edinburgh, pale bright orange-carmine standards; very rich and effective, the wings delicate magenta, shaded with violet. Imperial Blue, rosy standards,

shading off to mauve and violet, the wings bright blue; a distinct and striking variety. Isa Eckford, delicate pink standards, wings white, and very delicately flushed with soft pink; very sweet and pretty; in the young flowers the standards are of a pleasing shade of buff, deepening to soft pink. Mrs. Eckford, delicate pinkish mauve standards, shaded to a distinct margin of mauve, the wings nearly white, with a distinct wire edge of mauve; a very fine kind. Prince Charming, magenta standards, with slight margin of purple, paling off to pink at the base, the wings white, narrowly edged with blue; very pretty indeed. Purple King, bronzy purple standards, with distinct margin of purple, the wings bright purple; fine, distinct, and showy; and Rosalind, pale bright rosy pink standards, the wings delicate mauve; bright and effective. Whether and when any or all of the foregoing will find their way into commerce remains to be seen; but it is only fair that now there are so many fine varieties, all new types put into circulation should be thoroughly distinct. But there is no reason why in a year or two we should not have from twenty-five to thirty varieties that it will be desirable to cultivate.

It might be said that almost every gardener grows a line of Sweet Peas—generally in mixed varieties—to cut from. One looks for this as naturally as for edible Peas. It is seldom, however, that a gardener troubles himself to grow varieties in separate colours, unless it be the bright and showy Scarlet Invincible. In 1869, when in Ireland, I saw in the gardens of Muckross House, Killarney, the residence of Captain Herbert, a line of this fine variety mingled with the yellow-flowered *Tropeolum canariense*, and the effect of the combination was very fine; in the moist climate of the south of Ireland, both flourished as one could anticipate they would. The constant cutting of the flowers from a row of Sweet Peas helps the continuity of bloom, because very few, if any, seed-pods are formed. If no flowers are gathered, then the period of blooming is a short one; the energies of the plants are required for the development of the seed-pods.

Sweet Peas are generally sown much too thickly, and not unfrequently in poor ground. In the case of a light, dry soil, Sweet Peas should be grown like Celery, in a well-manured trench, so that water can be freely supplied when necessary. Under any circumstances, it would pay to grow them in this way, and if a little mulching could be added, so much the better; but sow thinly. Individual plants, when grown to a great size, are most effective. Blossoms may be gathered in spring by sowing some seeds in August and September in pots, getting them up in a cold frame, and then bringing them on in a warm house in early spring. In this way the flowering season can be anticipated by several weeks; and a succession of bloom can be maintained by keeping some of these pots in a cold frame all the winter, and planting out on a warm border as soon as the weather will permit. Something is thus gained, though not much; but as sweet flowers are always acceptable, a gardener who has to provide quantities of cut flowers, will always find them welcome. Some seeds could also be sown in the open ground at the end of October, choosing a warm sunny spot, and these would give an earlier supply of flowers than the plants raised from seeds sown in March. The Sweet Pea is one of the very best, most useful, and most popular of hardy annuals.

R. D.

German Irises.—The moist dull weather which we have experienced for the past three weeks appears to have just suited these Irises; they have pushed up their flower-stems much higher than usual, and they promise to remain longer in bloom than they do when the weather is hot and dry. One requires to grow these Irises in large masses in order to get a correct idea of their effectiveness; a plant a yard or more across, with a dozen flower-spikes and a score or two of blossoms all open at the same time, is a striking object. These Irises evidently like a good holding soil, and while growing plenty of root moisture.

—J. C. C.

Erinus alpinus.—This grows on many old walls in this neighbourhood, but on none so well

as on those of the garden belonging to Cothelstone Manor, a residence of very ancient date, and probably the garden walls are as old as those of the house. For several weeks at a time these walls, or rather the tops of them, are sheets of rosy purple, the produce of this plant, which generally begins to flower in May. On another part of the estate is a wall on which this *Erinus* and the Cheddar Pink are associated, and they thrive wonderfully well under the same conditions. For two or three weeks both plants are in flower together, and here and there the wild Strawberry mingles with them, thus forming a picture such as is seldom met with.—J. C. C.

Fragrant Solomon's Seal.—Permit me to thank "T. J. W." and "J. W." (p. 550) for their valuable testimony in this matter. If not too much trouble, I should be greatly obliged for a small portion of scented Solomon's Seal from any readers of THE GARDEN who may grow such varieties, or for information where fragrant varieties can be purchased in quantity, and whether more than one; also for information concerning Dr. Browne's plant referred to by "J. W.," although testimony has reached me from equally trustworthy authorities, and it can hardly be doubted that there are sweet-scented Solomon's Seals in our gardens. That being so, it seems almost a pity that there are so many to be found that are virtually odourless. Granting there are such Solomon's Seals in existence, it seems almost as great a waste of space to grow those without scent as it would be to grow odourless Valley Lilies. I trust many more readers will give their experience in this matter. Mine is, that all the varieties I have met with and cultivated are without odour.—D. T. F.

FERNS.

VARIATION IN FERNS.*

In a paper which I had the honour of reading here last season upon certain newly discovered phenomena of reproduction in Ferns I confined myself mainly to a description of the various normal and abnormal methods by which they are propagated, and an elucidation of the characteristic differences in these respects between the Filices and the flowering plants. With the view of opening a discussion of somewhat wider interest than the study of Ferns alone could do, I purpose now to dwell especially upon the peculiar faculty of variation possessed by Ferns, and the general character of such variation, in order to ascertain from the discussion which I hope will follow whether this faculty is displayed in as great a degree in the other branches of botany which may form the special study of my fellow members. I therefore start with the hypothesis that Ferns are endowed with a greater capacity of sudden variation under natural circumstances than other plants. I say under natural circumstances, because it is chiefly wild sports which I have in view, and not the wonderful differences which careful cultivation and selection are capable of effecting in almost every living thing if only time enough be granted.

THE FACULTY OF VARIATION is general throughout organic life, but in the vast majority of cases the individual differences displayed between organisms of the same species are mainly the result of different conditions of growth, and do not involve any material alteration of structural plan. The offspring consequently presents the same general appearance as the parent. Here and there, however, through some subtle occult influence, cases present themselves where the offspring is found to display strongly marked characteristics of which not a trace existed in either parent or, so far as can be ascertained, in any of its progenitors. These sudden departures from the normal type (or sports, as they are horticulturally termed) seem frequently to result from some accumulated influence induced by the artificial conditions attendant on cultivation. This is shown by the fact that many flowers under such treatment are liable after a certain time to vary suddenly

* A paper read at the Horticultural Club, the other evening, by Mr. C. T. Drury, F.L.S.

either in themselves or their progeny, a fact to which we owe the immense number of strongly marked forms of floral beauty now existent. In Ferns, however, under purely natural conditions—or, at any rate, under conditions as natural as we can obtain in a civilised country—there have been discovered an immense number of forms departing so widely from the normal types among which they were found, and which are so isolated in their occurrence and so entirely unaccompanied by any trace of intermediate aberration, that we are forced to the conclusion that they are the direct offspring of spores from perfectly normal plants, notwithstanding which they, in most cases, truly transmit their peculiarities generation after generation to their offspring. What an extraordinarily subtle influence must that be which in either plant or animal can so affect and transform the microscopic germ that the resulting offspring shall not only differ materially from the parent form, but possibly an altogether different type of structure, at once symmetrical and beautiful, shall originate, and be able to transmit henceforth its peculiarities to its offspring. Here, indeed, have we special creations, forming striking exceptions to the general rule of gradual evolution. To return to

MY SPECIAL THEME—FERNS. Take, for instance, the Victoria Lady Fern, and grant the assumption, which cannot be avoided, that it originated from a normal plant. This normal plant we found to consist of fronds formed of a central stipe tapering to a point, and provided with side branches or pinnae on the same plan and set on at an angle of about 30°; these being again divided on the same principle, the whole forming a feathery frond of lanceolate outline. On the back of every frond there are millions and millions of microscopic spores, which, during the indefinitely long life of the plant, are shed around and blown about in countless myriads year after year, not only from this plant, but from thousands like it in the vicinity. Suddenly one, and apparently only one, of these spores yields a plant in which all the divisions, pinnae, pinnaules, and pinnettes are not only duplicated, but much narrowed and set at about right angles to each other. The outline of the frond is also greatly narrowed, and finally the tips of the pinnae and the frond itself are many times divided, so as to form heavy tassels. Finally, it is abundantly sporeiferous, and every spore is capable of reproducing its structural peculiarities; though, strange to say, the offspring are generally if not always easily distinguishable from the parents by a certain coarseness, the fine cutting of the ultimate division being, as it were, blurred and less sharply defined. On the other hand, I have raised hundreds of this form, and never saw a case of reversion to the normal form. This case of variation is an extreme type, involving as it does not merely a crested, but also an essential variation in plan of structure, a combination of peculiarities which has so far not been discovered in connection with any other family of Ferns, though some few varieties are characterised occasionally by cruciate pinnae. This Fern was found growing wild by the roadside in Scotland, and though the station was assiduously searched then and later, no second example or intermediate form was or has since been discovered there or elsewhere. Another extreme form was *A. Filix-femina* acrocladon, found also by the roadside on a Yorkshire moor. Here the rachis and rachides possess such a tendency to division that the normal feathery nature of the frond is utterly lost, and the plant resembles a number of mossy balls crowning the much-divided stipes. Here, again, no intermediate form was found in the vicinity, and the necessary conclusion is that it originated at one jump, as it were, from the normal form. This case, however, is not so striking as that of *A. Filix-femina* Victorice, since the ramification of the rachis is a comparatively common form of variation, and is only carried in this instance to an extreme extent. This again yields, I believe, fairly true progeny, in one of which the division is carried to such an extent that the whole plant resembles a ball of velvet.

THIS POWER OF CRESTING, in which the normally acute points of the rachis and rachides, of frond, pinnae, and even of the pinnaules become dilated and divided, seems common to all, or nearly all, of the British Ferns, only one or two species having failed

so far to afford instances; and since, as I have said, the more marked departures have been found wild, it becomes a question whether exotic Ferns all over the world will not yield instances of the same phenomenon when sought for by an eye accustomed to the quest; for it is a peculiar fact that until the sight becomes habituated to the search for special features the eye unconsciously is liable to overlook and pass by the most striking characteristics. Hence a botanist whose specialty is the discovery of new species only would readily detect an altogether new plant, but fail to note that one amongst a crowd of familiar plants possessed unusual features. As an instance of this, I recollect once hunting over a lot of *Scolopendrium* with a good general botanist, and I found no less than seventeen ramose and otherwise abnormal plants among them before he found one, yet in his own element he would point out an uncommon flower on the other side of a field where I could hardly discern a plant at all. To this may be attributed the fact that so few abnormal exotics, and especially tropical Ferns, have been found, though I venture to think the quest is worth while; for let the scientist term them monstrosities if he will, I contend that in many cases the abnormal forms infinitely transcend the normal ones in beauty,* while admitting freely that, on the other hand, many are far more curious than beautiful. Anyone who has seen a grand specimen of *Lastrea cristata*, our nearest approach to a Tree Fern, and splendidly tasselled, must admit that such a crested on *Dicksonia antarctica* or a fine *Cyathea dealbata* would be simply magnificent, and I am sure that somewhere in the untravelled habitats of these Ferns their crested forms are quietly awaiting their discoverer.

POWER OF CRESTATION.—I would ask, What is the parallel phenomenon in flowering plants? Hardly, I think, the doubling of the flowers, though that suggests itself as a near approach; yet from the fact that the sterility which is usually attendant upon such doubling is associated in the Ferns with the plumose and not the crested varieties, I think the connection should be looked there, the extremely foliose character of such forms seeming to absorb all the vigour of the plant, so that spores are either altogether or almost absent, precisely as the multiplication of the flower petals seems to affect the seed producing parts of the flower. This idea I only throw out for discussion.

Here, again, the most marked instances of variation in the plumose direction have been wild finds. Dr. Wills's *Scolopendrium crispum*, for instance, has deeply curled fronds of normal strap-shaped outline, but much wider—over 4 inches in some cases. The Axminster and Horsfall plumose *Athyria* were also found wild; and, to cut this part of my paper short, so were the greater part of the abnormal forms in cultivation; though, thanks to the selection of some of our careful cultivators, such as Col. Jones, of Clifton, and others, the offspring of such finds have been found to develop their characteristic beauties to a far greater extent than the parents, some of Col. Jones's *Polystichum* especially, the result of selection and hybridisation being apparently the *ne plus ultra* of feathery delicacy. I have alluded several times to the constancy of such variations, but there are some curious exceptions to this rule, as every Fern-hunter knows to his cost. Many of the most marked and beautiful forms yield common progeny, and also are apt to "sulk," as it is termed, and refuse to produce anything but normal fronds unless grown exactly as they like it. One of my own best finds affords the most remarkable instance of this instability that I know of. In 1884, while in Scotland, I found near Kilmarnock a really splendid form of *Lastrea Filix mas polydactyla*; in fact, the most polydactylous form by far which had been seen. The plant had five or six huge fronds, all with beautifully pendulous pinnae tasselled with as many as twenty divisions. I brought it to London and displayed it with great pride to some of the best judges, who one and all decided that it was a thoroughbred beauty, as it was profusely covered with spores. I carefully gathered some from the best parts of the frond and

sowed them. The plant being deciduous the foliage disappeared in the winter, and the following season I watched the rising crown in confident anticipation of a finer and more symmetrical plant than the removal and travelling had permitted it to be the previous season. Judge, then, of my disgust when a common *Filix mas* was slowly developed without even the simple merit of the normal form, for many of the pinnae were deformed and depauperate. Later on a frond or two arose with faint signs of division on the apices of the pinnae; meanwhile the young ones began to arise from the spores, one and all common male Ferns. Another exactly similar plant found at the same place, but some 20 yards distant, in the succeeding week by a cousin of mine, showed slightly crested pinnae here and there, and that was all—verdict, a rogue. Still I would not despair, and though this year perhaps it might get over its sulkiness, the spring comes, and slowly rises the shuttlecock-like circle of fronds, all common again except a few deformities; then an odd frond rises, pinnae slightly crested, then another, and ho! it is heavily tasselled and as beautiful as could be desired.

Meanwhile the seedlings have been developing fronds 4 inches to 6 inches high, all common with the exception of two, which in the prothallus stage it had transferred to a *Todea superba* frame, these two heavily tasselled from the beginning. I wait a little, and behold here and there generally there are fronds arising among the seedlings, which promise not only to equal the parent at its best, but even to surpass it. Here is inconstancy with a vengeance, but by no means one of the worst cases, for many a presumed good find has reverted altogether when removed from its birthplace, never displaying its peculiarities again. That this

CAPACITY OF SUDDEN VARIATION is not always confined to a single spore is evidenced by the fact that under cultivation instances have been known where a number of exactly similar plants have appeared which have been extremely different from the parent. I have a very dwarf and congested form of *Blechnum Spicant* raised from B.S. strictum of Barnes, of which I am informed by the raiser fifteen plants made their appearance, yet no one would credit the parent with such offspring unless on the very best evidence. A still more remarkable case occurred some short time back amongst my own sowings. I sowed spores from a very finely cut form of plumose *Athyrium* (*A. Filix-femina plumosum elegans*, Parsons) of purely normal outline, yet among a large batch of plants only one resembled the parent; the whole of the rest were heavily crested on tips of frond and pinnae, most of them symmetrically, but some were irregular. As the sowing was a very special and unmixed one and duly registered, and as, moreover, I have never sowed spores from a plant similar to the resulting ones, I am quite sure of their origin. They all, moreover, possess the plumose character of the parent. It is a well-known fact that Ferns otherwise normal develop occasionally some

LOCAL ECCENTRICITY which is liable to affect the spores borne in its immediate vicinity. There is, for instance, a very finely crested *Gymnogramma* (*G. Laucheana grandiceps*) raised by Dixon, Hackney, some years ago, and the raiser informed me that upon an ordinary plant of *G. Laucheana* he noticed the tip of one of the pinnae merely dilated, and as it bore some sori, he sowed it, the result being a house full of densely crested plants. It has, therefore, suggested itself to me that many of the varieties found may originate in a similar way, though this, of course, does not detract one iota from the singular transformation of the germ which must precede the appearance of the transformed plant. Is is also manifest from the case of the plumose *Athyrium* just described, that the abnormality is by no means necessarily visibly shown in the parent. The most common form of variation is that of crestation, varying from merely division of the tip of the frond to an indefinite ramification of parts forming a ball like *Athyrium F.-f. acrocladon*. The other forms are enumerated, but may be roughly classed under the following heads—Depauperation, the extreme form of which is the reduction of the plants to mere midribs; Dwarfing, implying merely reduction in size; Congestion, where the spaces between the

divisions are so reduced that the parts more or less densely overlap and crowd each other; Plumation, which is generally accompanied by partial or entire absence of spores, and which consist in a greater foliaceous development, apparently produced at the expense of the spores. Several of these classified eccentricities may be conjoined in one and the same plant, as, for instance, in *L. F.-m. angustata cristata congesta*, where the ordinary lanceolate frond of the Male Fern is narrowed to about an inch in width, is extremely congested and finely crested, this being, I believe, the result of three separate sports; first a natural wild sport—viz., the crested, but otherwise normal form, a spore of which gave a narrowed form from which, I believe (though I have not its history), the congested form was raised. Besides these classified forms of varieties there are hundreds which can only be ranked as oddities; such as, for instance, the cornute forms which have arisen in several families, where the midrib is suddenly extended from the surface of the frond, like a Thorn; the proliferous forms, where young plants bud out in the most unexpected places; the serpentine forms, where the ordinary shuttlecock shape is resolved into a sort of Medusa's head, each frond coiling away from the crown and twirling about like a snake. Mr. G. B. Wollaston has a *Polystichum* answering this description exactly. Then there are the marginate forms, where regular ridges are developed on either side of the frond; pociiform and truncate varieties, where the frond suddenly stops and develops a pocket, and so on *ad libitum*. With regard to

PROLIFERATION, I should like here to record the fact that in my collection I have recently found a seedling *Lastrea dilatata* bearing a young plant on the first frond evolved from the prothallus. A plant of *Asplenium Adiantum-nigrum* var. *microdon* has developed a young plant in the axil of one of the pinnae. So far as I know, proliferation has not been recorded in connection with either of these species.

AZALEA ROSÆFLORA.

THIS Azalea differs widely in many respects from the other evergreen kinds grown for greenhouse decoration, and commonly known as Indian Azaleas, for it will, in a gentle heat, flower throughout the autumn and well on into the winter, while if kept cool and put into a little heat after Christmas it will be in full bloom early. Another distinctive feature is the dense, much-branched habit of growth, by which alone it is readily distinguished from any other kind; and yet a third is the double blossoms, which gave rise to its name of *rosæflora*. The habit of the plant is that of a dwarf dense hemispherical bush, and when in thriving condition it is, during the flowering season, quite a mass of blossoms. Its flowers are about 2 inches in diameter and of a pleasing salmon-pink colour. It is when the blossoms are but partially expanded that their resemblance to a Rose is most strongly marked; when fully opened the origin of the specific name is not so apparent. Like the Indian Azaleas, this kind needs when growing a warm, moist atmosphere, in order to ensure good quick growth, and then the wood can be well ripened out of doors during summer; unless this is done, the immature shoots are liable to decay in winter. This Azalea is a native of Japan, and is also known under the names of *Rollissoni* and *balsamæflora*. Its propagation is by no means difficult; if the young shoots are taken off when the plant is in a growing condition, they root readily enough. A good way in which to treat the cutting is as follows: If a close propagating frame exists in a house kept at an intermediate temperature—such, for instance, as is so valuable throughout the year for striking all kinds of things in—this will be the very spot for this Azalea; but if no such convenience exists, bell-glasses must be used, as, from the soft delicate nature of the cuttings, no hopes of success could be entertained unless they were sufficiently protected from the air to prevent flagging. Four-inch pots are a useful size if there is a place for their reception; but if it is necessary to employ bell-glasses, of course the size of the pots or pans must be de-

* Compare the normal *Athyrium* with the best plumosum and the difference is as great as between a common goose feather and that of an ostrich.

terminated by the glasses available; small rather than large ones should, however, be aimed at. The pots must have sufficient drainage in them to allow for 2 inches of soil, which should be very sandy peat sifted fine, with, if possible, a little pounded charcoal. A slight layer of pure sand on the top should be added, and when watered and allowed a little time to settle, all will be ready for the insertion of the cuttings. A good length for them is from 3 inches to 4 inches, and the bottom leaves having been removed, the cuttings should as quickly as possible be inserted in the pots, which when filled must each have a thorough watering, and be placed under cover without delay. Ordinary routine is then followed as to shading, watering, and other attentions till roots make their appearance. They will not take more than a month or six weeks to strike, unless allowed to flag at any time, when the action of rooting will be retarded. When struck, air must be given by degrees, and as soon as possible the plants should be potted off. Small pots with plenty of drainage should be chosen, and they must be encouraged to make further growth the first season, for if put in early in spring there is still some time for growth available. Some fine charcoal mixed with the potting soil is of great assistance, as the delicate fibres soon surround the little knobs and quite take possession of them. In order to encourage more vigorous growth I have grafted this *Azalea* on some of the stronger-growing common kinds, but though the shoots show that the object aimed at has been attained, yet, somehow or other, plants thus treated are not so attractive as little bushes on their own roots. It is no doubt owing to the slowness of growth (during its earlier stages especially) that we so seldom see this *Azalea*; it has been known in this country for years, but it is still nevertheless quite an uncommon plant. H. P.

Omphalodes longifolia.—Good blue flowers are always welcome in the garden; hence the value of *Veronicas*, *Gentians*, and some of the *Borage*-worts, of which this plant and the lovely *Lithospermum* are members. A friend of mine always calls the *Borages* members of the "Claret-cup family," and, after all, there are many garden flowers less effective than is the type of this *Natural Order*, *Borago officinalis* itself, of which there are sky-blue and white-flowered forms. Even the delicate little annual called *Venus's Navelwort* (*Omphalodes linifolia*) is very pretty as seen in a group or mass, but for intensity of blue, *O. longifolia* has but few competitors. Here it grows and seeds freely, and seedling plants are, we find, the best. Strong plants of it are now 2 feet in height, and very showy beside green-leaved *Ferulas* and white *Columbine*. The colour is a good deep gentian blue, and as such it will be appreciated, and deserves a place wherever herbaceous perennials are grown. These *Borages* yield us some charming garden plants. *O. verna*, to wit, is a gem in its way, and the earliest of its race to bloom; *O. Lucilæ* is another gem on soils—as in Mr. Ewbank's garden, I hear, in the Isle of Wight—where it luxuriates. *Onosma tauricum* is another beautiful thing, as are nearly all the *Lithospermums*.—B.

Dianthus alpino-barbatus.—A hybrid raised, as I believe, by Mr. Lindsay in the Edinburgh Garden between the two species whose names it bears. It is a robust free-blooming little plant well worth culture, and as it makes a useful border plant, it may be grown by those who fail with its more capricious parent, the dwarf rosy *Dianthus* of the Alps. Its flowers are now opening on neat Sweet William-like stems, and are curious as affording an illustration of colour-development under the influence of sun-light. The flowers are pure white the first day they open out from the brownish purple bud; the second day they have deepened into rosy pink or peach-blossom tint; and the third day they

are deep rose, deeper even than that of *D. alpinus* when at its best. This tendency to change colour is derived no doubt from the *D. barbatus* parentage, some of these flowers changing colour in a similar manner. This hybrid is a very welcome addition to an already popular family, and deserves a place wherever hardy plants with a history are appreciated. A few cuttings should be taken off and rooted every year, so as to keep up a supply of young specimens. Treated like pipings of *Carnations* or *Pinks*, they rarely fail. Plants of it now blooming at 6 inches to 12 inches in height are very ornamental.—F. W. B.

BRAMBLES AND THEIR CULTURE.

WILL any of your readers kindly furnish a hint or two about the cultivation of Brambles? Do they require a particular kind of soil and much sun; will they bear fruit if grown against and trained along a wall; what kinds are most suitable for cultivation; also when should they be planted?

BETA.

* * The Bramble, Raspberry, Dewberry, and Cloudberry are included in the genus *Rubus*. *R. rhamnifolius* and *R. corylifolius* furnish the Blackberries of our hedges, and are well known to every schoolboy. In Herefordshire many tons are gathered annually and sold to agents, who send them to the large towns in the north, where they are used for dyeing or converting into jam. The large-fruited varieties, principally from America, are by no means fastidious as to soil, provided it is well drained, warm, and deeply cultivated. If poor and heavy, it should be well manured after it has been cleaned, when it will be ready for planting, much as we plant Raspberries. The distance from row to row must, however, be great, as all of them are wild, rampant, or rambling growers, and the space allotted to Raspberries would soon become an impenetrable mass, through which neither man nor beast could force their way. In American field culture we learn that the young canes are planted 3 feet apart in the rows, and 8 feet from row to row, and thus form hedges laden with fruit with alleys between them for the convenience of gathering, trimming, and cultivating. After the planting season is over, or early in the spring, the young canes are shortened back to within 5 feet or 6 feet of the ground. Suckers are thinned out, much as we thin our Raspberries. Mulching is applied, and the fine climate soon forces rapid and fruitful growth. Very little has been done with these Brambles in this country, and it is doubtful if, under the best of management, they will ever become as fruitful as they are in the New World. Still, the experiment is well worth the trial, and this appears an opportune time to commence, as we are looking forward to a run of hotter and brighter years than we have had of late. The best time to plant in this country is early in the autumn, say October, when the young plants should be well mulched to protect them from frost and drought through the winter. Stakes should then be driven into the ground, or rustic trellises provided for training purposes, when Raspberry treatment will apply. Old walls or wooden fences are suitable training places, and can, of course, soon be covered; but, unless the soil is open to solar heat and the canes are fully exposed to the sun, the plants will be more ornamental than fruitful. Indeed, it is a question if this genus has not been overlooked and neglected by owners and planters, who might turn many an old tree or bare rock into a pleasing and graceful object by putting in a few plants of the Lawton or Parsley-leaved varieties and leaving them alone. We lately saw plants of the first in company with the cultivated Raspberry in a shady corner where the soil is fat and good, but the sun rarely reaches the roots. A 9-foot wall was beautifully covered with foliage, and some of the growths were making a rapid descent down the other side, while a few had taken an upward direction over the branches of an old Larch growing nearly close to the wall.

Fruit from plants under such conditions can hardly be expected, at least in quantity; but a picture of Nature's own painting is there, and it is well worth imitating.

VARIETIES.—The best known varieties in this country are the Lawton, the Dorchester, Newman's Thornless, and the Parsley-leaved (*Rubus fruticosus laciniatus*), than which nothing can be more beautiful for clambering over unsightly objects. They have in America the Early Harvest, the Kit-tatinny, and Wilson's Early. The last, if one half that is now being said about it in current advertisements be true, will certainly astonish all creation with big Blackberries.

Eastnor Castle, Ledbury.

W. COLEMAN.

Sweet Woodruff.—The daily papers are at it again, and the latest discovery is that tea may be made of dried Woodruff leaves as imported from Germany. The fact is that the Woodruff is a common plant in most of the woods in England, so that we need not import the thing at all. Besides, it is very questionable if any infusion of the dried leaves of this aromatic little herb would excel or even equal in freshness and delicacy the mai-trauk, an early summer beverage commonly used in Germany, and made by infusing a few fresh sprigs of the Woodruff, or Waldmeister, as it is there called, in a vessel of water or wine, a slice of Orange or Lemon, and the whole sweetened to taste with Rhenish sugar. So cool, fresh, and inspiring is a good draught of this favourite tippie, that the first draught of it calls up a rash resolve to taste nothing else while a supply of this cooling beverage is to be had. Even our best made claret cup does not quite represent it, and the wonder is that this mai-trauk has not become as much of an institution at our own picnics and garden parties as it has with our cousins abroad. A sprig or two of Woodruff may be added to iced claret, and will be found agreeable to most palates. A good tuft or two of this fragrant little weed is by no means out of place in the garden. It likes partial shade, and grows best in moist, stony soil, forming a sheet of white blossoms in May or June.—F. W. B.

QUESTIONS.

5503.—**Old Roses** (p. 557).—What is the name of the book quoted by "J. C. C.?"

5504.—**Mildewed Peach trees.**—I have lately taken a place in which there is a long range of Peach houses, and in which the trees are badly mildewed. I gave them a syringing with a mixture of sulphide of potassium, and although I gave it according to the instructions on the wrapper, I find it has burnt the leaves a good deal, and some of them are falling off. Will some of your readers kindly tell me what course to take under the circumstances? The fruit does not as yet seem affected, and I hope it will ripen properly. Will next year's crop be affected by the trees losing their leaves?—R. M.

LATE NOTES.

Cattleya Mendeli leucoglossa.—This beautiful variety was shown last week at South Kensington by Mr. De B. Crawshaw, Rosfield, Sevenoaks, and we by mistake called it *C. Mossie leucoglossa*. It is among the most distinct forms of *C. Mendeli* we have seen.

Names of plants.—*R. A. T.*—1, *Diplacus glutinosus*; 2, *Centranthus ruber*.—*B. E.*—1, specimen insufficient; 2, *Cassia corymbosa*; 3, *Chrysanthemum frutescens*; 4, *Asplenium Fabianum*.—*R. V. & Son.*—White *Orchis*, *Habenaria bifolia*; purple, *Orchis mascula*.—*Anon.*—1, *Iris spuria*; 2, *I. Guldenstedtiana*; 3, variety of *I. plicata*; 4 & 5, *I. graminea* (various).—*Cyrtomium falcatum*.—*F. A. C.*—*Weigela amabilis*.—*W. J. Bean.*—*Euphorbia Cyparissias*, *Gemsta auxantica*, *Salvia verbenacea*.—*G. Thompson.*—1, *Bartsia Odontites*; 2, *Epilobium roseum*; 3, *Geranium rotundifolium*; 4, *Veronica Chamedrys*; 5, *Philadelphus coronarius* (Mock Orange).—*T. W. K.*—*Diosma ericoides*.—*W. R.*—We do not attempt to name varieties of *Iris*; your No. 2, however, we know is *Victorine*.—*E. F. C.*—1, Oak gall; 2, *Gymnadenia conopsea*. 3, specimen too poor to name.—*J. C. L.*—1, *Tragopogon pratensis*; 2, *Potentilla rupestris*; 3, *Orchis purpurea*.—*C. M.*—*Lelia purpurata*.—*A. F. O.*—1, *Polygonum cuspidatum*; 2, *Leucothoe axillaris*; 3, *Andromeda polifolia*; 4, *Kalmia glauca*; 5, *Colletia cruciata*. Send better specimens of others.—*C. Westrop.*—1, cannot name, send again; 2, *Pavia macrostachys*; 3, *Keria japonica* fl. -pl.; 4, *Rhamnus alaternus variegatus*.—*G. T.*—1, *Pilea muscosa*; 2, *Linum flavum*; 3, *Philadelphus coronarius*; 4, *Weigela amabilis*; 5, send in flower.—*Anon.*—1, *Salix pentandra*; 2, *Amelanchier canadensis*.—*C. A. P. R.*—*Staphylea pinnata*.—*E. F. C.*—*Chelidonium majus*.—*R. P.*—White Beam tree (*Pyrus Aria*).

WOODS & FORESTS.

PINES FOR PROFITABLE PLANTING.

IN recommending foreign trees to be grown in this country, it is well to be cautious in praising any particular tree, and, above all, to be in a measure sure of the general adaptation of the tree or trees in question as to whether they are considered likely to prove valuable to those who plant trees for profit. To speak positively of the fitness of this, that, or the other foreign Pine, and to urge the planting of such on a large scale is a doubtful and often a mischievous proceeding. It would be highly injudicious to plant a country or any large part of a country with trees the qualities of which are so little known, if at all, and the planter who would over-plant a property with such doubtful trees would be very indiscreet.

The Austrian and Corsican Pines are doubtless trees possessing some good qualities, but, on the other hand, possess many bad ones. To say that they ought to take the place of the Scotch Pine in plantations formed with a view to profit would be imprudent. They will not compare in a single quality with the Scotch Pine, except one, and that ornamental only, which is of small consequence in a pecuniary point of view. It cannot be too often reiterated, especially when sentimental fancy is likely to get the better of the more stable judgment, that the chief end in growing trees is profit. And the trees most suitable to realise such an end are those that are natives, or those that are long since become naturalised, and therefore much on a par with natives, and best adapted to fulfil the anticipated results. These points are apt to be forgotten in the desire for novelty and change; as a rule any introductions within the last fifty years or less should not be excessively planted, save as mere experiments, until it be certain that they will retain all their indigenous qualities in their new conditions. To test that, they will have to undergo much and dissimilar treatment, for they cannot be deemed of general utility till they have been so tested.

Now, the Scotch Pine will grow in any soil, situation, and climate in which the Austrian and Corsican Pines will grow, but these two Pines will not grow in any soil, situation, and climate in which the Scotch Pine will grow. What is here intended by growing is growing to yield valuable timber. Hence the Scotch Pine is of much greater importance (as a timber tree) to the British planter than either of these others. But to compare the qualities of these three Pines more fairly, let us do so from their earliest existence, or as near to that as possible, beginning with the seed.

The Austrian and Corsican Pines contain a much larger quantity of spurious seed than the Scotch Pine in any given weight. The vitality of the Austrian Pine seed is at least 70 per cent. lower, and that of the Corsican Pine much lower still, than the Scotch Pine; next in the seedling stage, the death-rate of these foreign Pines is greatly in excess of the Scotch Pine, that by the time they are fit to plant out in the forest this has grown to be very great. The Scotch Pine is fit to plant in the open forest ground after being once transplanted, while the Austrian and Corsican Pines must be several times transplanted ere they are fit to plant out, and even after much care in seeking to supply them with plenty of roots (which they are tardy to obtain), yet the death-rate again will probably be very high. The Austrian and Corsican Pines become, moreover, a prey to the Silver Fir bug, and succumb easily to its attacks. I never saw a Scotch Pine so succumb; indeed, I never saw more than one or

two Scotch Pines so infested, from which they appeared to suffer no injury and grew out of very rapidly.

Now, viewing the large primary cost there must be in the establishment of a plantation of any one of these foreign Pines, it is not easy to see how they would repay the planter. Their timber would require to be two or three times the value of the Scotch Pine at the period of final cutting to be then of equal value, which they are not likely to be in either case. The Austrian Pine produces a very coarse and inferior timber.

Some may think that I am biased against these Pines, but that is not so, as I have a particular fancy for both trees; which, nevertheless, I cannot allow to obscure the points that seem to me to be their real worth as timber trees in this country. I have seen both of these Pines making excellent growth in low-lying sheltered sites, and the Corsican is a free grower in such conditions, and the Austrian even in a marine atmosphere much exposed to severe tempests making astonishing progress. Still, I never saw either do much good on bleak moorland slopes, hundreds of feet above sea level, on which the Scotch Pine thrives like a Mushroom, compared with their puny weakly attempts at growth. Pamper these Pines with selected soils and situations, and they may produce as much and perhaps as valuable timber as the Scotch Pine; but put them on terms of evenness as to all conditions, and they will be nowhere in the trial. The Scotch Pine, after the Larch, is the best Fir for general planting and produces heavy useful timber. When and how the Austrian and Corsican Pines may become valuable timber trees in the forestry of this country will be when, like the Larch, the progeny of the future can be reproduced from trees grown in this country, and not only acclimatised, but legitimately naturalised. J. F.

NOTES.

Pollard Elms in avenues.—It is perhaps hardly fair to judge the effect of a tree just now, when it is enveloped in leaves, as the most unsightly object cannot fail to appear beautiful. This is especially true of old pollards. It does not always follow that a tree must be ugly because it is a pollard, but it is equally certain that very many objects which adorn the landscape are not worthy of the name of trees at all. Notwithstanding this, I know plenty of fine pollards, and some of the most notable are Elms in avenues. Some of these trees, I think, must have had their tops broken in a gale, and the others subsequently headed down to correspond with them. At any rate, their mutilation has been very successful, and the sturdy stems of the old trees and their numerous young branches are very fine.

The Ash as an isolated tree.—The Ash is not thought much of as an isolated ornamental tree, and where there are plenty of other subjects more suited it would be bad policy to adopt it to any extent for the purpose, as its wood, when the tree reaches the age to become effective, would be deteriorating. I know several large trees which, if their timber value had been considered, should have been felled many years ago. Their situation, however, is such and their form so good, that in the interests of the estate I should have hesitated to fell them. I have no doubt that many instances of trees being left to fall into decay have arisen from the same cause. When an Ash begins to show signs of weakness at the extremities of its branches, I take it that it ceases to be ornamental; but before this occurs the tree itself sometimes loses its timber value.

Oak woods on stony soils.—The best Oak with which I am acquainted grows on clay, and I question if there is better to be had. This tree, however, is by no means confined to such soils, and it is not uncommon to find the Oak growing in very stony places. In such situations I have never seen it

attain very large dimensions, or, more correctly, to grow to any great height. It seems to grow on to a height of some 20 feet and then become stunted. Such trees as these of course have their uses, but will never reach a high figure in the market. Notwithstanding this there is something very picturesque about these low Oak woods, and the climbing and trailing plants by which they are generally encumbered. One of the commonest of these is the Traveller's Joy (*Clematis Vitalba*), which seems to luxuriate in shallow stony soils. In some respects this may be looked upon as a pest, but now and for the remainder of the season it is one which can be tolerated. In one of these dwarf Oak woods I have lately been admiring some masses of this climber. In certain instances it has grown completely up the stem of the tree and is now festooning the lower branches of it. The loose habit of its growth ought not to affect the trees to any extent, and I do not think it would at all if the trees themselves were thriving. There is another climber too which sometimes finds a place in these woods—the Bitter Sweet (*Solanum Dulcamara*); this is not so abundant as the Traveller's Joy, but where it does occur, it is very pretty—the blossom and subsequently the fruit.

Scotch Firs in hedges.—On the Gloucestershire hills this is a very common tree in the hedge. Where the fences consist of stone walls, lines of Scotch Firs are often found beside them. It is a kind of tree which seems a little foreign to what one would expect to see in a hedgerow, but in these high situations it is not perhaps altogether out of place. There is one thing about it which may be worth counting upon, and that is, if low-branched trees are objected to as damaging to the field crops, the Scotch Fir, in the form it generally assumes, does not possess this disadvantage, as its stem is bare for a sufficient distance to admit light, air, and sunshine. On the other hand, this habit of retaining no branches for a considerable height tells against its shelter value. A low branching tree with its foliage always upon it would make a capital shelter or screen. Of course no hedge would grow under it in this form, but there would be the alternative of forming the hedge of the tree itself. Whilst speaking of the Scotch, it may not be amiss to note that many attempts are evident to propagate the Spruce on these hills. In each case it has been more or less a failure. The Larch, Scotch, and Spruce are each found here. The Larch grows fairly well, but not to any great height. Its size in proportion to its height is generally greater than when grown lower down in the valleys. The Spruce in the valleys grows to a good size.

The best Elm for hills.—In the district of which I have been speaking in the foregoing note, both the common small-leaved and the Wych Elm can be seen, each in the positions most suited to them. On the summits of the hills and on the hillsides the large-leaved tree predominates, and just now it carries immense quantities of seed, but in the valleys the common English species is seen as far as the eye can reach. There are, of course, English Elms at the higher level, and Wych or Scotch Elms to be found in the vales, but generally the distribution is on the lines indicated. The specific name of mountain Elm seems to have been well applied. Like most other trees which affect elevated places, it does not grow to very great heights, but forms a fine spreading head. An avenue of these Elms on the summit of a hill near which I have lately had occasion to visit forms a conspicuous and pleasing object. By the planter it was evidently intended as an approach from the main road to a residence on the slope of the hill. The correctness of judgment in selecting this tree for the purpose is apparent, although the intention has not been followed up beyond allowing the trees to mature. The avenue is flanked on each side by a large group of Beech.

Stone wall fences.—There is nothing very picturesque in an ordinary stone wall, but where stone is abundant and lying, as it often does, upon or immediately underneath the soil, it can be made to form a good, lasting, and inexpensive fence. What perhaps is more important still, stone walls can be employed where Hawthorn would scarcely succeed. There are various ways in which these walls are built. Some

are formed of the stones almost as they are collected or quarried, and without any attempt at using mortar. These walls, when made of a sufficient thickness in proportion to their height, say the thickness a quarter of the elevation, *i.e.*, a 4-foot wall to be 1 foot in thickness, will withstand a considerable pressure. The drawback to walls without mortar is that they always present a more or less ragged appearance, or, at any rate, require a little attention constantly to prevent their doing so. A plan which is often adopted, and which is certainly more satisfactory, is to use mortar for a few courses once or twice in the height of the wall, and to finish with a rough mortared coping. The price for this work, *i.e.*, partly dry and partly mortared, in Gloucestershire runs to about 1s. 3d. per pole for each foot in height, or, say a wall 5 feet high built in the way described would cost 6s. to 6s. 3d. per pole run to erect. I remember reading something of this question of stone-walling for plantation purposes in one of the early numbers of *Woods and Forests*. I believe it was in an interesting communication from Viscount Powerscourt on planting in Ireland. There is no doubt that in many places such walling would at once make an effective and cheap fence to new plantations. The accessibility to suitable stones would of course have a great deal to do with its feasibility, but where the conditions are favourable, there are many reasons why such fences should be adopted. There is greater reason for their use for plantations than round ordinary fields, as when the trees in a plantation have grown to a size sufficient to be beyond the damage of cattle, the walls being kept intact is not so essential as with a field.

D. J. YEO.

THE BEECH IN GLOUCESTERSHIRE.

GLOUCESTERSHIRE as a county produces good Beech; in fact, the best I have met with is in the Cotswold district in the neighbourhood of Cirencester. Among the hills and valleys of West Gloucestershire this tree is also frequently found. Much of the elevated and exposed land is of a light, stony nature, and with a more or less rocky subsoil—generally of the oolite formation. Where the Beech is grown in plantations in such positions as this it produces timber of fair quality; but isolated, with, of course, some exceptions, it is of more value for its shade and shelter and picturesque effect than for any special worth of its wood. To come to a satisfactory conclusion as to the conditions affecting the growth of this tree will require more than a cursory study. So far as appearances go, there is very little difference in the nature of the soil between the two districts of the county of which I have spoken, and I do not think the elevations vary much. I have no exact data by me; yet the character of the wood, in respect of its freedom and clearness of growth, is as unlike as possible. With us in North Wiltshire, on the same geological formation, but in a different division of it, the Beech is very seldom found in the hedgerows, but on these Gloucestershire hills, especially on the more exposed spots, it seems to be of more frequent occurrence than almost any other tree. There cannot be two opinions about it as a shade tree, as few species have more abundant branches and foliage. Double hedgerows where it grows assume the dimensions of woodland belts. Just now in June the Beech is at its best. In addition to the hedgerows there are numbers of irregular clumps, and also formally planted groups on the Gloucestershire hills. This seems a more suitable way of growing it. On arable land, I suppose, the agriculturist would not favour it much, but on the pasture small colonies of it are valued. In one or two cases in particular I noticed some almost circular groups a few days ago. They were growing in a large pasture field, and, besides showing grandly in the landscape, they were appreciated by the farmer. The sheep, by which the land was being fed,

very frequently found their way beneath these Beech groups, and cattle in other cases never failed to appreciate the shade afforded. There is something in the way in which such groups are planted. In the instances to which I have just referred, from a short distance the trees appeared to be a solid mass, but on close inspection they turned out to be very different. They were composed of a single ring, with a perfectly hollow centre. These groups have grown to a considerable height, and have abundant branches and foliage on the outside. Within they are comparatively bare for a distance of perhaps 40 feet. The tops, however, spread and entirely intertwine overhead, and thus form a magnificent leafy dome, with a soft grassy carpet under foot. It is a generally accepted belief that vegetation will not thrive underneath the Beech. Where the branches are very low and dense the ground occasionally is certainly quite bare, but under these circular groups the Grass seems as abundant as in any part of the field.

D. J. YEO.

Squirrels and trees.—June is the month in which squirrels do most damage to Pines and other Fir trees. Wherever, therefore, these vermin are numerous, foresters and others in charge of coniferous woods should keep a sharp look-out for the squirrel, which is one of the worst enemies of trees. A good time for destroying this creature is about September. At that time it may be found readily, perched somewhere on the tops of lofty Larch trees or bowered among their branches, with its tail laid over its back, dissecting scores of cones for the sake of the seeds. The squirrel is no sluggard, but works hard and lives well. Larch cones come to maturity early, and where squirrels are plentiful they are sure to be found feeding on the seed of the Larch about the time mentioned, and therefore an easy prey to powder and shot. Another animal equally deserving of destruction is the crossbill, a savage and destructive bird, devouring no end of Conifer seed.—GLENDYE.

Barberry for covert.—For game covert I find Berberis Darwini is one of the best shrubs to plant. It does not dislike shade, and will grow as freely as the common Barberry, so much used for forming underwood in places where little else will grow, and pheasants feed freely upon the berries when ripe. Branches of this shrub, cut before the flowers are quite open, last a long time in perfection when put into vases filled with water, or thin sprays may be mixed with other cut flowers. Young plants of it may either be raised from seed sown in rows 12 inches apart, or sown broadcast upon beds in March. The young seedlings should be transplanted into nursery rows the second autumn after sowing or early in winter. Young plants may also be grown from layers laid down early in the autumn. Bend some of the outside branches close to the ground, then partly cut them through with a sharp knife, and peg them down with a strong wooden peg, covering them over with some fine soil; they will soon emit roots, and be ready to be severed from the main branch during the following autumn, when they may be planted in nursery rows until properly established, and in the next autumn or winter they may be planted in their permanent places.—W. C.

The woodpeckers.—One would think these birds must have a hard task to find food if the work they make in the bark of trees affords any indication of the labour of finding it; but their glossy plumage, strong flight, and abundance in some woods do not favour the idea they suffer any hardship in that respect. It is a mistake to suppose that they frequent the Ash tree or Beech more than other trees, and that they do damage to healthy timber. Two species, the green and the great spotted woodpecker, are common in the decaying Oak forests about here, and are always to be found busiest among the old trees on which the bark is hollow and decaying. They seem generally to begin at the base of the tree, and the number of deep holes which they will make in the thick part in a short time is wonderful, and their holes are always a sure sign of decay in the tree. I have examined hundreds of Oaks fairly riddled by

these birds, and they have always been decaying trees often in an advanced stage of decline, with the bark so loose that it could be pulled off in sheets by the hand.—ANON.

DOUGLAS SPRUCE AT HOME.

(ABIES DOUGLASSI.)

THIS tree is undoubtedly the king of the Spruces, as the Sugar Pine is king of the Pines. It is by far the most majestic Abies in the American forests, one of the largest and longest-lived of the giants that flourish throughout the main Pine zone, often attaining a height of nearly 200 feet and a diameter of 6 feet or 7 feet. Where the growth is not too close, the strong, spreading branches come more than half way down the trunk, and these are hung with innumerable slender, swaying sprays, that are handsomely feathered with the short leaves which radiate at right angles all around them.

This vigorous Spruce is ever beautiful, welcoming the mountain winds and the snow as well as the mellow summer light, and maintaining its youthful freshness undiminished from century to century through a thousand storms. It makes its finest appearance in the months of June and July. The rich brown buds, with which all its sprays are tipped, swell and break about this time, revealing the young leaves, which at first are bright yellow, making the tree appear as if covered with gay blossoms, while the pendulous-bracted cones with their shell-like scales are a constant adornment.

The young trees are mostly gathered into beautiful family groups, each sapling exquisitely symmetrical. The primary branches are whorled regularly around the axis, generally in fives, while each is draped with long, feathery sprays, that descend in curves as free and as finely drawn as those of falling water.

In Oregon and Washington territory it grows in dense forests, growing tall and mast-like to a height, it is said, of 300 feet, and is greatly prized as a lumber tree. But in the Sierra it is scattered sparsely among other trees, or forms small groves, seldom ascending higher than 5500 feet, and never making what would be called a forest. It is not particular in its choice of soil—wet or dry, smooth or rocky, it makes out to live well on them all. Two of the largest specimens measured in the Yosemite Valley exceed 8 feet in diameter, and are growing upon the terminal moraine of the residual glacier that occupied the South Fork Cañon; the other is nearly as large, growing upon angular blocks of granite that have been shaken from the precipitous front of the Liberty Cap near the Nevada Fall. No other tree seems so capable of adapting itself to earthquake taluses, and many of these rough boulder slopes are occupied by it almost exclusively, especially in Yosemite gorges moistened by the spray of waterfalls.

Removing timber.—The discussion which has recently taken place in these pages about timber removal does not appear to have brought out anything very definite. "D. T. F." recommends the use of sledges, but "Yorkshireman" scouts the idea. The want is something between dragging the tree entirely on the ground and the use of the two-wheel carriage to swing one end. I have thought of an arrangement which I think would meet the need. The appliance is simply the forked branch of a tree, with a cross piece bolted to it, and a loop of iron at the end to which to attach the horses. Such an apparatus could be very easily constructed from material which is always at hand where timber-felling has been going on. This would form a sledge upon which the top end of the tree could be rolled and chained, the butt end trailing along on the ground, as with the two-wheel carriage. A branch so bent that the front part, where the iron loop is shown, would be well off the ground should, if possible, be used. The only working up necessary would be to hew the under surface, which would be in contact with the ground, to a fair degree of smoothness. It is possible some such plan is in use, but I have never seen it. Its adoption would certainly relieve the dead weight of "snagging."—D. J. Y.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

TREES AND SHRUBS.

THE CALIFORNIAN AZALEA.

(AZALEA OCCIDENTALIS.)

It is singular that in California, whose flora is richer than that of any other State of the great North American continent, there are only to be found one Azalea and a solitary species of Rhododendron; whereas the Eastern States are the home of that race of hardy Azaleas from which have descended the countless varieties of the so-called Ghent Azaleas now in cultivation. California's only Azalea possesses, however, a beauty peculiar to itself, and this is the more conspicuous because it is in perfection when other Azaleas—the ordinary Ghent varieties—are either out of bloom or represented only by a few stragglers. While ordinary Azaleas were in full bloom their Californian relative was only in bud, and not until last week did it begin to open its chaste white blossoms amidst its pea-green leaves. This Azalea may really be called a new shrub, for it is known only to a few, although it has been introduced for years. In the Kew arboretum there are a few large bushes of it. It does not differ much from the common sorts, except that it makes a denser bush. Its maximum height is 6 feet. It is not such a free-flowerer as some of the other kinds, but then its blooms are so chaste and delightfully fragrant—like Honey-suckle. "This charming Californian Azalea," says a writer in the "Botany of California," "is the great ornament of the wooded districts. The flowers appear in summer or late spring after the leaves have developed. The bright green foliage makes a fine setting for the large and copious white, or sometimes rosy, flowers variegated with a pale yellow band. It grows along the sides of streams almost throughout the State, and extends to the mountains east of San Diego." Another beautiful phase of this Azalea has escaped notice, and that is its autumn effect when every leaf is dyed with blood-red; indeed, in the Knap Hill Nursery at Woking, where it has been grown for years, its autumn effect is as much valued as its display of flowers. A variety of the Azalea occidentalis is grown at Knap Hill which has the rosy tinted flowers alluded to in the "Botany of California," and some of these were shown at South Kensington on Tuesday last. The flowers are coloured on their exterior with a bright rose-red, particularly on the tube. Too much cannot be said in favour of this charming shrub, which should be better known than it is. Another delightful shrub brought to the front this week is Rhododendron azaleoides, an old variety, and a hybrid between R. ponticum and an Azalea. Its foliage is partially evergreen; its flowers are paler in colour than those of R. ponticum, and possess a delicious spicy fragrance. There are some bushes of it in bloom at Kew now, and they are the more noticeable because no other Rhododendron is in flower near them. It is these very late-blooming Azaleas and Rhododendrons that require to be better known than they are, a statement which also applies to very early Rhododendrons—that beautiful high-coloured race to which belong Russellianum and Nobleanum. These early and late flowerers are desiderata in gardens; we get almost surfeited with bloom and fragrance in the

height of the season, but the early and late-coming-in ones are not so plentiful. True, early flowering high-coloured Rhododendrons descended from the Indian R. arboreum are tender in our climate, or rather their early bloom is liable to be nipped in the bud in severe springs, but then their beauty renders them quite worth cultivating for our enjoyment during the seasons in which they pass unscathed. W. G.

TREES AND SHRUBS IN CAROLINA.

ONE of the greatest charms of the interesting and picturesque region of the Southern Alleghanies, or Blue Ridge, is the constant succession of flowering plants, shrubs and trees, which fill the forests with beauty and line the streams with a fringe of colouring from early spring until winter. Now, the end of April, the woods are decked with the snowy clouds of bloom which hang from the Service trees (*Amelanchier canadensis* var. *Botryapium*), which here grow to a large size, often 18 inches and more in diameter and 30 feet high, the abundant racemes of which appear before the sharply-pointed pale green leaves, and lighten up the deep, dark groves of Rhododendron and *Kalmia* which border the streams. Next come the Dogwoods, with denser clouds of white bloom (the *Cornus florida*), the single flowers of which are often 3 inches across and of a pure creamy white. This tree, with its broad, flattish spreading top, is here exceedingly abundant, forming groves in places on the gentle slopes. The graceful Silver tree, well named from its fairy-like silvery clusters, and also called the Snowdrop tree (*Halesia tetraptera*), accompanies the more robust Dogwoods, and droops gracefully over them.

A more modest plant than the *Halesia* and one related to the *Styrax* family is the sweetly odorous *Symplocos tinctoria*, the Sweet Leaf, whose foliage tempts the wandering cattle by its honey-like taste, and its bright yellow elongated bracted spikes give out a delicious scent. This plant flowers in April, and, with the brilliant clusters of the Azalea calendulacea (the flame-coloured Azalea), which forms large thickets, furnishes the first gorgeous colouring of the early summer. The humble *Epigaea repens*, the well-known trailing *Arbutus* which here carpets whole acres on the slopes of the mountains; the dwarf *Iris* (*Iris verna*) with its pale blue petals, the outer ones marked each with a bright orange spot, and a pretty *Violet* (which I have not yet identified) that covers large patches along the roadsides on the borders of the woods and has been transferred to gardens; all these gaily adorn the dead, brown, leaf-covered ground, and last from April far into May. Following these appear the bell-shaped flowers of the *Magnolia acuminata*, or *Cucumber tree*, light green, tinged with yellow; and the larger blooms of the *Tulip tree* (*Liriodendron Tulipifera*), which here grows 150 feet high and 6 feet or 7 feet in diameter. The Cherry, here an enormous tree, at times 3 feet in diameter of trunk, makes a grand display. *Stuartia pentagyna* (a member of the *Camellia* family), having large, creamy white flowers, is here a tree 20 feet to 30 feet high, and not a shrub, as elsewhere. The sweet, spicy-scented *Calycanthus floridus*, the Spice bush of the northern gardens, covers acres with its rich chocolate blooms, and later on in the season the *Chionanthus virginica*, the sweetly-odorous graceful *White Fringe*, droops over the river banks in company with the *Kalmia latifolia* (Mountain Laurel) and *Rhododendron maximum*, with its enormous trusses of pale pink flowers.

The varied bloom, the deep green of the Laurels, the snowy foam of the cascades, and the music of the rippling or dashing stream make a picture which lives and speaks to you. Then come as these fade the *Mock Orange* (*Philadelphus inodorus* and *grandiflorus*), the *Sour-wood* (*Oxydendron arboreum*), and the white Alders (*Clethra acuminata*), with their white drooping bloom; and still later the *Asters*, *Golden Rods*, and a wealth

of more common blooms which mingle with the tall purple *Eupatorium*, the *Blazing Star* (*Liatris squarrosa*), and the scarlet and gold of the fast fading foliage of the Oaks, and at this time, too, the cornfields are decked with a carpet of *Passiflora incarnata*, gaily pink and purple, and another species with egg-shaped edible fruits, here called *Apricots*. Last of all, the abundant *Wych Hazel* (*Hamamelis virginica*) pushes forth its yellow blossoms as the season closes, and ushers in the winter when all else than this have matured their work of the year.—HENRY STEWART, in *Country Gentleman*.

VARIETIES OF THE FALSE ACACIA.

THE False Acacia (*Robinia Pseudacacia*), regarded from an ornamental point of view alone, is a distinct and handsome tree, while its timber is of remarkable durability, though it has never become so valuable as Cobbett predicted it would. It will thrive in almost any soil or situation, and grows rapidly during its earlier stages. An old tree of this species, with its gnarled and twisted branches clothed with peculiarly furrowed bark, added to the light pinnate foliage and profusion of white Pea-shaped blossoms, is, especially during the early part of the summer, at which time it is in flower, a most attractive and picturesque object; while as the *Robinia* is notoriously very variable, there are a great many distinct varieties, some of which being of lesser growth than the type may be planted in situations where the larger ones would be inadmissible. A selection of the most distinct varieties would include the following:—

AUREA.—When first expanded the leaves of this are a pale yellowish green colour, but after exposure they soon assume a deeper tint and become beautifully golden, which hue is retained throughout the summer. The foliage is not injured by the sun, as many such things are, so that it forms a good subject for association with purple-leaved trees, the contrast serving to intensify the depth of colouring in both. Besides the golden there is also a variegated form, in which the leaves are marked with white, but as a rule the foliage is soon disfigured by hot suns.

BESSONIANA.—This variety is one of the best of trees for town planting, and is indeed now often used for that purpose. It is a quick bold-growing form of the *Robinia*, with large deep-coloured foliage and spineless branches.

CRISPA.—This is more a curiosity than a highly ornamental variety, its distinguishing feature being the peculiarly curled leaflets.

DECAISNEANA.—This is a handsome form, equal in development to the most vigorous specimens of the type, from which it differs more particularly in the blossoms being pink instead of white. This variety is especially worthy the attention of planters for ornamental purposes.

FASCIATA.—The branches of this are as fastigate in habit as those of the Lombardy Poplar, which character renders it at all seasons easily distinguished from its fellows. It is an ornamental member of the by no means long list of strictly upright-growing trees.

INERMIS.—As the branches of the ordinary type of False Acacia are more or less spiny, this differs therefrom in being completely unarmed. There are several forms of the unarmed Acacia, but this and the *Parasol Acacia* are about the most distinct.

MICROPHYLLO.—The foliage of this is unusually light and elegant, while the whole tree, though small growing, bears by no means a stunted appearance. It is well worthy of a place where the more vigorous kinds would occupy too much space.

MONOPHYLLA.—Another curiosity, deriving its name from the whole of the leaflets being often blended into one in the same manner as the one-leaved Ash. It forms a distinct-looking tree of regular outline.

SOPHOREFOLIA.—The unusually dark green leaves of this variety bear a good deal of resemblance to those of *Sophora japonica*; hence its name.

FORTIOSA.—The peculiarly abrupt twisting^s and turnings in the branches of this variety cause it during the winter, when devoid of foliage, to be especially noticeable, but at all times it is readily distinguished from the others.

UMBRACULIFERA.—This, the Parasol Acacia, is usually grafted on a clear stem, when it forms a dense globular head very different from any of the others, but, owing to its formal outline, care must be taken in planting not to overdo it in point of numbers. Though this variety has been in cultivation for many years, I am not aware of its flowering at any time.

There are also other varieties of the False Acacia, but the above list includes the best.

T.

Eucalyptus amygdalina vera.—A few years ago this was brought into notice by Prince Troubetzkoy, and in the matter of hardiness and vigour it seems likely to excel all other Blue Gums. In 1870 Prince Troubetzkoy planted in his garden at Lac Majeur a small specimen of this species, which now has attained a height of nearly 100 ft., and measures over 2 yards round at 1 yard from the soil. It is said that the essential oil which renders the Eucalyptus of sanitary value is more highly developed in *amygdalina vera* than in any of the others, and that the wood is much closer in the grain. In favoured districts where such partly hardy things do pretty well this Eucalyptus would be likely to succeed. *E. amygdalina* is already well known in this country, but it seems to be an inferior tree to the one here described. I do not know whether or not this Eucalyptus is in commerce, but I believe that Prince Troubetzkoy has raised a number of young plants of it. An application to him would probably prove successful, as he is said to be anxious that this kind should get a good trial.—J. C. B.

PLANT NAMES.

THERE is to-day quite a revulsion of feeling among amateurs and gardeners on the subject of plant names, and seeing that a sub-committee of the Royal Horticultural Society has been selected to deal with this matter, so far as it applies to Orchids, a few words on the subject generally may not be unseasonable. Gardening is progressive—more so now than ever before; so much so, that home-reared seedlings or imported varieties—that is, natural seedlings crop up so rapidly, that names do not keep pace with them. Old methods of naming do not keep up with modern progress, and the question now is what, under such circumstances, is the best thing to be done. Broadly speaking, genera and the so-called species may be left to botanical specialists, who are always glad to do the best they can in providing names, descriptions, and figures of the plants in which they are especially interested. It is when we come to consider what are called garden varieties that the trouble begins. Matters would be very much simplified if it were decided once and for all that on no account should Latin names be given either to wild natural variations from any specific type, or to seedling varieties raised in gardens. Nearly all botanists have of late years absolutely refused to be responsible for the names of garden seedlings; hence the naming of these has devolved almost entirely upon the raiser, or upon the nurseryman who speculates on their popularity and ventures to send them out. Prof. Reichenbach has been an exception to this rule, since he has never hesitated to affix a Latin name to the Orchids sent to him, whether species or whether natural or garden seedlings, and against this practice I now protest most strongly. It is bad in principle, but in practice it has led to utter confusion. So much is this the case, that Orchid buyers now-a-days trust to their eyesight rather than to names. But the same is true of nearly all other garden plants. Every batch of seedlings, every consign-

ment of imported plants from abroad may, and often does, contain varieties differing from each other in beauty or in habit so much, that where one individual may be worth a hundred pence, another from the same seed-pod may be worth a hundred pounds. To the botanist pure and simple, one of these plants may not be more interesting than another, but the gardener or amateur collector thinks otherwise. It was long ago proposed in these pages that English names only should be applied to garden seedlings, but we must now go a step further and apply English names to all mere variations of a species or type, be it a garden seedling or a wild seedling variety. Of course, the different origin should be stated, but we may once and for all put down that ridiculous notion of other days, viz., that a plant which varies in the garden is in any essential degree inferior botanically to one which has varied in its native habitat. The same or similar causes have in either case produced similar results, and the only sensible course is to adopt for such plants a universal system of nomenclature.

As we have pointed out already, the naming of garden varieties is, as a rule, objected to by the botanist, and undoubtedly he is right, but when his aid is refused the labour and responsibility of naming devolves on the raiser or on the owner. This is as it should be, for a man who has reared a new plant or discovered one, or purchased one unnamed, has the best right to name it, or at least to suggest the name it is to receive, provided, as a matter of course, that such name is an English and not a Latin one. But in the interests of law and order we want something more than this, and that something is a central body with power to confirm or to reject such names. I have already suggested that the committees of our Royal Horticultural Society should undertake this as a part of their labour, and no good reason has as yet been adduced to the contrary. The only real drawback is that the society itself is at present only partially and not wholly representative of the horticultural interests of this country; but even this difficulty may in time be overcome. At the present moment it is not too much to say that Latin names often mean nothing, for if you write to five different nurseries for, say, *Iris sibirica*, *Masdevallia Harryana*, or any *Odontoglossum*, you are likely to get five distinct forms or variations of the plant named, a result brought about by natural changes, and not by a wrong application of the names themselves.

As to whether changes are more rapid in Nature or in the garden to-day than formerly, or whether our eyes now recognise differences more clearly, is a question we need not stop to solve; be it observation or evolution, the result is the same, and to meet it more names are requisite than were ever before required in the history of gardening. I have lately been making a little study of *Pinguicula grandiflora*, and have already five distinct varieties in size and colour, and am daily expecting roots of a white-flowered form, having already one of the palest shade of rose. But the same is true of nearly every species; make a special study of the individuals from different sources, and you at once find the absolute necessity for different names. I have often thought that, as a last resort, we shall be driven to adopt a numbered list of names on the stud or herd-book principle, but much difficulty and misunderstanding will be removed if we once and for all agree that all garden varieties whatever shall be known only under English names.

F. W. B.

First-class certificates.—"J. C. C." expresses surprise (p. 566) at a first-class certificate being given at a recent meeting of the Royal Horticultural

Society to *Iris Victorine*, a plant which he says he has cultivated for some years, and which is quite common in commerce. That new and rare plants are not the only ones thus honoured by the Royal Horticultural Society is shown by the fact that, in addition to the *Iris* in question, a first-class certificate was awarded this year to the variegated Day Lily (*Hemerocallis Kwanse variegata*), and last year at least three plants that could not claim the distinction of being new or rare—viz., *Angulosa Ruckeri*, *Centropogon Lucyanus*, and *Lilium Parryi*, received certificates. The Lily was awarded a certificate by the Royal Botanic Society as long ago as 1881, and the fact that it was not till last year that the Horticultural Society acknowledged its claim would seem to point out that it had not till then been placed before the committee in a condition to warrant a certificate.—T.

NOTES OF THE WEEK.

Sparaxis grandiflora.—Among the hosts of Cape bulbous plants now in flower none surpass this in beauty. It has flowers 2 inches across and of various colours. Some varieties are yellow, others scarlet and black, and one sent to us by Mr. Kingsmill is of a rich violet-purple, shining like velvet, with white centre. This charming bulb may be easily grown in a pot or frame treated as *Ixias* are.

Strawberry Laxton's Noble.—Some fruits of this new Strawberry from its raiser, Mr. Laxton, of Bedford, show it to be a fine sort, the fruits being large, of an even rounded shape, juicy, and pleasantly acid. Mr. Laxton states that it is an early seedling from Forman's Excelsior, preceding that variety in ripening by a week or ten days, and coming in before Keen's Seedling and Sir Joseph Paxton. It is a vigorous grower and very productive. The fruits sent were picked from plants growing in the open air.

Hypericum chinense is a useful little flowering pot shrub for a warm greenhouse, its flowers being as large and handsome as those of the common St. John's-wort, whilst in habit it is compact, not more than a foot high, the branches numerous and graceful, and the leaves small and light green. It flowers all through the summer, and does not require any special sort of treatment to keep it in health and beauty.

Yellow Scotch Roses.—In THE GARDEN of May 22 "D. T. F." says, in reference to your coloured plate of these Roses, "it is seldom such perfect yellows are found among Scotch Roses." I send you one or two to show that they can be grown in the south of England quite as well coloured as those in your illustration. I also send a very small dwarf crimson one, which I do not think at all common. I found it in the garden of a shooting lodge in Perthshire, and brought away some suckers which flourish here, as do also plants of the white. I have hundreds of yellow Brier Roses now out on one bush.—F. W. Y., *Survey.*

* * * The flowers sent are a pure soft yellow, one of the prettiest true yellow Roses we have seen.—ED.

Single and double Pyrethrums.—The beauty of these hardy perennial plants is fully recognised by lovers of gay border flowers, and now that there is a demand for them, there seems to be no end to the varieties that are being raised. We have before us a gathering of single and double sorts from Mr. Caudwell, of Wantage, who is evidently making the Pyrethrum a speciality. He sends us specimens representing all the colours that have yet been obtained in Pyrethrums, from almost pure whites through bluish pinks to rich crimsons. The singles are, we think, most beautiful, because the golden centres contrast so finely with the florets. Mr. Caudwell also sends us some of his "Wantage Foxgloves," tall, with large flowers, and of various colours—a large white-flowered sort, spotted with purple, being very charming.

Sandersonia aurantiaca.—This pretty plant is now in flower in the Cape house at Kew, and near it there is a plant, also in flower, of the closely allied *Littonia*, whilst in the house adjoining the two species of *Gloriosa* may be seen either in bud or in bloom. The *Sandersonia* is the smallest flowered of the three,

but what it lacks in size is more than made up for by the beautiful yellow and pretty urn-like form of its flowers. These are developed singly from the axils of the linear leaves on tall, slender climbing stems, and they hang downwards on their short thin stalks like large ear-drops. The plant is a native of South Africa, as also is the *Littonia*, and both of them have fleshy tubers, from which the stems are annually developed in spring. They require greenhouse treatment with a sunny position whilst growing, and when at rest, a dry place under a stage or in a cool frame is the safest for them. To start them into growth a little extra heat is necessary, and should be applied about March.

The pink hardy Water Lily.—A flower of *Nymphaea alba* var. *rosea*, sent to us by Messrs Froebel, of Zurich, is of a deeper colour than we have hitherto seen it. The sepals are profusely grained with a rosy crimson, and one can scarcely imagine such a beautiful hardy water plant as this is. We figured it some seven or eight years ago in *THE GARDEN*, but it is yet rare in this country, which is doubtless attributable to the fact that it does not come true from seed. It must be propagated by division. There is not a lovelier sight in the open-air garden than this pink Water Lily in flower amidst the snowy white blooms of the common sort.

Stigmaphyllon ciliatum.—This is a graceful and pretty flowered stove climber, and one which may be recommended for every stove collection, because of its being easily kept in health, its non-rambling habit, and its free-flowering nature. It belongs to the same Natural Order as the genus *Malpighia*, *Banisteria*, and *Brysonima*, in which the flowers have petals with long slender bases, called claws, and fringed or crisped margins. In their size and beauty the flowers of the *Stigmaphyllon* surpass those of the other genera here mentioned; they are 2 inches or more across, bright yellow in colour, and are arranged in axillary racemes all along the string like branches. The leaves are lance-shaped, rather succulent, and the margins are fringed with glandular hairs. A plant may now be seen in flower in the Palm house at Kew.

Brownea princeps.—There are two tall specimens of this plant at Kew, reaching almost to the roof of the Palm house, but notwithstanding special treatment neither of these plants has hitherto borne flowers. In habit there is a marked difference between this *Brownea*, so-called, and the well-known species of this genus, such as, for example, *B. grandiceps* and *B. coccinea*; and there are good reasons for suspecting that what we know as *B. princeps* belongs to some other genus. Flowers will be necessary to settle this point, and we therefore call attention to the fact in the hope that some one may know of flowering specimens of *B. princeps*. We have seen it in Continental gardens under the name of *B. erecta*, which is apparently an older name for this plant than the former. Another name for it is *Theophrasta pinnata*, under which it is figured in Jacquin's "Fragmenta," but whatever the plant may prove to be it is not very probable that it is a *Theophrasta*. The stem is erect, unbranched, unless when compelled to do so by the removal of its top, and its long leaves are pinnate, bright shining green when mature, and a beautiful pale brown when young; they are crowded on the stem and have numerous pinnate stipules or bracts at their bases.

Varieties of Allamanda.—We have received from a correspondent flowers of what are known by him as *A. nobilis*, *A. Chelsoni*, and *A. grandiflora* for comparison with the notes on *Allamandas* published in *THE GARDEN* (p. 400). The last named kind is so well known, that there is little fear of its being mistaken for any of the others, and we suspect that botanists would consider this form of the very variable *A. cathartica* about the extreme limit of the species. But we cannot be as certain of *A. Chelsoni*, which is certainly a form of *A. cathartica*, and, as represented in the specimen now before us, identical with the figure of *A. cathartica* published in the *Botanical Magazine* nearly a hundred years ago. The flowers sent as those of *A. nobilis* are not nearly so large as those described by Mr. T. Moore, who gave that name to a plant which flowered in Mr. Bull's nursery. If our correspondent's plants do not pro-

duce flowers at least twice as large as those sent, he has either got the wrong plant, or *A. nobilis* has deteriorated. We have before seen this small-flowered form labelled *A. nobilis*, but, as was stated in *THE GARDEN* (p. 401), the true *nobilis* is described as having flowers 6 inches across, and the colour is a bright golden yellow, with a few brownish streaks in the throat.

Aquatics at Kew.—The house devoted to Water Lilies and other indoor aquatics at Kew is just now commencing to be attractive, several species of *Nymphaea* being already in full flower, as also are the *Nelumbium speciosum*, *Sagittaria montevidensis*, *Eichornea azurea*, and several other plants of a less showy character than these. Amongst the *Nymphaeas* the pretty little *N. pygmaea*, or, as it is sometimes called, *N. tetragona*, is conspicuous, owing to its numerous pure white star-like flowers floating on the water amongst the leaves, which are about the size of a crown-piece. *N. odorata rubra*, with numerous blush white flowers, *N. odorata delicata*, with flowers of regular form and of the purest ivory white, are particularly good just now. *N. stellata* is represented by several varieties, the last of these to appear being the rich purple, large-flowered *N. zanzibarensis*. We were pleased to learn that the rarely-flowered yellow *Nymphaea*, figured in *THE GARDEN* a year or two ago, is pushing up plump flower-buds. Several new additions have this year been made to the collection, which was previously rich in number of kinds, so that in a few weeks this house is likely to be especially attractive to *Nymphaea* growers. We also noted *Nelumbium luteum* and *N. Leichardti* growing in the tank along with the *Nymphaeas*.

GARDEN DESTROYERS.

THE SLUG PEST.

"D. T. F." SUGGESTS that if any reader of *THE GARDEN* has any better method of destroying slugs than scattering quicklime and soot upon them, he should mention it for the public good. Your columns have already contained much on this subject, and my knowledge has been derived from what I have there read, and from personal application of the methods therein recommended, and observation of results. No doubt a skilled gardener—for he effects with ease what we little peddlers struggle for in vain—can make good use of quicklime and soot, but as both have to be applied absolutely fresh and while the slugs are feeding, and as we are told they feed chiefly at dusk and at dawn, when the light is bad and it is difficult to see one at work, these processes would seem to be attended with some little inconvenience. Against both soot and lime it may be urged that they are horribly unsightly, and against the quicklime that, scattered on plants on which slugs are feeding, it will do more harm than good.

The system I have adopted is, first, counter-feeding; second, prompt destruction. My garden is an old one with an Ivy-covered wooden fence and a long straight bed full of perennials—so full that my friends think it dreadfully overgrown. There are patches of white Rocket, Oriental Poppy, Irises, Peonies, Lilies, Carnations, and so on, and in front of all an alpine rock edging, and then the lawn. Here, then, is an ideal place for slugs, and we have had them in abundance. I put down little patches of bran on stones, or on the bed near any plant which the slugs find toothsome. At night about ten o'clock I sally forth, lantern in one hand and scissors in the other. At each of the little bran heaps used to be—happily, not now—a round dozen or so of slugs; twelve snips across the middle, occupying the fraction of a minute, and my enemies are lessened by that number. The nightly average was about one hundred, but occasionally the sport was good and the bag doubled. The highest record for one night, with an assis-

tant, is rather over 400. Now, however, things are different; so great has been the destruction, that on the best of nights twenty is a good bag, while on ordinary nights there is no sport at all. Great is the change now in the appearance of the plants; instead of unsightly riddled leaves and flowering stems bitten through we have a vigorous clean growth, and even the broad-leaved Plantain Lily is left untouched.

It may be interesting to note the cannibalistic habits of snails and slugs; unfortunately they do not prey on one another in life, but a dead snail or two on the gravel path make an attractive bait. You may find the grey and the black, but especially the great, brown, leathery slugs harmoniously assembled round the remains, along with the common snail and his little flat relative. Still this bait does not compare with the bran, and it cannot be recommended as ornamental.

Reigate.

T. P. N.

ORCHIDS.

Cypripedium Godefroyæ.—Some good varieties of this superb little species have lately flowered in different collections, the last we saw being at Kew, and although but a small plant, the substance, size, and markings of the flower it bears are equal to anything yet seen. There is also a very fine variety of *C. concolor* flowering close to the plant of *C. Godefroyæ*, and one has a good opportunity of seeing how closely these two so-called species resemble each other. Take the yellow out of *C. concolor*, and you have *C. Godefroyæ*. Of course, we could reduce hosts of other species by this method, and certainly *C. Godefroyæ* deserves to rank as a good species as long as the present system of Orchid naming holds good.

Small-flowered Masdevallias are among the most interesting and pretty of the tiny members of the Orchid family, and the group represented by *M. triaristella* is especially so. We are not able to make out the distinguishing characteristics of some of the species so called, but as a good example of the plant figured in the *Botanical Magazine* as *M. triaristella* we may point to a plant now in flower at Kew. It has a tuft of very narrow semi-terete leaves with a narrow channel down the front, and their length is about 2 inches. The flower-stalk is 4 inches long, erect, hair-like, and bearing one flower, which is boat-shaped and hooded; a yellow tail, half an inch long, sticks up from the top of the hood, and a pair of similar tails hang from the apex of the lower division or boat, where the colour is dull purple. A tuft of this plant, with a dozen of these peculiar and pretty little flowers growing out of it, may now be seen in the Orchid house at Kew. What is the difference between this and *M. tridactylites*? *M. trichæte* is also in flower, and so far as the flowers go there is no difference between this and the above except a shade in size. But the leaves in the latter are narrow-lanceolate, one-fourth of an inch broad, and they are not so crowded as in *M. triaristella*. *M. simula*, *M. swertiaefolia*, *M. polysticta*, *M. melanopus*, and *M. gibberosa* may also now be seen in flower at Kew.

Cologyne (Pleione) Schilleriana.—We saw this distinct little plant in flower at Kew last week. Its bulbs are perennial, in which respect they differ markedly from the rest of the *Pleione* group, and they are nearly round, about 1 inch high, slightly wrinkled, and the leaves are lance-shaped, pale green, 3 inches long, and plicated. From the middle of the young growth, and appearing with the new leaves, the solitary flower is developed on a stalk half as long as the leaves; the sepals are pale yellowish green, $1\frac{1}{2}$ inches long, the two lower ones much narrower than the oblong upper one; the petals also are narrow and tawny yellow, whilst the lip is shaped as in the common *Pleione*s, the colour being white in the throat, lined with chocolate, that of the spreading

undulated front being pale yellow, lined and mottled with brown. The species is a native of Moulmein. It is a pretty little plant, very large flowered considering its size. It thrives on a block with a little Sphagnum about its roots.—B.

Cypripedium Barteti.—This new hybrid was obtained in the town garden of Paris, and is the result of crossing *C. insigne* Chantini with *C. barbatum*. It is described as a handsome kind, the leaves being lanceolate, bright green, and reticulated with brown. The petals are broad, slightly turned back, and purple in colour; the lip is much developed, shining, and deep purple; the upper portion is marked longitudinally with parallel bars of rose-purple on a rose-coloured ground and bordered with pure white.—J. C. B.

Odontoglossum crispum (J. R.).—There are no traces of insects or fungi on the plant sent; but on examining the roots and soil indications of an excess of moisture at some time or other are apparent; moreover, we think you use too much charcoal, the pot being nearly filled with that material. Charcoal is useful in Orchid compost to some extent, but in excess it holds more water than the roots, even when in an active and healthy condition, want. We would recommend the discontinuance of overhead syringing for a time, and too heavily shading should also be avoided, as this induces weak, soft foliage. The flowers you send gathered from thirty-two plants show no signs of weakly growth; indeed, some of them represent what we consider to be first-rate varieties. There is among them a good form of roseum, and the spotted form to which you direct attention is extremely pretty. It is almost identical with the variety named guttatum.

ROSE GARDEN.

CLIMBING ROSES ON TREES.

OCCASIONALLY in England one sees a beautiful climbing Rose rambling over a tree, and perhaps among our garden pictures nothing is more lovely than that formed by such a plant when in flower. There is no doubt whatever that, by a selection of the hardiest of climbing Roses, very beautiful pictures might be formed in our gardens and pleasure grounds, and even in our woods—that we might often see as the result of design what is now mainly an accident. There is a great deal too much pruning and trimming and wounding among Rose growers. A certain number of kinds lend themselves admirably to growing “free” among trees; and other kinds, which would not do so well in this way if left entirely to themselves, would succeed with partial pruning and regulating every few years after the growth had become matured. There are, however, countries that are more favourably situated than ours to such Rose beauty. In Europe, perhaps the country that pleases one most by its fitness for Rose culture is that along the shores of the Mediterranean, about Nice, Genoa, and Cannes, where the Banksian and many other Roses may be seen literally “abandoning themselves”—up trees, and forming hedges, and in other delightful ways. Among the pictures sent us by the Princess Kotschoubey, one of the prettiest was that which we now engrave, and which shows the way that Roses of various kinds form wreaths and fountains of bloom in the taller trees in her garden. We remember being very much struck, during the short time that we spent in the same country, with the beauty of the single Banksian Rose in such positions, and often wondered why it is not secured for our own gardens, even if it were not found to grow so freely as there. It is a little yellow single Rose, which is most free and graceful. We have no reason to suppose that it was common in the region, only seeing it in a garden at Mentone, and think it would be easily obtainable. It is most charming, and distinct from other

Roses. No doubt it furnishes seed, and we hope some nurseryman will get it and let us have it in general cultivation.

MINIATURE ROSES.

ANYONE fond of Roses, even if their space is limited, might, I fancy, derive a good deal of pleasure from growing miniature Roses. The number of sorts has now so much increased and the colours are so various, that if a small bed was devoted to miniature kinds they could not fail to be attractive, and for the information of those who are unacquainted with these Roses, I may mention that their flowers are small in size, but perfect in form, and the colours range from the purest white through different shades of pink to deep crimson. There is, therefore, variety enough to please everybody. They also flower with great freedom from June to October, but towards the end of summer the blossoms are not so numerous as earlier. The best white amongst them is Paquerette; this has small, perfectly double flowers, which are produced in panicles. Pumila alba is very similar to the preceding, but a little more vigorous. Mignonette has soft rose-coloured flowers, with a neat, compact habit of growth. Sanguinea is the old crimson China, a kind well suited for the centre of a bed of this class; its colour is also distinct. There is another in the China section, named Little Pet, which has white flowers, and it forms a capital companion to the crimson variety. Then there is Little Gem, which is a little beauty and a miniature Moss Rose. If more are wanted possessing a little more vigour for back lines or for centres of beds there is that once favourite old Rose, De Meaux, and a Moss variety of the same name, both of which have pink flowers and form charming subjects for button-holes; as do also the old white Burgundy, which has a pale flesh-coloured centre, and is exquisitely beautiful in the bud state. The two varieties named above, viz., Paquerette and Mignonette, are known as Polyantha Roses, and are not quite so hardy as the others, but they do not require much protection to carry them safely through a hard winter. If lifted carefully early in November and planted close to a warm wall and two or three old mats or an armful of litter is placed over them in frosty weather, they will sustain no injury. They would be better still in the corner of a cold frame or turf-pit with the lights protected. Early in April they could be returned to the beds—any way, they are worthy of the little protection which they require. I have grown them in pots and treated them with every care as well as in open beds, and I am satisfied that they are most satisfactory when planted out.

MOSS ROSES are deservedly popular, and I am surprised that they are not seen more frequently in beds or lines by themselves than they are. It is too much the practice to mix up Moss varieties with others, which is, I think, a mistake. If any one wishes to get the true character of Hybrid Perpetual Moss Roses, they must grow them as dwarf plants on the Manetti stock. Plant them in good soil and prune very moderately. The following half-dozen are eminently suitable for growing in masses, viz., Céline, crimson; Eugène Verdier, bright red; Marie de Blois, rose; Princess Alice, pink; Reine Blanche, white; Frederick Soulie, purplish crimson. If I had to choose another, I should select Gloire des Mousseuses. This is beautifully white in the bud, but when expanded it fades to a pale rose.

CHINA ROSES.—Of this section there are several admirably adapted for bedding; many of them are very hardy and very floriferous, fragrant, full, and well formed, not surpassed, indeed, by many

of the Hybrid Perpetuals. One valuable point belonging to this section is that they will grow vigorously and flower freely where more popular sorts would not succeed. If the soil is not too light and sandy, they will last for years in the same bed, if before planting it is trenched up 18 inches deep and well manured. The best way in which to deal with these Roses when grown in beds is to cut them down to within 6 inches of the ground every year about the middle of November, and then lay a thick covering of half-rotten manure on the surface between the plants. The manure will help to protect the roots from severe frost, as well as nourish them. Treated in this way, China Roses will send up from the crown of the plants plenty of fresh growth every year, which will go on flowering through the summer and autumn. The following sorts are suitable for bedding purposes, viz.: Mrs. Bosanquet, pale flesh colour; Alba, or old white China; Archduke Charles, rose; common crimson, common China, and the bright red kind called Fabvier. J. C. C.

Gloire de Dijon.—Does this Rose grow freely from slips; if so, when is the best time to put them in?—AMATEUR.

** Any shoots that have flowered this season will, if made into cuttings now, inserted in sandy soil in pots, and then kept in a close pit or frame, strike readily, but they will want to be carefully staked and the soil kept moist for the first month. After that they will want a little more light and air. In two months' time they will be sufficiently rooted to be put singly into pots.—J. C. C.

Eucharis mite (Pseudo).—Your Eucharis bulbs have evidently been attacked by the bulb mite (*Rhizoglyphus echinopus*), though I must admit that after a careful search I was unable to detect any specimens; from the decayed and very moist state of the bulbs I expect the mites have crawled off them. I have examined so many Eucharis bulbs which have suffered from the attacks of mites, that I am perfectly certain that these creatures are the culprits. I wish I could recommend some certain cure, but as far as I know nothing which has been tried has been effectual. Some insecticide is wanted which would kill the mites and not injure the bulbs even when soaked in it for some hours; if not allowed to soak for some time (during which they should be turned over) the insecticide might not reach all the mites; a considerable amount of air would no doubt be imprisoned under the scales which would protect any mites which were in the bulbs. This must be allowed time to free itself.—G. S. S.

QUESTIONS.

5507.—**Ammoniacal water for Cabbages.**—Will some one be good enough to tell me if ammoniacal water from the gasworks, diluted with water, and applied to Cabbages would stimulate their growth, and if so, what proportion of each should be used?—J. W.

5508.—**Wild Garlic.**—Will any of the readers of THE GARDEN kindly tell me if there is any way of getting rid of wild garlic? It is spreading all over a large wood, and we fear that it will get into the adjoining cow pasture. We have been advised to cut it when in bloom, and that has been done twice a year for the last two years, with the result that it is thicker than ever, and has spread enormously. There is a rookery in the wood where it originated. Is it possible that the rooks carry and drop the seeds?—H. R. V.

5509.—**Tree Mignonette.**—Will some reader of THE GARDEN kindly tell me how to treat a tree Mignonette which I have grown from Giant seed since 1884? I have allowed it to flower this spring, and it seems to be quite a success. It is about 3 feet high and full of bloom well scented. I want to know if I may cut the flowers freely, or if I leave them uncut, should I cut off the seed-pods as they form at the lower part of the flower-stalk? Should a little weak tank water be added occasionally in watering? I want to exhibit the plant at our cottage flower show in August.—J. B. W., Leicester.

Old Roses.—The book on old Roses from which I quoted is Mrs. Gore's "Rose Fancier's Manual," published in 1835.—J. C. C.

FRUIT GARDEN.

APPLES AND APPLE ORCHARDS.

MANURE AND TOP-DRESSING.—Apple trees on pasture land, at least in this part of the country, rarely get a tithe of the manure they deserve; indeed, several orchards with which I am acquainted have not to my own personal knowledge received a special top-dressing for more than twenty years, and yet the short-sighted owners grumble when in alternate seasons their poverty-stricken trees fail. On arable land where a certain quantity of manure is ploughed in every year, and the farmer does not run too heavy on Corn, or crop too near the boles of the trees, annual cropping is pretty general, and the fruit, as a rule, is finer and brighter than that from old Grass orchards. But even here in these cultivated lands old trees do not receive a sufficient quantity of stimulating food. These remarks may not apply to the home paddock or orchard close to the house, which Farmer Crabstock terms a "lucky" plantation; but why is it lucky, seeing that so many of the old homesteads of the seventeenth century lie low, and more or less subject to spring frosts? The answer lies in a nutshell. The poultry, the ewes and lambs, the pigs, most excellent orchard grazers, and the calves feed beneath the trees, and these richly manured spots are never mown for hay. From these observations we may gather that animal manure is the one thing needful, but then only a moiety of the orcharding on the farm gets a taste of cake and Corn; and skilful analysts assure us that the best farmyard or animal manure is deficient in potash and phosphates. Further, they tell us that potash, lime, soda, phosphoric and sulphuric acids must all be contained in good orchard soils. How these act and re-act upon each other before they can be taken up by the roots in a soluble form, the ordinary fruit grower need not pause to inquire. Science tells him they must be supplied, and the practical grower, in a rough and ready way, sets about providing the materials. What are the materials, where can they be obtained, and how must we prepare them? First of all we must have a recognised orchard manure yard. To this yard may be carted fresh loam, road scrapings and parings, lime, and animal manure, if it can be spared. In cider districts, Apple "must" from the mill, burnt clay from the drains, and Apple wood reduced to ashes may be added with excellent effect. These, or as many as can be obtained, should be thoroughly mixed and turned over in dry or frosty weather and carted to the orchard when fit for use. Stronger manures which may

be used are sprats or fish refuse, wool waste, rags, town manure, and thoroughly decomposed night soil. These materials are very powerful in their action, and should be applied to old orchards as a top-dressing once in two or three years, at the rate of one ton to the acre. Young trees, or trees on the best natural Apple soils, do not require these strong stimulants—indeed, they are better without them, as grossness produces unripe wood, imperfect flowers, which do not set, and some say canker. Of two evils, poverty or grossness, it is questionable if the most serious mischief does not follow the latter; the cultivator will,

rate of half a ton to the acre. The best time to apply artificial, like liquid, manure is during the season of active growth and after the fruit is set. The rain will then carry it to the roots when most needing, and in the best condition for assimilating stimulants. Moreover, it will greatly assist the trees in maturing the crop of fruit and forming flower-buds for another season.

THE BEST SURFACE MANAGEMENT.—The bare idea of a closely-grazed pasture orchard over which one can move comfortably in winter and harvest the crops so readily in the autumn naturally leads to the wish on the part of the occupier

to lay all his plantations down in Grass. Moreover, many people entertain the opinion that the soil beneath a Grass-covered orchard is cool in summer and does not readily part with the moisture which it contains. This theory many experienced cultivators now say is wrong, as they find a crop of Grass or hay quite as exhaustive of moisture as a crop of Mangold or Turnips, while the loss by exhalation through the day is considerably in excess of the gain from dew which falls during the night. If this be so, the roots of the trees are robbed in two ways and the fruit also suffers from lack of solar heat, as it is a well-known fact that the temperature of the air over Grass is lower than it is over cultivated soil which absorbs sun-heat on bright days and parts with it slowly through the night. Tillage orchards in this locality, as I have just stated, frequently carry good crops of fruit when Grass plantations fail; but constant cultivation, which lets in sun and air, and annual top-dressing, in my opinion, are the prime agents in keeping the trees in a fruitful condition. Of this fact I have ample proof in the management of two orchards adjoining each other. One is occupied by a blacksmith, who top-dresses annually with manure and sweepings from the shoeing shed, and his crops seldom fail. The other is in the hands of a farmer, who never dresses the land, and his poverty-stricken trees when what he terms "lucky" produce fruit of very inferior quality. In America I believe it is the practice to plough deeply



Climbing Roses on trees in the garden of the Villa Montboron, Nice.

therefore, do well to watch his trees, and so long as they make sound growth, well furnished with bright plump blossom buds, and the foliage is of good colour, he may safely leave well alone and keep the expense in his pocket. To the scientific grower who must go to the artificial manure manufacturer, the following materials are recommended: Bone dust, one part; dissolved bones, one part; kainit, two parts; coal ashes, twenty parts. These are specially applicable to trees on cultivated land, and after being thoroughly mixed they may be lightly forked into the soil at the

for several years after an orchard is planted, and take root crops in preference to Corn, which they consider too exhausting to the soil. The ground is then grassed down where Apples only are grown, and, judging from the great heat which prevails through their summers, it is reasonable to suppose that the moisture constantly rising from the turf is favourable to the swelling of the fruit. The late Thomas Andrew Knight and other experienced Herefordshire fruit growers thought there was no more suitable place for a young orchard than a Hop yard. Kentish grower

run in the same direction, and give up the Hops when the fruit trees are old enough to yield a paying crop.

GATHERING, SIZING, AND PACKING.—All fruit intended for storing or packing for market should be carefully hand-picked, and none but the finest and best should be taken into the store room or sent away. In cider districts this is easily managed, as all the inferior fruit and wind-falls can be converted into liquor, or sold to dealers for that purpose. In non-cider localities where all the fruit is sold for kitchen or table use, the fruit should be sized and divided into firsts and seconds, not only for the convenience of the salesman, but also to insure the top price ranging in the market. In America, not so many years ago, it was the practice to barrel inferior fruit with the best, but they soon found that this system did not pay, and none but good samples are now sent abroad. Growers in this and the adjoining counties are often told that they do not know how to make or pack good samples, but sharp competition has taught a valuable lesson, and we now see light ladders and baskets in use where formerly the long-handled hook was brought to bear upon the branches of the trees. Apples, it should be observed, may be divided into two classes. Those belonging to the Codlin type are fit for market as soon as they are about half-grown, and can be packed and sent off direct from the orchard. These, if got in early, very often pay better than finer midseason varieties, which must be kept in the store room until foreign produce brings down the market. Growers in Kent and the home counties pack in sieves and half sieves. Dealers in this part of the country generally buy by the "pot," a square hamper of five pecks, but this is a very unsatisfactory custom, which might be broken up if growers would apply to the salesman for the baskets which are recognised in the market in which he sells. In packing, all baskets should be well lined with paper, and the fruit, as good at the bottom as the top, packed firmly to prevent it from moving in transit. This is the great secret in packing American Apples, as we find when taking out the head of the barrel that every fruit, so to speak, is as tight as a drum. When our London hampers are full, we place a sheet of paper over the fruit to keep it clean and turn over the ends of the lining paper; a handful of Fern or Bracken is placed over the paper and two sticks, pointed at the ends, stuck into the upper bands of the baskets in the form of a cross, keep the fruit and covering in position. When finished, the tops of the baskets are slightly convex, but the bottoms being concave, they can be packed on the top of each other without damaging the fruit.

STORING APPLES.—Only of secondary importance; to a good orchard is a good store room, for without this accommodation fruit which requires housing cannot be kept in first-rate condition. It is not my intention to write a chapter on fruit rooms, as it is well understood that they should be dry, cool, and well ventilated, capable of resisting for a long time the entrance of frost, thatched or double-roofed to insure an even temperature in hot weather. In dry subsoils a good cellar is very often utilised for Apple storing, and well Apples keep in such a structure, quite up to, and very often beyond, the extreme limit of their season. A well appointed fruit room should be fitted with lattice-work shelves, through which the air can pass after the Apples are stored. Every fruit carried in should be sound, perfect, and hand-picked when dry, and when it parts freely from the tree. Flat shallow baskets padded at the bottom should always be used for picking and conveyance to the shelves

upon which, also with the hand, they should be laid in single layers. Liberal ventilation to let out moisture during the sweating process will be needful, but when this is over and the fruit feels dry and varnished to the touch the ventilators may be partially or entirely closed to secure an even temperature. If the windows are fitted with shutters and frost can be kept out, the use of covering with hay and straw, both of which impart an unpleasant flavour to the fruit, should be avoided, and well harvested Fern or Bracken, which is odourless, may be introduced during very severe weather. All choice fruit requires looking over occasionally, as one faulty or decaying Apple soon affects those adjoining; beyond this the less they are disturbed the better. Late Apples are sometimes stored in barrels of fine dry sand, and careful gardeners not unfrequently fold extra choice specimens in soft inodorous paper, and place them in drawers or large flower-pots from which light and air can be excluded.

ENEMIES.—Rabbits and hares are very destructive to the stems of Apples and Pears, and bullfinches sometimes injure the buds of the latter, but beyond these attacks birds in Apple orchards may be looked upon as friends, although many people treat them as enemies. The best protection against rabbits is 1½-inch galvanised wire netting placed round the stems of the trees as soon as they are planted and staked. Strips just large enough to clip the stakes will be found quite sufficient, and well fastened with wire they will last for years; moreover, they will prevent the sheep from nibbling or closing the pores of the stems by rubbing their oily coats against them.

INSECTS are numerous and troublesome, and often do serious mischief before they are detected. American blight, or woolly aphis, stands at the head of the list, for it is found in almost every orchard and spreads rapidly. When young trees are introduced they should be well washed with strong Gishurst compound before they are planted, for if once allowed to get into the rough bark and cankered branches of old trees its destruction will be extremely difficult. The best remedy is Gishurst compound, pure and simple, well rubbed in with an old bristle brush during the winter. Gas tar, half a pint to a gallon of finely-sifted earth and reduced to the consistency of paint, will be found equally effectual. It is hardly likely that the first dressing will destroy all, but a milder dressing when the insects begin to move in the spring will most likely settle them for the season.

Scale and red spider are sometimes troublesome on dry soils in dry seasons. A solution of Gishurst, 8 oz. to the gallon of water, is a good remedy; but these insects rarely put in an appearance where cleansing and washing with soapsuds are followed up through the winter. The good effect of this cheap and efficacious wash, as I have often pointed out, does not, however, end here, as trees so treated are generally free from the Apple moth, better known as the grub or maggot.

The worst parasites are Lichens and mildew. The first cannot live where the scraper is used and the trees are well washed with soapsuds or water, to which lime, soot, and a little common salt may be added. With the destruction of Lichens the homes of insects are broken up and all disappear together—a fair proof that prevention is better than cure and cleanliness is the best policy. Sulphur in some form is the best remedy for mildew; but unless the trees have got into a dry, cold, or bad subsoil, the winter dressings, including soap, soda, and lime, generally keep it in check through the summer.

DISEASES.—The worst disease we have to contend with in this country is canker. The cause has been exhaustively discussed in the horticultural papers, and various opinions have been expressed, but it is questionable if we are much nearer a solution of the problem. Some say it is caused by wet and cold lodging in the axils of the leaves and angles of the branches, first assuming a form of mildew, which eats into the unripened wood and results in wounds too well known as canker. Others assert that the subsoil is at fault, and that canker may be traced to the descent of the roots into cold, wet clay or marl impervious to the influence of solar heat and air. If this be so, thorough draining, as has been proved in Scotland and elsewhere, is the proper remedy. If taken in time, cutting away the affected parts with a sharp knife may keep it in check, and the trees may bear well for years; but this is only scotching the enemy. The best remedy, in my opinion, is lifting or root-pruning and relaying the roots near the surface in fresh, but not over-rich, compost. By this means we secure healthy root action; the wood such trees make is moderately strong, and unless the season is decidedly adverse, it gets thoroughly ripened. Root-lifting or pruning is impracticable in extensive farm orchards, but efficient draining is an excellent substitute.

Eusthor Castle, Ledbury.

W. COLEMAN.

THE BEST STRAWBERRIES.

READERS OF THE GARDEN have been asked to say "what they consider to be the best-flavoured Strawberries as grown in their district and tested by themselves." No doubt this invitation will be promptly responded to, and when the question has been asked and answered in the case of other fruits as well as the Strawberry, much valuable information will have been furnished to all who own or are interested in fruit culture. My experience in Strawberry growing has been mostly on very light, but well enriched, land in Suffolk. Possibly most growers of this fruit will be inclined to admit that half-a-dozen distinct Strawberries will be found to be sufficient for most private establishments, so I will confine my remarks to that number of sorts, and I am inclined to place that excellent variety known as Sir Joseph Paxton first upon my list. It is moderately early, the plants are hardy and of free growth, the fruit is large and very handsome, finely flavoured, solid, and not too thin-skinned; consequently it keeps longer after being gathered than most sorts, and it also packs and travels well. The next variety in point of merit, in my estimation, is British Queen, the fruit of which may confidently be said to be the finest flavoured of any Strawberry. When well grown it is also very large and exceedingly handsome. But the plants are tender in constitution and do not succeed in the open air in all localities, nor in all soils. It is, however, well worthy of being grown under glass in pots or otherwise, but not for early forcing. More than one more recent introduction have been said to resemble British Queen in flavour, &c., but none, I believe, have as yet anything like equalled it, and there are few varieties so well adapted for travelling. My next variety is Sir Charles Napier, which is a very heavy cropper; its fruit is large and of a fine conical shape; it forces very well and is an excellent traveller; it is also suitable for preserving. There is a slight, but very pleasing, acidity in its flavour, which some appreciate. Keen's Seedling comes next in my estimation. It is a great bearer; the fruit is excellent in quality; it forces well, and it is very useful for preserving. It does not, however, travel so well as the varieties just named. Vicomtesse Héricart de Thury is a most abundant bearer; the fruit is of medium size, richly flavoured, and it is well adapted for forcing, &c. Elton Pine is valuable on account of its lateness. It generally bears freely, but the fruit is slightly acid. Its constitution is hardy and vigorous. In addition

to the sorts just mentioned, it may also be observed that the old variety known as Grove End Scarlet, the fruit of which, although small and of indifferent quality, is nevertheless, on account of its bright scarlet colour, preferred by some to all others for preserving. The aromatic flavour of the Hautbois, too, is highly appreciated by many; but it appears that it is only in the north of England and in Scotland that this very distinct Strawberry attains to anything like perfection.

Bury St. Edmunds.

P. G.

CHERRIES AT GUNNERSBURY.

THE Cherry house at Gunnersbury Park is now an object of considerable interest. It is a lean-to house, facing nearly south, 54 feet in length by 12 feet in width. It was originally planted with bush trees (about three years ago), but those in the front line—that nearest the front of the house—are now trained up the roof, each tree carrying from three to five main shoots, according to its strength. A line of single cordon Cherries is planted at the back, and they have reached the roof, and are now trained downward to meet those coming from the front. Under this arrangement the trees have done admirably, and this season are carrying remarkably fine crops. The earliest to ripen is Early Purple Gean, or German May Duke, a variety that some have condemned as unworthy of being grown under glass, but here of the best quality. It is a white Cherry, but one which becomes tinted with red on the side exposed to the sun. It is a great cropper, and well worthy of being grown for its earliness, cropping qualities, and excellent flavour. It is described in the "Fruit Manual" as "a delicious Cherry, ripening on a wall the last week in May or the first week in June," and this is the opinion entertained concerning it by Mr. Roberts. It was introduced to this country from Geneva through the London Horticultural Society in 1822. Early Rivers comes in a week or ten days later. It is a rich looking black Cherry, and excellent for culture under glass. Mr. Rivers states that he raised it from the Early Purple Gean. It first produced fruit in 1869. At Gunnersbury it is a rare cropper, and the flesh tender, sweet, and luscious.

Frogmore Early, or Frogmore Early Bigarreau, as it is more often designated, comes next. It is a fine Cherry and a first-rate forcer. Mr. Roberts, who entertains a high opinion of it, says that anyone planting it will not be disappointed. It is two or three days later than Early Rivers. As to its origin, no information appears to be forthcoming.

May Duke is a very old and highly popular variety, but an open-air Cherry. Mr. Roberts does not consider it worth growing under glass; nor, indeed, are any of the Duke type. It is his intention to remove it.

Black Tartarian, which is also known as Black Circassian, and, indeed, by many other names, comes next. It is a heavy cropper, and one of the best Cherries for forcing. It was shown in good condition by Mr. G. T. Miles at the great Whitsun Show at Manchester; it is a free grower and setter, and possesses every good quality. Early Rivers is before it only in point of earliness. It has the fine quality of the Elton, but to have it in perfection it should be grown under glass or against a wall. It was introduced by the late Mr. Hugh Ronalds, a nurseryman at Brentford, and distributed by him about the year 1796. It would appear to be of Russian origin. Mr. Roberts has more plants of this variety than of any other. Elton is a very fine Cherry—one of the very best; it does well under glass, and grows and bears satisfactorily. The late Mr. T. A. Knight did good service to horticulture when he raised this fine Cherry about 1806. It may be termed a main crop variety under glass. St. Margaret, or, perhaps, better known as Tradescant's Heart, is a very fine black Cherry and quite a late one; it is here on the Cherry stock, and was not planted until a year after the others. Mr. Roberts regards this as the latest variety

grown under glass, and he speaks of it as valuable out of doors in the north of England, doing well in the Bedale district, Yorkshire, at an elevation of 700 feet above the sea level. Bigarreau Napoleon ripens a little before St. Margaret. It is a fine forcer, and crops well on the Mahaleb stock. This appears to be a somewhat old Cherry. It was known as far back as 1791, but the name Napoleon was added at a comparatively recent date.

Among single cordon varieties growing up against the back of the house are Büttner's Yellow, a late Cherry of good quality, considered to be the best of all the yellow Cherries. It was introduced to this country about 1803. Governor Wood Mr. Roberts regards as one of the worst growers. It is a good Cherry, but the slightest moisture causes the fruit to crack. It is soft and fleshy, and when grown under glass there should be a free circulation of air; in flavour it is very rich and sweet. Early Lyons Black is not so good as Early Rivers.

This Cherry house is shut up about the beginning of January, and the trees are then encouraged to grow. At blooming time they present a charming sight. As soon as the fruit is thoroughly stoned a mulching of short manure is given to keep the roots steadily at work, and then the house is kept a little warmer than hitherto, but the cooler the temperature, regard being had to the swelling of the fruit, and the more slowly it comes on towards maturity the better are the Cherries. Some of the trees are on the Cherry, and others on the Mahaleb stock. Mr. Roberts holds that much better crops are got from trees worked on the latter than on the former—at any rate, when grown under glass. Some nurserymen say that the Cherry is not so long-lived on the Mahaleb as on the Cherry stock, but there is probably differences of opinion on that point. One thing appears certain, viz., that Cherry trees are liable to canker let them be worked on any stock.

R. D.

STRAWBERRIES FOR UNSUITABLE SOILS.

"D. T. F." must have written the remarks which he made in THE GARDEN (p. 576) rather hurriedly, or he would not have stated that "in at least fifty, probably seventy-five, per cent. of the gardens throughout Britain British Queen cannot be successfully or profitably cultivated in the open air!" He will surely admit that if a Strawberry of any kind cannot be grown successfully in the open air, it cannot be profitably grown under glass. It is absolutely necessary to have strong and healthy runners annually in order to grow plants in pots. Where does "D. T. F." expect to get them if he has no healthy plants out of doors? They certainly cannot be profitably purchased. I disagree with him on another point. I believe that all Strawberries, including British Queen, may be grown successfully in ninety out of every hundred of British gardens, and that they may be grown fairly well in the other ten—that is, if people will only be at the trouble to grow them in the right way. Twenty-three years ago I took charge of a garden that would not grow Strawberries of any kind—so I was told. The soil was light and gravelly, from 6 inches to 2 feet deep, and Strawberries had been planted in it year after year without success. Undismayed by previous failures, I, however, made the attempt to grow Strawberries in the garden in question and succeeded. I grew them both out of doors and in pots good enough to take first prizes at the Royal Horticultural and Royal Botanic Societies' exhibitions. I first selected the most likely piece of ground in the garden I could find; it was large enough to contain 400 plants, at 2 feet apart each way, the varieties being the following, viz., Rivers' Eliza, Keen's Seedling, Black Prince, British Queen, and another of which the name has escaped my memory. The ground was trenched 18 inches deep, and in some places we touched the gravel. I put a layer of good manure in the bottom of each trench, and another layer of manure about 6 inches under the surface; over the top layer

of manure we spread a layer of clayey loam. It was not very thick, less than two cartloads being used. The expense was trifling—little indeed beyond that of carting it two or three miles. I purchased runners in August and planted them at once. It was a most trying season, being hot and dry. The plants were not strong enough to fruit the following year, but they made capital growth; all flowers and runners were removed as soon as they appeared, and next season we had a fairly good crop, although many of the strongest plants did not flower at all. These I considered to be rogues, and dug them up. We had, as I have stated, a fairly good crop, but this did not satisfy me. I wanted an extraordinary crop, and set about obtaining it. Another plot of ground was prepared, as just recorded, by trenching, manuring, and surfacing with loam of a clayey character. I selected runners from the best and most fruitful plants, and layered them as soon as we could get them in small pots. It was a favourable season, and the plants were ready for planting out by the last days of July. They were planted with great care, about an 8-inch potful of prepared soil being placed round the roots of each plant. It merely consisted of some fine refuse loam from the potting bench mixed with an equal portion of decayed manure. In this the plants started and grew with amazing vigour, and by the end of the season they had formed such crowns as gave promise of an extraordinary crop of fruit. The result, too, was quite as good as was anticipated; but I found that the plants declined after bearing the first crop; the second year many of them died, and in three years half of them were gone. I therefore saw that it was necessary to make a fresh plantation annually, and, all things considered, I found it was most profitable to destroy the old beds after they had borne one good crop and plant afresh. In fact, on light soils such as I have described,

THE ANNUAL FORMATION OF STRAWBERRY BEDS is an essential part of the culture of that fruit. After a time it becomes one of the details of one's work, and gives no extra trouble, as it works in well with the ordinary rotation of kitchen garden cropping. The ground on which the Strawberry plants have been is always in good condition and requires no manure. Therefore, as soon as the Strawberries are gathered and all the runners required are secured, I cut up the plants with a spade, hoe the ground, and clear off all weeds; I then re-plant it immediately with good strong plants of white Broccoli. It does not matter about the ground being hard, as the plants can be let into it with a crowbar, and they succeed best when the ground is hard. The Strawberries may be planted to succeed early Peas, Cabbages, Potatoes, Cauliflowers, or any other early crops. There is no loss of any kind, and I do not consider re-planting a fresh bed of Strawberries annually more expensive than keeping an old bed in clean presentable condition. So much am I convinced of the superiority of this method of Strawberry culture, that I practise and advocate no other in any kind of soil. As the plants have to grow up to fruiting size in less than three months from small runners, the

IMPORTANCE OF GETTING RUNNERS as early as possible will be seen. They should be layered separately in small pots, and be planted out not later than the first or second week in August. If dry weather sets in, they must be watered, especially at first, until the roots have taken hold of the fresh compost, and this they will do all the more readily if some rich compost is placed in contact with them. We were disappointed at first with our plants of Keen's Seedling; instead of that variety we had been supplied with Hooper's Seedling, an inferior sort which has often done duty for the true Keen's. I ultimately received Keen's Seedling true from Mr. Sage, of Ashridge, and ever since we have kept it true. This year the only varieties which we grew for forcing were Black Prince and Keen's Seedling, and were I limited to three kinds of Strawberries, they would be Black Prince, Keen's Seedling, and

British Queen. If to six varieties, I would add President, Frogmore Late Pine, and Loxford Hall Seedling. I may say that I have formed a very favourable opinion of Pauline, having seen and tasted it in Messrs. Paul's nursery at Cheshunt. Last season I purchased plants of it, some of which are now bearing. The fruit is much larger than that of Black Prince, and good in colour and flavour; it is also earlier. Next season I hope to try it against Black Prince for forcing.

Great Gearys, Iford.

JAS. DOUGLAS.

FORMING NEW FRUIT GARDENS.

THE selection of a site for a fruit garden is not always attended by the same considerations as those which influence the decision in regard to a vegetable garden. There are many who do not object to see fruit trees in close proximity to the pleasure grounds who would object altogether to have the vegetable quarters so near. Having the fruit garden within an easy distance of the house is desirable, but there are other considerations that should take precedence when fruit culture is in question, and of these the first and most important is undoubtedly that of soil, for without a suitable nucleus for the roots a full measure of success must not be expected. Not only must the soil be good, but it must be deep and sufficiently well drained by natural means to render actual draining unnecessary. It is also needful to select a site that has not been occupied by trees of any kind for some years before. It is hardly possible to commit a greater error than to form a permanent fruit garden on tree-sick ground.

THE KIND OF SOIL best adapted for a fruit garden is sandy loam resting on gravel, and if the soil is good, 3 feet or 4 feet deep, so much the better, but less than 2 feet of good soil will not give satisfaction for many years unless a restricted system of pruning both roots and branches is adopted. If pyramid or bush trees are to be used, 2 feet of good soil will suffice. Nothing equals old pasture converted into a fruit garden, as if the turf is placed about 9 inches under the surface the roots lay hold of it quickly, and the result is vigorous growth in a short time. The roots ramify so quickly in the half-rotted turf, that they are able to support strong growth the first year. With regard to manure, the character of the soil must decide. If naturally strong it will not require manure, especially if it has been pasture land, but if arable and exhausted by other crops, a good dressing of well rotted farmyard manure is desirable, and it should be incorporated with the soil at various depths. I am, of course, assuming that no one would think of forming a fruit garden without trenching 2 feet or more in depth, and as this work is proceeding the manure can be applied in the way just named, but nothing will be gained by placing the first layer of manure more than 1 foot below the surface; there should be another 6 inches deep, and one spread on the surface and forked in. As regards trenching, I must not be understood to be advocating that operation for all descriptions of soils. Trenching, as ordinarily understood, means that the bottom soil should be brought to the top, but if the lower stratum is inferior to the surface, that system of trenching must not be followed. Instead of bringing the subsoil to the top the bottom part of the trench should merely be stirred up deeply and left there, and a layer of manure should be placed on it; by working in this manner the top spit will still be kept in its old position.

SHELTER from north and east winds is necessary, in addition to the wall or fence that encloses the garden, and, where practicable, provision should also be made for protecting the trees from violent gales that sometimes cause much destruction when they come from the south-west. A thick plantation of evergreen and deciduous trees and shrubs is unquestionably the best kind of shelter, and, in order to afford efficient protection, a space 50 yards wide thus planted will be necessary; the inner line of shrubs should not be more than 50 feet from the boundary. The outside line of trees, which should be Spruce Firs, should be

planted, in the first place, at 10 feet apart, and as soon as they meet each other, every other one should be taken out. The inner boundary line should consist of Yew, Box, or Portugal Laurels, all of which will submit to being pruned; they may, therefore, be kept within any bounds required. The central space may be planted with such deciduous trees as are known to thrive on the place. Sweet Chestnut, Beech, or Sycamore will thrive in most cases, but Elms, being short-lived, should be avoided. As undergrowth to the deciduous trees, common Laurel or Box should be planted. The kind of fruit garden which I have in view will be wholly separated from the kitchen garden. In the latter I shall assume that all the more tender and choice fruits are grown, and therefore boundary walls for the fruit garden proper will not be absolutely necessary. At the same time, a substantial fence will be required, and for this nothing will answer so well as Whitethorn, as it can be made to form a good fence of any reasonable height. One annual clipping in the month of August after it gets established is all the attention that it requires. The ground for it should be trenched 18 inches deep and 2 feet wide, and if the soil is poor some manure should be applied to it in order to give the roots a start. A close-boarded fence 5 feet or 6 feet high affords an effectual screen while it lasts, but this kind of fence is not sufficiently durable for a permanent garden.

THE ARRANGEMENTS for the different sorts of fruit, and also the form of trees to be grown, are matters of no small importance. My own experience convinces me that each particular form of tree should have a separate space devoted to it. What I mean by this is that standards, pyramids, and bush trees, consisting of Apples, Pears, Plums, and Cherries, should each have a quarter devoted to them. How these quarters should be arranged must depend entirely on the shape of the garden and the number of trees of each form to be planted. When this is decided, it will not involve much trouble to allot to each its proper space. As a rule, standards should be planted on the north and east quarters, and then they will afford some shelter to those in front of them. The space enclosed should not be cut up by numerous walks. A main path through the middle, the width of which should be in proportion to the area enclosed, and narrow ones running in the contrary direction where actually required, are all that are wanted.

BEST FORMS OF FRUIT TREES.—I have cultivated, I may say, every new form that has been recommended, and I have no hesitation in asserting that, in regard to some of them, many of us have something to unlearn. The standard and espalier forms adopted by our forefathers are preferable to all of them, more especially where quantities of fine large fruit are required. Therefore, where a space of ground is set apart wholly for fruit, I should recommend that dwarf standards on 4-foot stems and espaliers be the only forms selected for Apples and Pears. Plums and Cherries do not make good espalier trees; these do best in a bush form. Apples and Pears also do well in the form of bushes, but with regard to espaliers I am perfectly satisfied that, with the exception of the standard, they are the most profitable of all forms for Apples and Pears. Standards of the height just suggested should be planted 16 feet apart each way, and bushes from 8 feet to 10 feet asunder, according to the system of pruning to be pursued. Trees on espaliers should be planted 30 feet apart round the margins of the different quarters. As to small fruits, such as Raspberries, Gooseberries, and Currants, no one will experience any difficulty in finding them suitable quarters. J. C. C.

Oxonian Strawberry.—We have a large bed of Oxonian planted three years ago which during the past two seasons has yielded satisfactory crops and good in quality, but this year it has mysteriously failed to bloom, whilst other kinds treated in the same way and growing side by side

have flowered and fruited well. I may add that they were well manured in autumn and again mulched in the spring. I have noticed the same irregularity elsewhere this season. Is it general, or can any light be thrown upon such a peculiarity?—WILLIAM CRUMP, *Madresfield Court.*

MILDEWED PEACH TREES.

"R. M." (p. 588) should not have allowed his Peach trees to become badly mildewed. As soon as mildew was visible on the leaves it might have been destroyed by lightly dusting with flowers of sulphur, or the hot-water pipes might have been heated and painted with sulphur-water, mixed to the consistency of thin paint. The fumes thus created destroy mildew without injuring the leaves, but the pipes must not be so hot that the hand cannot be held comfortably on them. I never use anything else to destroy mildew than flowers of sulphur, and we never had a leaf in our vineries or Peach houses injured by its use, with one exception. In that case I followed instructions given by the late Mr. Rivers, of Sawbridge-worth; he recommended the employment of a 9-inch or 10-inch potful of quicklime, consisting of lumps fresh from the kiln. On this water was to be poured to slack it, and on the hot smoking lime some flowers of sulphur was to be thrown. This I did, and in an instant the sulphur flamed up. I therefore quickly removed the pot, and dreaded the result of the experiment. Next morning the house presented a woeful sight. A grand lot of young Vines on which the Grapes were just beginning to colour were entirely denuded of leaves and the crop was lost. I had to cut off the Grapes to cause the Vines to make fresh growth. "R. M." may be assured that Peaches will not ripen properly or at all if the leaves have been destroyed, and the prospects of a crop next year will wholly depend upon the growths made subsequently. I should encourage the production of fresh growths, and if the majority of the leaves are destroyed, pick a large proportion of the fruit off in order to help the trees. —J. DOUGLAS.

Peach trees badly mildewed are not easily restored to a healthy state. Dryness at the root and poverty of the soil are frequent causes of mildew on Peach trees, Vines, and Roses under glass, and unless this is changed mildew will not be got rid of, but, on the contrary, will continue to spread in spite of all remedies in the shape of solutions of sulphur, lime, or sulphide of potassium. "R. M." is naturally anxious to save this season's crop on his mildewed trees and is also equally concerned about next year's crop. Without seeing his trees I cannot positively assert that he will not succeed in saving this season's fruit without detriment to the future well-being of the trees, but I am much afraid he will not. Young Peaches are most susceptible of injury, and, according to my experience, any kind of strong insecticide that will destroy insect pests, such as scale and aphides, or any remedies for mildew applied by means of a syringe are almost certain to damage the skin of the fruit, causing it to crack badly—spoiling the fruit, in fact. It may be of great importance to "R. M." that he should preserve his fruit, but if this be done at the expense of the health of the trees, he will be a loser in the end. It may be that the sulphide of potassium burned the leaves and caused some of them to fall off, but if the trees were badly infested with mildew, as stated, the chances are that the leaves would have fallen even had no sulphide of potassium been applied. Not only does an early loss of leaves usually result in a corresponding loss of fruit buds, but mildew is also liable to damage the points of the shoots, and when this happens they fail to break the following spring; therefore the state of the trees next year may be even worse than at present. My remedy for badly mildewed trees would be a radical one, no half-measures being useful. I would freely shorten all mildewed shoots without studying the present crop, though if any of it could be preserved on the cleaner portions, "good and well." I would fork up the surface of the border; next give it a good soaking with soft, tepid water,

followed by another watering with liquid manure, well diluted liquid manure from the farmyard being as good as anything that could be procured. The house containing trees thus treated should be kept at a rather high temperature, or, say, at from 80° to 85° with sun heat and air, closing early and syringing freely, so as to create a genial growing temperature. All this I would do with the aim of pitting new life into the trees, and they must be very far gone if abundance of fresh growths is not quickly formed. These should be thinned out where necessary and laid in when of a good length, but as it will be rather late, a certain amount of fire-heat and plenty of air ought to be given in the autumn, in order to properly ripen the young growth. The colder the locality the more need there is of fire-heat, as, unless the young wood is well ripened it is useless to expect plenty of bloom. Even when fresh growth is induced on the trees, mildew will still be more or less prevalent, and after the fruit is gathered it must be vigorously proceeded against. I find a solution of sulphur and lime to be the best remedy for mildew whether it exists on Peach trees, Vines, or Roses. It is prepared as follows: With 2 lbs. of flowers of sulphur and 4 ozs. of lime is mixed sufficient water to form a paste; then 6 quarts of soft water are added, afterwards boiling the whole down to about 4 quarts. After being allowed to settle, this mixture should be strained through muslin and stored away in a bottle or jar for present or future use. About a wineglassful of this solution is sufficient for mixing with 4 gallons of water. It should be applied through a syringe, and may be used a little stronger if found ineffective. This solution is strongly recommended for mixing with the syringing water as a preventive of mildew and red spider on Roses especially.

IMPROVING THE BORDERS greatly benefits Peach and Nectarine trees as well as Vines, and is almost imperative where a thorough renovation is contemplated. Much may be done by the application of liquid manure to the roots, followed by a good mulching of straw manure, but this alone is insufficient where the borders have been formed and cropped several years. While the trees are still in full leaf, or say late in September or early in October, a trench should be opened completely round the trees, i.e., from one side of the tree to the other, supposing the trees are planted against either the front or back walls, and at about 5 feet from the stems. The soil can then be carefully forked away from the roots to a distance of 30 inches from the stems, as many of the best of the roots being preserved as possible. As a rule, only the surface soil thrown out is worth preserving; the rest should be wheeled away and replaced by a good loamy compost at the rate, say, of three barrow-loads of turfy loam to one of short manure, adding, if procurable, old mortar rubbish about one barrow-load to four of the loam and manure. Burnt garden refuse also improves a compost for Peach or other fruit trees, and this may be added even more plentifully than mortar rubbish. The roots should first have all wounds cut cleanly away and then be laid evenly in the fresh compost, bringing them as near the surface as their natural position admits. In some cases, especially where those performing the work have had some previous experience in somewhat similar undertakings, it is advisable to completely lift the trees, preserving a little soil about their stems; this insures the severance of deep running roots, which do more harm than good to the trees, and the whole of the roots can thus be placed in fresh compost. The latter should be employed in a semi-dry state, and should be packed together rather firmly; this suits the roots and prevents injurious sinking. In sunny weather it may be necessary to shade newly-lifted trees; they should also have plenty of water at the roots, and be frequently syringed overhead during the daytime. In this way many of the leaves will be preserved for a time, their work being to perfect the buds and assist in the formation of fresh roots. Root action is brisker a few weeks before the fall of the leaf, and those who take advantage of this fact, both as regards feeding and watering well-esta-

blished trees and in partially or wholly lifting and replanting unhealthy ones, are certain to be rewarded. Trees must not be neglected in autumn, or they will break weakly and drop their buds in spring. W. I. M.

The Strawberry crop promises to be exceptionally heavy this year. Our main plantation is on a south-east border, the soil of which is sandy loam on a subsoil of stiff loam, almost clay, conditions which suit Strawberries well, being light and warm on the surface, while the bottom is cool. This subsoil is quite an exception to that of the rest of the garden, and was probably worked into the border years ago when Peaches grew there. In all other parts we come quickly on sand, and on that Strawberries do not thrive well. New beds are always made with forced plants hardened off and planted out in June and not allowed to stand more than four years. The varieties grown are Vicomtesse Héricart de Thury, Black Prince (for preserving), La Grosse Sucrée, Keen's Seedling, President, Sir J. Paxton, and Frogmore Late Pine, the latter in a north border. These six varieties ripen in the order named, and of the six the very best are La Grosse and Sir Joseph. President, like Dr. Hogg (which was tried for a couple of seasons), makes enormous foliage, but the crop is not altogether satisfactory. La Grosse is an especial favourite; it can be planted considerably closer than many varieties, as it makes very little foliage, and although the crop may not be numerically great, individual fruits are particularly fine. We grow a few of the Vicomtesse Héricart de Thury for forcing, but the bulk are La Grosse and Sir Joseph. These never fail to give us good crops, and they have the merit of comparative immunity from mildew, a great point in their favour where fruit has to be ripened continually in vineries and Peach houses. It is not easy to name many varieties that flourish in very light soil, especially amongst those of more recent introduction. Black Prince I have always found to be by far the best for this purpose. It bears capital crops where many varieties would but drag on a miserable existence; a good breadth of it should under any circumstances be planted in every garden, especially for preserving. The colour may perhaps be objectionable to some, but there is no mistaking the superior flavour and consistency of the preserve when made with this particular variety. -E. BURRELL, *Claremont*.

NOTES.

DAY LILIES.—Big clumps and masses of these are now yielding flowers in plenty. *Hemerocallis flava* is to my mind the best of its race, although the young leafage of some of the other kinds is very effective quite early in the year, say when Daffodils "begin to peer." After these Daffodils leave us we have no yellow blossoms, if we except Tulips, which can quite replace them until these yellow Day Lilies come in fresh and fair at the end of May, or, as it happens this season, in the middle of June. A big deep pot of their flowers and leaves is a sight good to see. *H. Kwanso foliis variegatis* is a good distinct border plant, and a good companion for its first cousins, the broad-leaved Funkias, or Plantain Lilies, as many now prefer to call them. The variegated form of *Iris pseudacorus*, or wild Flag, is another bright and effective plant as seen near to scarlet Poppies or great crimson-flowered Paeonies, but for cutting while they last in season, we have now no yellow flowers to compete with these shapely Day Lilies, which are universally admired. At Straffan and elsewhere great rows of them are grown, especially for the flower jars, than which even hothouse flowers could not be more enjoyable in their way.

THE TIME OF ROSES.—It is flowery June at last, and the Roses on the arches and walls proclaim a sort of heyday in the garden. The Gloire de Dijon of rich amber-buff tints, big as tea

saucers and deliciously delicate in fragrance, are here at last, although a fortnight or more behind their time. Even the rich-scented old Cabbage Rose is opening its buds in a sunny corner, and the common monthly China is covered with flowers. Poppies, Irises, Pansies, and Delphiniums were never so luxuriant as now, thanks to the dripping showers followed by warm sunshine, out of which flowers are made! Summer has come upon us in her bridal dress quite suddenly at last, and the garden is too full of her flowers for us to regret the departure of the Daffodils and Tulips, which have lingered on since early spring. There is rich growth luxuriant and buds bursting and leaves gladly quivering everywhere in the warm breezes of flowery June. Here great groups of scarlet Poppies are shimmering their outspread petals in the sunny breeze, and the great tall plumes of *Spiraea* are waving as graceful as Bamboo wands. Lilies, orange, yellow, red, and sulphur, open their waxy flowers, and I have just counted at least fifty flower-buds on a single spire of the white Martagon; but richer and sweeter than aught else beside in the best of gardens are the Roses of June.

ON HOWTH.—On this breezy headland, within a few miles of Dublin, nearly surrounded by sea, and at its highest point less than 500 feet in height, there are many beautiful plants. *Rosa spinosissima* is now sweet and beautiful, each little bush covered with white, Anemone-like flowers. *Geranium sanguineum*, Sea Thrift, and *Silene maritima* are happiest on the rocky declivities, and the golden Gorse is brilliant in the sunshine. The glorious crimson Fuchsia (*F. globosa*) in the walled-in garden at St. Fintins is just now a mass of drooping coral buds; and there are Day Lilies golden, mountain Clematis, and Honeysuckle over the walks, big beds of Daisy-like Pyrethrums and Iris, and the hundred and one delightful blossoms of an old-fashioned garden, wherein there is a lifelong and happy marriage between the fruits and vegetables and the flowers. Then there is the Castle garden itself, with its wondrous beechen hedges, close-clipped, golden now in the sunlight of a June day, but even in winter cosy in their leafage of warm amber-brown. The Gloire de Dijon Roses here are a wonder—big and beautiful, although weeks later than usual. But how can one describe the Rhododendron garden, as it nestles among the grey rocks and feathery Fern under the crest of the hill? Great bushes, 10 feet to 15 feet high—perhaps more—are now gorgeous, the big bouquet-like crimson clusters, richly set like gems, among the glistening wax-like leaves. As seen among the Ferns, and as contrasted with the fringes of golden Gorse on the hill above, or with yellow Azaleas, this garden of Rhododendrons is beyond all description.

THE WHITE PEONY.—Too much praise cannot possibly be awarded to *Paeonia albiflora*, supposing that to be the Latin name of the lovely white variety sent to me as a great favour by that wise man of the east, Mr. Ware, three years or so ago. As I have hitherto failed to obtain a plant of *Romneya Coulteri* either "for love or for money," I quite content myself with what is the loveliest flower of June in a well-stocked garden. If I were Mr. Ware, and had a good stock of this Venus of Cnidos amongst the flowers, I think I should use discrimination in the very selling of such a treasure. As Parkinson says of the double "flore of Bristowe," so would I say of this white Peony, viz., "it is rare and not common, so for his bravery doth well deserve a master of account that will take care to keep and preserve it." At the present moment no other hardy garden flower approaches this in noble

form and beauty. There appears to be two or three forms of this *P. albiflora*, and I am by no means clear as to which variety is represented by our plant. Thus *P. albiflora*, introduced from Siberia as long ago as 1548, seems the type. Then *P. a. candida* is a flesh-coloured white, *P. a. festa* is also white or pink, and *P. a. sibirica* also is described as white, as is *P. a. vestalis*. Our plant this season bears ten blossoms and buds, and is a delight to all who see it. I see the first great red bud swelling on the old greenish sulphur-flowered *P. Wittmanniana* two years planted, and am anxiously looking forward to its opening. One can never have too many of the best of the *Pæonies* and of *Flag Irises* in the garden during early summer time.

BEAR'S-EAR SANICLE.—*Cortusa Matthioli* is a distinct plant, quite at home in deep rich soil in partial shade. It now bears its crimson-purple bells, drooping from a slender Cowslip-like stalk from above the palmate hairy leaves. These same leaves are recommended by dear old Parkinson "to set an orient red colour on the cheek of a woman;" and at page 241 of his classic "*Paradisus*" he further tells us that "the leaves of the *Cortusa* taste a little hot, and if one of them be laid whole, without bruising, on the cheek of a tender-skin'd woman, it will raise an orient red colour, which will passe away without any manner of harme or marke where it lay." This *Cortusa Matthioli* is easily raised in abundance from seeds sown as soon as they ripen. It is an interesting plant and graceful in habit, even if actually less showy than some of its allies, the *Primroses* proper. A good group of this plant in the rock garden is pretty when at its best, even if less effective than the *Sikkim Cowslip*, with its larger pendent bells of a soft pale sulphur tint. A solitary plant of a yellow-blossomed *Cortusa* († C. Kaufmanni) was exhibited at the late *Primula Conference*, and in its flowering reminded one of a greenish yellow *Primula* which some cynical botanist has called *P. grandis*, it being one of the least showy or grand or noble of all the members of a large family. *Cortusa Matthioli* is a good garden plant as compared with either of these last-named rarities.

ROCK GARDENING.—I have just seen a well-formed and well-stocked rock garden, made by Mr. Ruxton at Ardee House, in the county of Louth, and I think it will delight everyone who obtains the privilege of seeing it at its best. The water-worn rocks of which it is composed are of themselves a treat to see, veined and furrowed as they are by centuries of time. Beautiful as are the stones, however, the healthy vigour and variety of the plants amongst them surpass them in interest, selected as they are from the best of all the hardy plants of Europe, of the Himalayas, and of the glacier slopes of the New Zealand Alps. *Veronica Lyalli* and *Ourisia coccinea*, healthily luxuriant and floriferous, were worth a journey to see; *Edelweiss* displayed its silvery stars; *Onosma tauricum* was rich in yellow flowers. The yellow Tree Lupine and the Daisy Bush (*Eurybia Gauni*) were alike most showy, and little mat-like masses of rare *Primulas*, *Androsaces*, and *Saxifrage* or *Silene* met one on every little plateau, or in every nook and corner. *Saxifraga lantoscana* in variety, *S. longifolia* (true), and *S. pyramidalis* hung their feathery plumes over the soft grey boulders. Here a patch of *Phyteuma comosum* or rare *Ranunculus*, such as *R. glacialis* or *R. parnassiaefolius*; there *Edraianthus* or *Androsace lanuginosa* were quite at home. In the low-lying hollows, *Cypripediums* and different varieties of *Orchis* were flowering well; and in the fresh country air and good rich loam, *Rosa rugosa* had acquired a

rich rosy crimson colouring not often to be seen. But mere names mean but little now-a-days, and no words could paint the beauty of Nature-carved limestone, but I am not alone in considering the rock garden at Ardee as perhaps the finest of its kind in Ireland.

BLUE CORNFLOWER.—One of the very prettiest of all our cornfield weeds is this *Centaurea Cyanus*. It is the favourite flower of the Emperor of Germany, but, apart from popularity of any kind, it is in itself so brightly and beautifully blue, that it deserves culture wherever blue blossoms are appreciated. Although an annual, it is never seen in perfection unless the seeds be autumn sown. They should be scattered as soon as they ripen, and the harder and poorer the ground, so much the better does this plant seem to thrive. If large quantities of its flowers are desired for cutting, the seeds may be sown in July or August on any dry bank or rubbish heap and covered, but slightly, with fine earth by raking. The finest harvest of blossoms I ever saw were grown on a large heap of road-scrappings, over which the seeds had become blown quite accidentally. As cut with long stalks the flowers and buds arrange well in tall vases, and keep fresh a long time. There are white, purple, rose, and violet varieties, but none are either so pretty or so useful as is the typical blue-flowered form. Wherever flowers are wanted in quantity during the summer time one soon finds out the value of a good breadth or bed of this cornfield weed.

SPANISH IRIS.—The brilliant sunshine that shortens the period of beauty in the *Flag Iris* is the very life of these bulbous kinds. A few bright and rainless days have opened their thickening buds in numbers, and in warm, dry corners their blossoms now are enchanting in their infinity of colouring. I know of no flowers of June more useful for cutting, excepting always *Ixias*, and more especially that fair white *Gladiolus Colvillei albus*, more generally known as the *Bridal Sword-flower*. Some of these graceful-habited *Irises* are but little over a foot in height, with flowers of yellow, white, orange, brown, purple, or blue, but one of the finest is that generally known as *Thunderbolt*, a tall-growing and large-blossomed kind, of a beautiful purplish bronze shading into metallic amber tints, quite distinct from aught else, and very fine in its way. The bulbs of these Spanish *Irises* may be purchased so cheaply, that they should find a place in every garden. The best position for them is near to walls, and if they are planted rather deeply in holes of nearly pure sand, so much the better. Good masses of them are now very beautiful as their buds open near groups of the white *Gladiolus* above named, and either as seen growing in the sun or as brought indoors for flower-vases, they are most lovely.

EDELWEISS.—This silvery weed, the *Bridal Everlasting* of the Swiss Alps, also quite abundant in some of the high mountain passes of the *Sikkim Himalayas*, is now flowering freely in the garden. It is one of the very easiest of all true alpine plants to cultivate, but there are two conditions essential to its success. The first is, never try to carry home plants or roots from the Alps or Pyrenees; they are not worth the trouble of posting even, but always trust to seeds as a means of increase; secondly, a limestone soil is essential to its luxuriant silvery growth. Just now we have the plant flowering planted out in a pocket made on the top of a 5-foot high brick wall. It is in full sunshine, and is evidently quite happy. It is also planted out in the ordinary soils of beds on the ground level, and seems equally comfortable, and only the other day I saw a mass of it at Ardee, three plants

forming a silvery mass, the silvery bracts being really very fine, large in size, and yet silver-lustrous withal. This silvery appearance is, after all, the sum total of the beauty of the *Edelweiss*, for in deep rich soil in a half shady place the plant becomes a sage-green weed—rampant, indeed, but not so pretty as some of our native *Cudweeds*. If raised from seed annually and planted in limestone, there is no reason why our gardens should not be full of this flower if desired.

THE MOCASSIN FLOWER.—*Cypripedium spectabile* is, when seen at its best, one of the most lovely of all the *Orchids* really hardy in our land. Good masses of it, fresh in leafage and strong in health, bearing from twenty to thirty flowers are much admired, even by the most *blasé* of connoisseurs, and are not easily forgotten even by ordinary admirers of beautiful flowers. As seen vigorous the leafy stems may be 2 feet in height, each bearing from two to four of their rosy-lipped blossoms, the perianth segments being of snowy whiteness. A friend in America who sent me roots of this plant four or five years ago advised me not to bury the flattened sods in soil in the usual way, but to lay them on the surface, and then cover them under leaf mould to a depth of half a foot or more. I did so, and the plants have been better and stronger every year since, and I would recommend those who may have failed with this plant to try this method. Well grown in pots it makes a handsome plant and a good companion for the *Madeiran Orchis foliosa*, both blooming about the same time. *C. spectabile*, in some peaty soils or in the bog garden, is really one of the finest of all hardy herbaceous plants in cultivation, rivalling the tropical species in beauty.

MARTAGON LILIES.—Stately growing *Lilies*, with turn-cap flowers and leaves in circles or whorls around the stem. There are many forms, —a dozen or more—all referable to *Lilium Martagon*, the greatest mountain *Lily* of Parkinson, who figures and describes the white and other kinds, including what he calls the *Martagon Imperiali*, in the year 1629. In deep rich soils and in half-shady sheltered places, these *Martagon Lilies* are very beautiful, none finer than the white as seen 5 feet or more in height, with fifty or more of its buds and blossoms. The dark, almost black, purple is another fine form, bearing many of its sombre bells on a stem 7 feet in height. Then there is the rare *L. Martagon fl.-pl.*, with upturned branched spikes and double blossoms. Who can tell us aught of the history of this old-fashioned flower? I obtained it from an old country garden, but have found no mention of it so far in books; but this may be my own fault, and not that of the writers on these flowers. There are many shades of colour among the ordinary coloured *Martagons*, some being darker, others lighter; some spotted and others plain. I believe there is a white kind spotted with red or purple which I have not yet seen. The names of garden flowers mean so little now-a-days, that one cannot see too much of garden plants and their varieties.

DELPHINIUMS.—"Like daughters of the gods, divinely tall," and are they not also divinely, beautifully blue? While they endure fresh and fair, that is to say, during June or July, we have nothing that can compete with these lovely *Bee Larkspurs*, as they used in the old times to be called. They are of all shades of blue, leaning to purple a little now and then; or, on the other hand, inclining to white or lilac, as the case may be. Once well planted in deep rich soil, and guarded from slugs and snails during their earlier stages, they exist for years, and during their time of flowering become the glory of the garden. After all, can *Queen Rosa* have

anything better calculated to show her fresh young beauty to advantage than these towering masses of rich blue flowers? To my mind, the soft pale, or Cambridge tints of greyish blue yielded by some varieties are the most lovely, but all are fine, if well placed for effect. Some of the darker kinds now towering up near a wall partly draped with golden Ivy look all the richer for the contrast thus afforded them, whilst others serve to emphasise the yellow of *Celsia cretica* and of *Verbascum olympicum*. Grow them as one may, they are, if well grown, most beautiful in good gardens. VERONICA.

KITCHEN GARDEN.

SITES FOR KITCHEN GARDENS.

ONE need not travel far before the fact is apparent that in the case of many kitchen gardens the site is not the best that might have been selected, and that nearly every consideration that goes to make up a good kitchen garden has been sacrificed for the sake of locating the garden within an easy distance of the residence. When we consider the permanent character of the work connected with the formation of such an adjunct to any place, its absolute necessity, and what is expected to come out of it, one cannot but think that the selection of a proper site is of more importance than is generally accorded it. Besides the situation, which, when practicable, should be gently sloping to the south, the character of the soil and the needful shelter from the north and east are essential points that should influence the decision as to site. For my own part, I attach more importance to securing a southern aspect than I do to the other conditions, because once the walls are built there can be no change. The necessary shelter it is in time possible to provide, and if the soil is not quite of the right description, it is possible to make it better by draining, trenching, and the addition of good soil. Respecting the

FORM, I would advise a departure from the parallelogram to that of a square with the southern angles cut off so as to form a half circle to face the south, which would gather the sun's rays into a focus at a very important part, and so increase the warmth. This form would also reduce the length of the north wall, as the forming of a half circle brings in a north-west and north-east aspect—a consideration of some moment to growers of fruit trees. As to

SOIL, when there is any choice, preference should be given to a sandy loam resting on gravel. A depth of 2 feet of good soil is necessary, and if more, so much the better. If it can be avoided no position that requires draining should be selected; not that I object to draining in cases of absolute necessity; my contention is, that a position that requires draining is not a suitable one for either a fruit or vegetable garden, and therefore it is to be avoided. The rage for draining that took possession of a large mass of cultivators thirty or more years ago has had time to bear fruit, and at the present time it is not difficult to find cases that illustrate the fact that it is possible to drain too much as well as too little.

THE WALLS of kitchen gardens are in many cases too high; when that happens it is difficult to efficiently protect the trees on them from spring frost; therefore much of the wall space as well as the labour bestowed on the trees is lost. My experience is that we should get more regular crops of fruit from walls 8 feet high than from higher ones, as it is less trouble to protect the trees on walls of that height. In no case would I build walls more than 10 feet high.

As to copings, I have lost faith in them, especially those more than a foot in width; as to permanent copings, I would not have a mile's length of them for nothing if they had to always remain over the trees. With a wood or glass coping 1 foot wide to be put up and taken down when required I agree, when used in conjunction with other protection in front of the trees. In regard to

ARRANGEMENT, there should be a separate part for fruit trees and another for vegetables. The importance of having a separate department for fruit is not sufficiently recognised. No one can dispute the fact that when fruit trees are growing pretty closely together, as they must be when a certain space is wholly devoted to them, they shelter one another and more regular crops are the result, but, apart from the question of shelter, when the trees are in separate quarters there is no loss of space, there being no trees to shade the crops, no roots to exhaust the soil in which vegetables are grown, and, moreover, when the two departments are divided, the litter inseparable from the cultivation of fruit trees is got rid of, a point of some importance, for the fallen leaves harbour many enemies which it is desirable to get rid of. With regard to

WALKS, the fewer the better. More than half the gardens in the country are cut up into pieces innumerable by means of walks that serve no useful purpose, yet a third of the labour of the garden is taken up with keeping them in order. If the garden is square in form, as I have suggested, and not more than one acre in extent inside the walls, one walk all round at 10 feet from the wall is all that is wanted. An alley should run through the middle of the garden for the convenience of getting at the crops, but it need not be more than 2½ feet wide. This may be surfaced with a coat of coal ashes to prevent dirt being brought on to the principal walk; it may thus be kept clean with less than half the labour that a gravel walk requires. In cases in which there is more than an acre enclosed, a gravel walk may take the place of the centre alley, and where there are two acres, another walk may run at right angles from the centre, so as to cut the space into four equal parts. The width of the walks should be in proportion to the space enclosed; a narrow walk in a large garden is out of proportion; 4½ feet is a suitable width for a garden an acre in extent, and 5 feet will suffice for all but the largest places. As to

BORDERS, those next the wall should not be less than 10 feet wide, and in large gardens they may be 4 feet wider; marginal borders next to walks give the garden a better appearance, I must admit, because the subjects grown in them are usually planted in lines which run in the same direction, which is more pleasing to the eye than when there are no borders and the lines run in a contrary direction; but those who wish to study economy as regards space will have as few marginal borders as possible. Long experience has convinced me that marginal borders and unnecessary walks increase the labour in many gardens to an extent for which there is no adequate return.

EDGINGS FOR WALKS.—I have no hesitation in saying that Box is the best edging; to my mind a dead edging in kitchen gardens looks poor. I am quite willing to admit that live edgings of any kind give more trouble than those which are made of bricks or tiles, but the appearance of a neatly-kept Box edging is so superior to anything else, that that fact outweighs, I think, every other consideration, i.e., of the various kinds of materials used. As dead edgings, I know nothing neater or cheaper or more durable than slate. In districts where slate can be obtained

it is sent out in slabs 6 inches deep, about three quarters of an inch thick, and in lengths varying from 2 feet to 4 feet. These slabs are not difficult to fix in position, and no sort of weather injures them. J. C. C.

FRENCH CUCUMBERS.

IT may interest "D. T. F." to know that the Cucumber as grown by us has no value in France. Some years ago, on taking charge of a garden in Normandy and gauging the needs of a French household by those of my own country, I made the customary preparations for obtaining an early supply of Cucumbers. I found, however, that the local seedsmen knew the long-fruited Cucumber by reputation only, and, therefore, I had to get seeds from England. Only the ridge varieties (Cornichons) were grown in the neighbourhood, and I naturally thought that my handsome Telegraphs and other good kinds would get a welcome reception. Great was my surprise on sending in the first brace to be told that such large coarse Cucumbers were not eaten; they might suit the English palate, but in France they better appreciated the crisp little Cornichons. Although an occasional sample of frame Cucumbers may be exhibited at the meetings of the French National Horticultural Society and elsewhere, the kinds held in most esteem by us are no more in general use in France than the Chinese Yam is in this country, and no Paris market grower would think of attempting their culture.

CUCUMBERS are exclusively an outdoor crop in France. I never knew them to be brought on in any private garden there under glass, and, so far as I know, forcing Cucumbers is an unknown industry in French market gardens. The Melon is the recipient of those cares bestowed on Cucumbers in England, and wonderfully well is this fruit grown in small gardens in France. Where nothing else is grown under glass in a French provincial garden you will see a frame or two of thrifty Melons. "D. T. F." rightly conjectures that the climate offers no bar to the successful outdoor growth of frame Cucumbers in France; it is an exceptional year in which they will not thrive in the neighbourhood of Paris. The garden in which the Cucumbers above alluded to were grown was situated about sixty miles north of Paris, and when I found that my productions were so badly appreciated, I removed the lights from them and left them to grow as they would. I never saw Cucumbers grow as they did; they overran a large space of ground by the end of the summer, rambling up into some trees, and even the large quantities of fruit which they bore and which were never cut did not appear to restrict their vigour in the least. I should say that on half-a-dozen plants there was quite a sack of Cucumbers at one time in various stages of growth, from well-grown eatable fruit to that which contained ripe seeds. Some Cucumber growers say that loose open soil does not promote fertility; but these grew in old rotten manure, with not a particle of loam in it; the roots found their way down into the bed, which had afforded the necessary heat in which to start them. They grew on a border close to a wall; frame kinds did not succeed in open fields except far towards the south of France.

THE WHOLESOMENESS OF CUCUMBERS depends wholly upon the age of the fruit. The more or less tough, old Cucumbers, to which, perhaps, a lengthened stay in a greengrocer's shop has added indigestibility, can only be eaten without discomfort by those having ostrich-like digestive powers. But if cut when about three parts grown and used quite fresh, Cucumbers are not nearly so unwholesome as is commonly supposed.

I can eat Cucumbers if cut before they are fully grown as freely as any other vegetable. Big, long, straight Cucumbers are the pride of the grower, but it is a great mistake to allow them to grow large, as one fruit which attains that maturity which immediately precedes the ripening period will more exhaust the vine than half a dozen cut when from half to three-parts grown. For market, Cucumbers must be fully grown, but in private gardens they need never be allowed to become so big. I may add that although I have eaten all kinds of salads in France, I never saw Cucumbers used in that way; they are much in favour amongst the working classes simply steeped for a few days in brine. In this way immense quantities are eaten both in France and Germany.

JOHN CORNHILL.

WHOLE OR CUT SEED POTATOES.

In the following experiments with seed Potatoes considerable attention was paid to what part of the tuber, if any, showed the greatest vigour. To this end choice seed of standard varieties was procured from different sources, and was variously treated in order to study the results, which are given in the following table, only one variety being used. The eighteen plots here given represent a continuation of work which has now been in progress for three years, and the general averages given below the table emphasise the previous results. The maximum of total yield is plot 1, and of large tubers, plot 9, both planted with large, whole seed. The general averages also give whole seed a decided preference, both as to total yield and large tubers; but the extremely large yield of small tubers is against them. The time of ripening for ordinary and one-eye cutting was August 17 to 21; whole seed ripened from five to seven days earlier.

| Plot | Seed. | Yield of large tubers. | Yield of small tubers. | Total yield. |
|----------------------------------|---------------------------------|------------------------|------------------------|--------------|
| 1 | Large, whole seed | Bush. | Bush. | Bush. |
| 2 | Small | 103.6 | 72.8 | 266.2 |
| 3 | Large, cut once lengthwise | 231.4 | 106.6 | 338.0 |
| 4 | Small | 154.6 | 46.8 | 201.4 |
| 5 | Large, cut crosswise (stem end) | 243.6 | 74.9 | 318.5 |
| 6 | " (seed end) | 251.1 | 86.2 | 340.3 |
| 7 | Cut, ordinary | 240.6 | 31.8 | 281.4 |
| 8 | Cut, one eye | 78.2 | 5.6 | 83.8 |
| 9 | Large, whole seed | 263.2 | 72.6 | 335.8 |
| 10 | Cut, one eye | 134.8 | 17.0 | 151.8 |
| 11 | Large, whole seed | 199.7 | 104.4 | 304.1 |
| 12 | Cut, one eye reversed | 173.1 | 11.2 | 184.3 |
| 13 | Large, whole seed | 217.8 | 106.6 | 324.4 |
| 14 | Cut, one eye reversed | 193.9 | 14.5 | 208.4 |
| 15 | Large, whole seed | 228.9 | 98.2 | 328.1 |
| 16 | Cut, ordinary | 160.8 | 38.9 | 200.7 |
| 17 | Cut, one eye | 122.5 | 7.9 | 130.4 |
| 18 | Cut, one eye reversed | 158.8 | 9.1 | 167.9 |
| Average of whole seed | | 236.6 | 106.5 | 343.1 |
| Average of ordinary cuts | | 206.2 | 33.3 | 239.5 |
| Average of one eye cuts | | 111.8 | 8.8 | 120.6 |
| Average of one-eye reversed cuts | | 173.1 | 11.6 | 184.7 |

Concerning the terms "ordinary," "one-eye," and "one eye reversed," we may add that the first means two eyes to the piece, the second is cut slanting toward butt and to centre, for the third reverse the tuber, cut off seed end and then cut to centre. It has been argued that the one-eye system of cutting was superior to other methods for several reasons, among which are saving of seed, increased percentage of large tubers, &c. We have always admitted both of these propositions, but have maintained that this system of cutting was not practical, and should not be recommended for ordinary culture for the simple reason that such small cuttings to a greater or less extent impaired the vitality of the plant. Under perfect conditions of climate and cultivation, there is no question that extraordinary results may be accomplished with this method of cutting, and so it might with some other method. These small cuts should be planted closer than large ones,

must not be covered too deep, and in a drought are almost sure to fail where whole seed or large cuttings will produce a fair crop. The supposition has been advanced that on account of the internal structure of the tuber, this method of cutting one eye to the centre, slanting the knife toward the stem end, was advantageous in this, that it maintained intact a supposed branch of which the "eye" is the terminal bud. The appearance of the internal structure of the Potato gives ground for such a conclusion, but on well authenticated facts this supposition cannot be maintained. For we have repeatedly turned the Potato, and cut across the supposed internal branch immediately beneath the bud, and secured as good results from such cuttings as from pieces cut so as to maintain intact the supposed internal branch. Thus, in the above table reversed cuttings show a remarkably better yield than the most approved "one-eye cutting." This we cannot explain, but consider it one of the freaks of plot experimentation. However, both results when compared with ordinary and whole cuts teach the same general truth. The following table presents other work bearing on the same question:—

| | Yield of large tubers. | Yield of small tubers. | Total yield. |
|--------------------------------|------------------------|------------------------|--------------|
| Beauty of Hebron—one eye | Bush. | Bush. | Bush. |
| " ordinary | 238.3 | 65.8 | 304.1 |
| Rural Blush—one eye | 285.9 | 59.0 | 344.9 |
| " ordinary | 208.7 | 29.5 | 238.2 |
| O. K. Mammoth Prolific—one eye | 274.5 | 25.0 | 299.5 |
| " ordinary | 222.6 | 24.2 | 246.8 |
| Early Ohio—one eye | 254.1 | 81.7 | 335.8 |
| " ordinary | 163.4 | 43.1 | 206.5 |
| Burbank—one eye | 247.3 | 34.0 | 281.3 |
| " ordinary | 176.7 | 26.6 | 203.3 |
| Mammoth Pearl one eye | 272.3 | 34.0 | 306.3 |
| " ordinary | 215.5 | 36.3 | 251.8 |
| White Elephant—one eye | 290.4 | 47.2 | 337.6 |
| " ordinary | 129.3 | 15.9 | 145.2 |
| Snowflake—one eye | 162.1 | 31.5 | 193.6 |
| " ordinary | 136.1 | 45.4 | 181.5 |
| Average of one eye | 186.3 | 35.8 | 222.1 |
| " ordinary | 240.3 | 42.4 | 282.7 |
| Excess of ordinary | 54.0 | 6.6 | 60.6 |

The above table corroborates the previous one with strong testimony. In every instance but one, ordinary cuts exceed in yield the one eye cuts. This was with Snowflake, and is readily understood by all who know the character of this Potato. The excess in yield with ordinary cuttings is a fraction over sixty bushels per acre; omitting Snowflake, it is a fraction over seventy-seven bushels. It seems that this is quite conclusive evidence that under ordinary conditions, the larger cuttings are superior to one eye, and enough superior to amply repay the extra outlay of seed. These were all close planted, $2\frac{1}{2} \times 1$ foot. To sum up, we would say that the evidence adduced would not warrant the use of whole seed, as this is very wasteful without a corresponding increase of crop, the argument in favour of it being principally a gain of a few days in ripening, and additional vigour to resist drought, also increased yield. The general result tends to show that the yield of large tubers will not as a rule much exceed good ordinary cut seed. Another objection is that large, whole seed produces a much larger quantity of small tubers. The results, moreover, do not sustain the use of one-eye cuttings; this is very decided. The advantage of cutting so as to maintain a supposed internal structure has not in any of our experience been sustained. That ordinary cutting is best under general conditions is clearly proved. That eyes from certain parts of the tuber are more productive than others is not sustained by a particle of evidence. The whole question of productiveness is, so far as we can discern, a matter of vigour, and the evidence is clear that this is largely influenced by size of cutting. The central portion of the tuber shows the best yield, and butt portion second. We define ordinary cutting to mean never less than two eyes, except in very large tubers

having few eyes when they are cut separate, and three eyes are not used, except in cases of many-eyed sorts. The tip is never used in experiment work by us. We always cut to the centre, slanting the knife a little toward the butt of the tuber, turning it around as we progress; in this manner the most uniform cuttings can be made.—*Report of the Ohio Agricultural Experiment Station.*

GARDEN FLORA.

PLATE 550.

THE DAPHNES.

(WITH A PLATE OF D. MEZEREUM AND VARIETIES.*)

AMONGST plants with sweet-scented flowers, Daphnes stand in the foremost rank, and as the majority of them flower early in the year, they are all the more welcome. One of the very earliest is the Mezereon (*D. Mezereum*), a British plant, but much more common in Northern Europe than in England, where it is believed to be truly wild only in the southern counties. In old-fashioned gardens it is often to be met with, but its ornamental properties seem to be overlooked by planters nowadays. The ordinary form of this Daphne is that of a somewhat upright-habited bush, the foliage of which is deciduous, but reappears early in spring. Its flowering season is during the first three or four months of the year, a time when shrubs in bloom out of doors may be counted on one's fingers. Its leafless branches are then as densely furnished with flowers as those shown on the accompanying plate, while as summer advances they give place to



Daphne Laureola.

Daphne indica.

bright red fruits, scarcely less ornamental than the flowers. Amongst seedlings, when raised in quantity, individuals will be found deeper or paler in colour than the others, but all are well worth growing. The variety known as rubra, purpurea, or atro-rubra is much deeper coloured than the ordinary form, and therefore should be planted in preference to it where space for shrub-planting is limited. In alba the flowers are pure white, and the berries instead of being red are yellow; even when not in bloom or in fruit, this variety can be distinguished by the lighter hue assumed by the foliage. Of alba there is a double-flowered form, but it is very rarely met with. Autumnalis is, as its name implies, an autumn-blooming sort. It may be mentioned that the Mezereon dislikes hot, sandy soils, in which it will in fact scarcely live; it prefers a cool, moist, but well-drained spot. The best time to transplant this Daphne is in autumn, as it starts afresh about Christmas. A rather stiff loam and a partially shaded position suit it best.

THE SPURGE LAUREL (*D. Laureola*) is by no means an uncommon plant. It forms a dense evergreen bush 3 feet or 4 feet high, clothed with deep green glossy leaves. The flowers, which are borne in clusters, generally of fives, on the ends of the branches, commence to expand as early in the season as those of the Mezereon, but being yellowish green are not at all showy. The berries when ripe are black. Though not remarkable

* Drawn in Mr. W. E. Gumbleton's garden, Belgrove, Queenstown, by Miss Travers.



DAPHNE MEZEREUM.

WHITE VARIETY. 1. FLOWERS. 2. FRUIT. 3. FLOWERS. 4. FRUIT.

for flower-beauty, the Spurge Laurel is nevertheless an ornamental evergreen shrub, especially valuable from the fact that it thrives under the shade and drip of trees where little else would grow, and therefore it is sometimes recommended for game covert. Of this species there is a purple-leaved variety (*atropurpurea*), that forms a pretty and distinct-looking shrub.

D. FONTICA bears considerable resemblance to *Laureola*, but its blooms are brighter yellow, and



Daphne Cneorum.

Daphne pontica.

they are borne in pairs; moreover, they are later in expanding, being usually at their best in April and May. The leaves, too, are shorter than those of the Spurge Laurel. *D. pontica* is a native of Asia Minor, and an old inhabitant of our gardens.

D. CNEORUM.—This is one of the most beautiful of trailing shrubs, *i.e.*, when in thriving condition, for though in many places it will grow luxuriantly, yet it others great difficulty is experienced in keeping it healthy. It does well on sloping banks if the soil is not too dry and of too heavy a character; it likes a compost consisting largely of open vegetable matter. It is also a good rock garden plant, both stems and roots being quite at home amongst the rocks, into the fissures of which the latter are fond of working their way. *D. Cneorum*, sometimes called the Garland flower, is an evergreen species, which in May or June become literally covered with clusters of bright rosy blossoms, the perfume of which is perceptible even at a considerable distance off. If wanted for flowering early under glass, it should be grown in a bed largely composed of peat or leaf-mould, where, if kept fairly moist, it will grow freely and may readily be lifted and potted. It may be found in a wild state in mountainous districts throughout Southern Europe.

D. ALPINA.—This is a low-spreading, deciduous shrub with small lanceolate leaves and greenish



Daphne alpina.

Daphne collina.

white flowers. It is essentially a rock garden plant, its roots delighting to fix themselves in stony crevices; though not so showy as some of the other Daphnes, it is, nevertheless, well worth cultivation on account of the length of time during which it keeps up a succession of bloom—often from April till summer is well advanced. This Daphne in a wild state is widely distributed over

the European Alps; though it has been in cultivation in this country for more than a century, it is even now by no means common.

D. COLLINA is a neat evergreen, upright-habited bush, a yard high, furnished with dark green Box-like leaves, pubescent on the under surface, and bearing clusters of pretty pink blossoms during the spring months. It is a native of the Italian mountains.

D. BLAGAYANA.—This, which is of comparatively recent introduction, forms a spreading bush, furnished with neat evergreen foliage, and in March and April clusters of ivory-white, highly fragrant blossoms. The latter are borne on the points of the shoots, surrounded by a collar-like arrangement of leaves. It is a native of the Styrian Alps, and is well suited, on account of its spreading habit, for planting on rockwork. Sometimes, too, it is grown in pots for flowering under glass, a purpose for which it is well suited on account of its delicious perfume.

D. FIONIANA.—This resembles the species just named, but is more compact in growth, and its leaves are darker green; its flowers, too, are of a deeper hue, and, moreover, it is one of the most continuous blooming of all the Daphnes. For instance, a specimen of it here was a year ago thickly studded with purplish pink blooms, and in December last it was still in flower, while now another crop of blossoms is commencing to open.

D. RUPESTRIS.—This pretty little evergreen species has small shining, leathery foliage, which renders it at all times bright and cheerful. Its flowers, which are of a pleasing pinkish colour, are often produced in such profusion as to almost hide the leaves. It is a native of the Alps, and is found generally so situated that its roots can penetrate deeply into the fissures that occur in the limestone rocks there, while its branches clothe their otherwise bare faces. Its flowering season is towards the end of summer and in autumn.

D. GENKWA.—This is so unlike other Daphnes, that at first sight one would be more likely to take it for a Lilac than a Daphne—that is, when in bloom, the flowers reminding one of those of a Syringa; indeed, it is often called the Japanese Lilac. This species forms a neat deciduous shrub furnished with opposite lanceolate leaves, and bearing thickly in March or April on the then leafless branches small clusters of flowers, individually four-lobed, and having a tube about half an inch long. This species is hardy in some parts of England, but in others it needs protection. It is, however, such a striking plant that it will repay the shelter of a wall. It is one of Fortune's introductions, but would appear to have been afterwards lost and re-introduced twenty years ago through the Botanic Garden at St. Petersburg—not, however, to remain long with us, for it has been lost sight of till within the last few years, when it got into the hands of some of our leading nurserymen. Messrs. Paul were awarded a first-class certificate for it by the Royal Horticultural Society last year, and I have also seen it in good condition at the Coombe Wood Nursery.

D. HYBRIDA.—Although more tender than many of the above, this is fairly hardy, and will survive most winters against a wall. The neat evergreen foliage is at all times bright and cheerful, while the fragrant reddish blossoms are freely borne during the spring and summer months.

D. OLEOIDES.—This is an upright-habited, but somewhat loose-growing, bush, reaching a height of 3 feet or 4 feet; it is rather sparingly furnished with leaves, which a good deal resemble those of the Olive; hence the specific name. The flowers, which are borne in clusters, are rather small, but freely produced, and highly fragrant, besides which a succession of them is kept up often throughout the summer months.

D. MAZELI.—This Japanese species somewhat resembles the tender *D. indica*, but, unlike that kind, Mazeli will, in many parts of England, stand

the winter out of doors. Its deep-coloured glossy evergreen foliage makes it an attractive shrub at all seasons, but in spring, when loaded with clusters of highly fragrant blossoms, it is doubly welcome. This Daphne attracted a good deal of attention some seven or eight years ago, but it would appear to have become somewhat scarce.

D. GNIDIUM.—This forms a round bush densely packed with small lanceolate leaves, and producing during the summer months great quantities of



Daphne Gnidium.

pinkish blossoms. It is rather particular as regards its requirements, succeeding best under the same conditions as those that suit *D. Cneorum*. *D. Gnidium* is a native of Southern Europe, and has long been grown in British gardens.

These may be said to be the most prominent amongst hardy Daphnes. Of those that need the protection of a greenhouse, *D. indica*, or odora as it used to be called, is a great favourite on account of its deliciously fragrant blossoms. It is, however, often found in an unsatisfactory condition, owing, perhaps, to being allowed too much root room, or to having insufficient drainage. On the Spurge Laurel, a species on which it is frequently grafted, it cannot be depended upon as when on its own roots; an unsightly excrescence is often produced at the point of union, and sometimes the plant dies off without any apparent cause. *D. papyracea*, a native of the Himalayas, is interesting from the bark being used as writing paper by the natives there; but as an ornamental plant it is not satisfactory, being tall and straggling in growth and a sparse flowerer. The blooms are white, borne in little clusters, and, like those of most of the genus, agreeably scented.

PROPAGATION AND CULTURE.—Where seeds are unobtainable most Daphnes can be propagated either by means of layers or by grafting on allied kinds. The low-growing alpine species can, from



Daphne hybrida.

Daphne oleoides.

their procumbent habit, be easily layered, while those that do not lend themselves readily to that treatment can be grafted either on the Mezereon or Spurge Laurel. They can be grafted on the stem as close to the ground as possible, or, as is sometimes done, on a piece of the root, and the point of union can thus be covered with the soil. Grafting, however, cannot be recommended in the case of *D. indica*, cuttings of which root without

difficulty in sandy peat, and plants thus obtained can be much more depended upon than such as are grafted. In layering the stem should be partially cut through and buried sufficiently deep to prevent its getting dry. I have often noticed that when a stone is laid on the stem to keep it in its place roots are much quicker produced than where not so treated, the stone probably maintaining a more regular degree of moisture underneath. Even when a stone is used to keep the branch in its place, the cut portion must be covered with soil in the ordinary way. *Daphne* seeds do best if sown as soon as ripe in a fairly moist peaty soil, and in a position sheltered from the sun. One mode of culture would not suit all *Daphnes*, but, generally speaking, they prefer a soil largely composed of vegetable matter, fairly moist, and they dislike being fully exposed to the sun. The *Mezerion*, however, thrives best in a stiff soil. One point to bear in mind with regard to the *Daphnes* is the fact that their roots are, as a rule, few in number, but very long, and sparingly furnished with fibres. For this reason they are more difficult to transplant than many shrubs; therefore, when it is necessary to remove them the operation should be as carefully carried out as possible. T.

BIRMINGHAM BOTANIC GARDEN.

RECENTLY there has been a large addition to the glass department in this garden. The old houses that stood near the curator's residence, which had become dilapidated and which were never well adapted for the growth of plants, have been removed. On the south side and immediately adjoining the curator's house a large space has been covered with a lofty span-roofed structure, 150 feet long varying in width from 30 feet to 40 feet. This allows ample room for a large number of people and for an exhibition, such as the recent Orchid show which was held in it, a bank of plants being arranged all round, leaving the whole of the central space free. The plants thus grouped, with Ferns, Palms, and similar foliage plants, had a very good effect.

Adjoining this house and running parallel with it on the south side, four span-roofed plant houses have been erected, each some 36 feet long by 24 feet wide. These are well stocked with plants. The first at the western end is filled with plants requiring an intermediate temperature, amongst which are many of the most beautiful things in cultivation, and through the fact of greenhouse warmth being insufficient for them and ordinary stove heat too much, their cultivation is less general than it deserves to be. Not the least desirable feature in connection with a plant house kept at an intermediate temperature is that it can be visited without the feeling of oppressive heat experienced in a hot stove. In the next division all the occupants are such as need only greenhouse warmth, with the addition of those plants that can be brought in from the warmer houses during the summer season. The third house is occupied by a mixed lot of Orchids, of which the garden now contains a fairly representative collection; all are doing very well, especially those located in the house under notice, which seems to answer their requirements. Amongst a number that were in flower may be named *Cattleya Mossie* in many forms, various species of *Cypripedium*, and also of *Odontoglossum*, including *O. crispum*, *O. Pescatorei*, *O. cirrhosum*, and a quantity of *O. vexillarium* comprising several beautiful varieties. The eastern division of the range is a stove, in which are the usual flowering and fine-leaved plants, collectively in a thriving, healthy condition. This block of glass looks very well, and is well and substantially built; whilst sufficient has been done to make the whole effective in appearance, the legitimate object for which the houses were built—to grow the plants well—has not been sacrificed. The old firm of Messrs. Hope, of Birmingham, well known as the constructors of metal houses, were the builders; the cost, I understand, was £3000.

In the large conservatory many of the plants, es-

pecially Tree Ferns, have attained a size above that ordinarily met with. Mr. Lathom, the curator, has been successful in several instances in effecting that which at one time was looked on as almost an impossibility—the raising of hybrid Ferns. The specimen of the hybrid *Dicksonia* Lathom shows its distinct character more fully as it gets older, the stem attaining an unusual thickness proportionate to its length; the trunk now measures about 3 feet from the base up to the lower fronds, whilst it girths 56 inches round the bottom. The rachis are over 4 feet long, the entire fronds 10 feet or 11 feet. Amongst other Tree Ferns are noble examples of *Alsophila excelsa*, *Dicksonia antarctica*, *D. squarrosa*, *Cyathea princeps*, *C. Smithii*, *C. spinulosa*, *Cibotium Schiedei*, *C. spectabile*, and *C. regale*; two or three of these raised from spores here show sufficient difference in the character of their fronds to warrant the supposition that they are hybrids. Mr. Lathom's latest success with hybrid Ferns is *Gymnogramma Lathomii*, a hybrid between *G. schizophylla* and *G. decomposita*; it is very beautiful and distinct, differing completely from all others. Returning to the Tree Ferns in the conservatory, they are grown in tubs and boxes, the advantage of which over planting out, when, as in the case of these plants, they get old with tall trunks, is obvious, as the heads never grow so disproportionately large as when the roots have unlimited space to revel in; and, in addition, it admits of the plants being re-arranged from time to time, so as to prevent the strongest growers smothering the weaker ones. The same applies to Palms, of which there are some good examples of the medium growing kinds. A pair of *Chamaerops Fortunei*, from 10 feet to 12 feet high, are in beautiful condition, though confined in tubs little more than 2 feet in diameter. In the large house adjoining, with circular tank for aquatics in the middle, amongst things in flower were some good specimens of *Medinilla magnifica*. Here also is an interesting collection of medicinal and official plants.

The cool Orchid house contains a nice selection of popular kinds, of which may be mentioned *Odontoglossum* and *Masdevallias*, the former being represented by considerable numbers of *O. crispum*, *O. Pescatorei*, *O. cirrhosum*, and others; the *Masdevallias* comprise most of the leading sorts, including *M. Harryana*, *M. Harryana insignis*, *M. Shuttleworthii*, *M. polysticta*, *M. xanthina*, *M. triangularis*, *M. Chimera*, *M. Chimera Wallisi*, *M. radiosa*, and *M. Houtteana*; these, in common with the other plants, are growing satisfactorily. The pretty and distinct-looking *Bletia hyacinthina*, that rarely flowered with the warm treatment that used to be given it, also does well here in cool quarters, along with *Disa grandiflora*, likewise strong and vigorous. In this house was a beautiful specimen of *Sarmienta repens*, one of the best of all small-growing flowering plants suitable for a hanging basket, and one that will doubtless be much more generally cultivated when it is better known. The flowers, scarlet in colour, are tubular, about 1 inch long, expanding at the mouth, from which the anthers protrude about three-quarters of an inch. The leaves are small, cordate, thick, leathery, and of a deep green shade. It is a profuse bloomer, flowering from every bit of growth, and would make a nice companion plant for *Impatiens Jerdonia*, but will probably be found to require less heat.

In a house in which are numbers of East Indian Orchids, consisting of *Dendrobiums*, *Phalenopsis*, *Cypripediums*, and others requiring a high temperature, are several thriving examples of *Dipladenia* which here seem to do well grown in pots and trained on the roof over the path; they include *D. amabilis*, *D. Brearleyana*, *D. regina*, and *D. insignis*.

Another house is occupied by Orchids needing medium warmth; there is a fine lot of *Ceologyne cristata*, and quantities of such things as *Laelia anceps*, various *Cattleyas*, including a very good specimen of *C. Warneri*.

The gardens outside are in very good condition,

the plants in general doing much better than might be looked for so near a large manufacturing town with an ever-attendant smoke-charged atmosphere. There is a nice collection of hardy herbaceous plants, principally consisting of the less delicate species. One of the advantages attending the cultivation of these is that they afford immense numbers of beautifully flowered plants that are not over-particular as to the atmosphere in which they are grown being quite pure. T. B.

WORK DONE IN WEEK ENDING JUNE 22.

JUNE 16 AND 17.

THOUGH we are nearing midsummer, the wind these two days has blown as keenly as it usually does in March, and our tender flower-garden plants are being crippled. We have done all that is practicable to keep them as vigorous as when first put out by covering the ground with Cocoa fibre, which helps to keep the soil warm, and reduces the injury likely to accrue from either cold or drought to the minimum point. Though cold, such drying weather has compensating advantages, as it favours weed destruction by hoeing; all our kitchen garden crops and ground that has been recently hoed will give us but little further trouble throughout the season. Shrubbery clumps on pleasure grounds and sides of coach roads are, whilst the weather continues so favourable, being cleaned by this means. Knifed out the points of long shoots of small *Retinosporas* and of small plants of the erect-growing *Lawson Cypress* that are used as central plants in flower-beds. This trimming we do during the winter months and a second time now, but pains are taken not to cut the plants so close as that they shall present a shorn appearance. Tied down shoots in Peach houses; well soaked inside border of latest houses; clear manure water from the cow-yard we find about as good a fertiliser as anything we can use, and for this watering it has been used rather freely. Planted out *Spiraeas* and *Deutzias* that were forced for cut flowers during winter and spring-time; on a border facing the south-east they do right well, and lift for forcing in fine condition from October onwards. Having a large quantity of *Spiraeas*, we allow these to remain in the ground two seasons before being again forced. Our entire stock is divided into two sets; those forced last year will be forced during the coming season, and those now being planted out will be again dug up for forcing in the autumn of next year. Potted our first lot of *Primulas* and pricked out others; also potted winter flowering *Carnations* into 5-inch pots and plunged in ashes in a sunny aspect. Greenfly and red spider are the only insects that prey on them, and frequent overhead washings with the syringe are necessary to keep the plants clean, which work we do in the evening when the weather is dry; even if there be no insects, a slight syringing is desirable in the afternoon or evening in warm weather.

JUNE 18 AND 19.

Winter-cold at midsummer is a truthful description of the weather we are now having in Hants; it keeps dry though, and vegetation does not therefore suffer so much as it would were cold and wet combined. Mulching all beds in flower garden with fibre, both for neatness sake and to induce growth. Clipping Box edgings, finished cutting small shrubs, and also the tying up of *Dahlias*, *Ricinus*, and all sub-tropicals that are ready to tie. Pruning bush and pyramidal trained Pears, as our trees are all as large as the space will admit of; all the new growth is cut away to within three or a couple of eyes of the old wood; of course, where there is a gap a new shoot is left to be eventually tied down to remedy the defect. For the most part the fruit is thinning itself, and there will be little of that left for us to do; with Peaches, Nectarines, and Plums it is different, as these crops are large, and a quantity of fruit is now being pulled off, and the growths of the former laid in close to the wall by means of small Hazel sticks fixed horizontally in front of the young shoots, and secured in position by fixing

each end in the main branches that are nailed in to the walls. The foregoing has been our principal outdoor work, but what I term odds and ends of jobs we have had in abundance, such as sweeping walks, clipping Grass verges, storing away pots after completion of bedding out, picking over Roses for maggot, watering small recently planted seedlings of Asters, Stocks, and other flowers. Indoors, the tying in of wood and exposure of fruit to full light in all Peach houses are now finished, and the latest vineries are now having similar attention as to stopping and tying down shoots and drawing big leaves away from the bunches, that a sight of the crop may be obtained at a glance. Of course, this is done solely for appearance sake; but only professional snarlers would think of quibbling at the practice on that account. Strawberry forcing is now drawing to a close; our last batch is swelling up for ripening, and already soil is being prepared for beginning afresh. Staking bush-grown Chrysanthemums. The plants that are being grown for the production of large flowers need almost daily attention in respect of keeping the shoots tied close in to the supports, which in our case is an espalier trellis.

JUNE 21 AND 22.

Fine and warmer, but sunshine still lacking. Clipped Box edgings and Privet and Laurel hedges, and continued the summer pruning of Apples, Pears, and Plums on walls, and the laying in to the wall the young shoots of Peaches and Nectarines. The rains as yet have afforded ample moisture and artificial watering has not been required, but thick mulchings of stable litter are constantly kept on, and after a heavy syringing of the trees with hose or garden engine, it is well trodden down to prevent the soil getting bare and in dry weather cracking open. Planted out Snow's and Veitch's Autumn Protecting Broccoli and Autumn Giant Cauliflower on a south border as it is cleared of early Potatoes. Netted over the main plot of Strawberries; from present appearances we shall not be able to gather in quantity for ten days or a fortnight. Mixed up litter and leaves for renewal of heat in Pine pits, and began potting the strongest suckers and a few of the most pot-bound successions. Every evening we look over the trees in Peach house to gather ripe fruit; we never allow the fruit to get dead ripe on the trees, for both Nectarines and Peaches keep longer and are of better flavour if kept in a cool fruit room a day or two before they are required for dessert. Melons and Pines we serve the same, but Figs are most luscious if kept till required for dessert in the same temperature as that in which they have ripened. Put in cuttings of Chrysanthemums for flowering in small pots for the furnishing of baskets and vases in rooms. They strike readily at this season in any description of light sandy soil and in almost any position; ours are put in the corner of a cold pit and covered with bell-glasses.

HANTS.

FRUITS UNDER GLASS.

PINES.

ALTHOUGH the season continues cold and the sun has lost its brightness, plants generally have made good progress since they were potted, and successions now require more room. Space we cannot always obtain just when it is wanted, and perhaps it is best so, as stock of all kinds increases rapidly and gardeners being thoroughly conservative, the majority of them shrink from the proper mode of making room by boldly destroying duplicates before they do mischief to the best part of the stock. Every garden is not, of course, overstocked, but by some means or other Pines do become too numerous, and we almost invariably find well-grown plants asking as plainly as they can for more room before it is forthcoming. Where this is now the case and reduction cannot be faced, there are two ways out of the difficulty. Young stock may now be accommodated in manure pits and deep frames with or without the aid of fire heat, and many of the Queens started early in the

year will be sufficiently advanced to admit of their removal to an early vinery to ripen. In a structure of this kind not only will they ripen perfectly, but the dry warmth with plenty of air will favour their keeping a long time after they are fit for use. The structure in which these early fruits are produced, as a rule, is small; still it will be found large enough to accommodate a few of the very best of the autumn fruiterers as soon as it can be cleared. By adopting this plan relief will be given at both ends, and that worst of all evils, the drawing or elongation of the leaves of the general stock, by re-arrangement, can be warded off for a time. Small houses adapted to very early forcing are always kept hard at work throughout the heavy firing portion of the season, and not unfrequently become infested with troublesome enemies, which work serious mischief if allowed to breed and multiply in the beds of old tan or leaves. Woodlice, cockroaches, and crickets soon make terrible head way, and the latter often mar the beauty of every fruit by devouring the flowers and eating holes into the pips. Growers who have once been caught will not allow this annoyance to occur a second time, and others who have hitherto escaped are timely warned that they should avail themselves of this opportunity for clearing out and thoroughly cleansing the pit before it is refurnished with fresh plants. Cleanliness being such an important factor in Pine culture, I would suggest the removal of every particle of tan, scalding and limewashing preparatory to refilling with fresh plunging material. After the pit has been refilled with thoroughly fermented tan or leaves (I prefer the latter), the bed should be made very firm to check violent heating, but if any doubt exists it will be well to place trial sticks and wait until the bottom heat touches 90°. The plants may then be placed in shallow basins, and closely packed when safe from danger of burning. If this cold sunless weather continues, gentle fires by night may be needed, but, as a rule, pits which have been thoroughly renovated do not require it, while the moist warmth constantly rising from the decaying leaves favours the most satisfactory growth of roots and foliage. Succession houses, in which the pots are well filled with roots, will now require liberal supplies of water whenever this element is needed, and the syringe may be more freely used for damping the beds and walls and charging the axils of the lower leaves with moisture. Overhead syringing on bright afternoons in any exposed houses may occasionally be necessary, but plants in close, compact pits make the best growth where suitable conditions can be maintained by the production of atmospheric moisture. Potting must, of course, receive timely attention, as nothing is more likely to throw the whole system out of gear than allowing growing successions to become tightly pot-bound. Years ago it was the practice to make great biennial affairs in this way, and all other work was put aside for the foray. Now, fortunately for ourselves and the plants, strong suckers are detached from the stools and potted at once into 8-inch pots in small batches; one shift when well rooted places them in the fruiting pots, and the result is not only quicker, but better.

MELONS.

In order to keep up the supply of ripe fruit throughout the season, strong plants in free growth from fortnightly sowings should always be ready to hand for filling up the different compartments as soon as the last fruit is cut. Free-setting, green-fleshed varieties are best worth growing, and the less they are mixed in small compartments the better, otherwise much delay will often be caused by one or two later sorts keeping the pit occupied for a light which will not pay for the candle. A good start with each set of plants being important, the lights and wall should be well cleansed, and all old plunging material removed before the new is introduced. This, now firing is or ought to be on the wane, should be nicely sweetened in the open air, and the quantity placed in each pit sufficient to maintain a steady bottom heat for a considerable time after the Melons are

plunged or planted. Pot Melons can, of course, be renovated at any time, but planting out is a different matter; and as good fruit cannot be grown without bottom heat, a substantial body of sound Oak leaves, that will carry the plants through and do away with the necessity for fires through July and August, should always be provided. The next point is soil. Melons will grow in any sweet soil suitable for stone fruit trees, Strawberries, or Roses; they will also grow and set their fruit in lighter soils; but that which suits them best is a sound fibry loam, capable of producing fairly strong, wiry vines without the aid of manure. Poor, but in other respects suitable, loams require the addition of a stimulant or corrective in the form of old lime rubble, burnt clay, and perhaps a sprinkling of bone-dust; but these should be used in moderation, as grossness is not conducive to fertility or setting, and feeding can always be resorted to when the fruit is swelling. The majority of growers now cultivate their Melons in pots plunged in bottom heat, a system which I have adopted for many years and strongly advocate. Some of its advantages may be summed up in a few words: 1. Much valuable time is saved, as plants 2 feet to 3 feet high can be established in the pots by the time the pit is ready for them. 2. A small quantity of compost, 1½ feet cube, is quite sufficient for each plant. 3. Complete control over the roots when the fruit is setting and ripening is an immense power. 4. Stimulating liquid without waste can be given to the roots when necessary, and small quantities of highly concentrated stimulants in the form of bone-dust, &c., can be applied just when and where they are wanted. 5. The roots being confined to the pots or turves on which they stand, the beds can be turned or renovated at any time; no small matter when we know how essential dry heat is to ripening up with high flavour.

The frame ground.—Days and nights having been so very cold, plants in pits and frames have had a poor time of it and, like all tender exotics, are sadly behind. If delay were the only inconvenience, we should not have much cause for complaint, but unfortunately we cannot ventilate. We cannot shut up with high heats capable of forcing growth forward and turning the frames into tropical jungles; neither can we syringe and water, lest we introduce two troublesome pests, canker and mildew. A change for the better, let us hope, is near at hand; meantime we must keep the linings well renovated with fresh fermenting material, to insure a brisk internal temperature, and thick covering must not be omitted. Inside we must coax where we cannot command by using dry fibry soil, not too rich, but well aerated and warmed for planting and earthing purposes. The foliage must be kept extra thin, not by cutting away a single old leaf, but by training the vines a good distance apart and pinching every lateral not carrying fruit at the first joint from the stem. If planted high on raised hills or ridges, and water can be given to the roots without flooding the collars of the plants, one frequent cause of canker will be avoided, but should there appear signs of decay, quicklime and sulphur will be found the best remedy. Insect pests are not numerous, but they are troublesome, especially when from any cause the plants get checked in their growth. Green fly can be destroyed with tobacco smoke; the plants also, unless the operation is more than carefully performed. Close watching and timely dipping or sponging when the weather does not favour syringing is the safest remedy. The new nicotine vapouriser may do good service in Melon pits, as the introduction of sulphuric acid from the old and clumsy fumigators can be avoided.

CUCUMBERS.

Where old plants in hot-water pits have been retained, they will require a considerable amount of syringing and almost daily manipulation to keep them clean and healthy. Copious supplies of tepid liquid, soot or guano water, and frequent top-dressings with fresh turfy loam and old lime rubble will also be necessary, and then their produce will not compare favourably with fruit from

fresh young plants put out in the spring. Such being the case, all who have the convenience will now be cutting their supply from pits and frames, or small compartments from which fire heat is partially or entirely excluded. The first and second I prefer, as the vines can be trained over trellises 18 inches or more above the soil, and the fruit will be straight and clean. If the supply from these is equal to the demand, all old stagers should now be removed from the hothouses and replaced with late Melons or young plants of Telegraph or a good strain of free-fruited Black Spine. When Black-spined Cucumbers were more extensively grown, good judges would not look at Telegraph in summer; but why the growth of these handsome and superior flavoured varieties has been given up it is difficult to imagine. Be the cause what it may, Cuthill's Black Spine and another excellent variety sent out by Smith & Co., of Worcester, are now so rarely met with that it has become a matter of "Hobson's choice"—Telegraph or none. Recently planted pits and frames from which bedding plants have been removed should be well lined with fresh fermenting manure and leaves to throw heat into the beds, and good covering will greatly assist the plants through the night. If these structures were not well scalded and cleansed before they were planted, green fly and spider may be found very troublesome, not only at the outset, but throughout the whole of the summer. These plants, like Melons, are easily injured by tobacco smoke, and for this reason smoking, if possible, should be avoided. Heat and moisture, on the other hand, are excellent antidotes, and the latter may be freely introduced where the linings receive proper attention. Give air early on fine mornings, avoid shading if the fruit does not scald, and shut up with plenty of moisture and at any temperature ranging from 80 to 90.

CHERRIES.

All pot trees from which the fruit has been gathered must now be removed to the open air, well syringed to clear them of spider and plunged to the rims on a warm sheltered border. Trained trees established in internal borders, which have been kept on the dry side to prevent the fruit from cracking will also require cleansing and watering to keep the roots and foliage fresh and healthy until the roof lights are taken off for the season. This possibly may be done at once, but where late fruit is still hanging, stripping must be delayed until it is gathered. When all the trees have been cleared, mulch the borders to keep them cool, and nourish the surface roots and lay on the hose until every particle of the soil is properly moistened. If this watering, combined with exposure to dew and summer rains, does not remove all traces of spider, an occasional washing on fine evenings may be necessary, as the foliage must be kept clean at any cost, otherwise premature ripening will be followed by an untimely break and the crop will fail next season.

Eastnor Castle, Leicestershire.

W. COLEMAN.

Soils most benefited by wood ashes.—Discarding ashes of mineral coal as valueless for manure, I may say in general terms that the ashes of wood and of land plants of every kind are of value for manure on every kind of soil which has been reduced by cropping; but the greatest benefit is shown upon sandy and porous soils. On these light soils crops of every kind, but especially root crops, will be benefited by a dressing of wood ashes. Fruit trees and fruit-bearing plants having a woody structure will also be benefited by wood ashes. From thirty to fifty bushels to the acre of fresh ashes will be a full dressing, and three or four times that amount of leached ashes may be applied with permanent benefit.—R. C. KEDZIE, Prof. of Chemistry, Agricultural College, Michigan.

Early Peas.—Veitch's Selected Early is our best early Pea here. We sowed several sorts in the open border on January 1 this year, and gathered the first dish on June 12, from the sort just named. The pods were as full as anyone could desire them to be.—J. CROOK, *Paradise Garage*.

FLOWER GARDEN.

PLANTS FOR TOWN GARDENS.

As they may be useful for owners of small gardens, particularly those in or near towns, I send you a few notes on bulbs and plants that have done unusually well with me. The varieties of *Camassia esculenta*, including the rich purple *atro-cerulea*, have been conspicuously beautiful this spring, and I have found them most useful as pot plants, a pot of pale-coloured *Camassias* having been one of the loveliest ornaments in the house in the early spring. Among the many beautiful Daffodils, three in particular have attracted my attention this year—viz., *Mary Anderson*, a pure white incomparabilis with deep orange-red cup; the white form of *Leedsii amabilis*, and *William Goldring*, which, to my mind, is quite the handsomest of the white Trumpet Daffodils. No small garden, even where space is limited, should be without these three Daffodils. *Tulipa Greigi* has been very handsome this year, and many of its flowers most sweetly scented. Of the *Muscari*, *M. linguatum* was the first to come out in the cold February weather, and its brilliant blue makes it a most charming little plant; and *M. Argæi* and *M. armeniacum* seem to be two of the best *Muscari* that bloom somewhat later, and the pretty tasselled form (*M. comosum*, I believe) should certainly be grown with the others.

Lilium Szovitzianum and its varieties have been grand during the last three weeks, while the fine *L. Hansonii* has just come into bloom; they are most ornamental Lilies in a garden; and *L. tenuifolium*, with its lovely scarlet bells and dwarf growth makes a charming companion to the taller Lilies just mentioned; while a fine mass of pale blue *Libertia* has given a beautiful contrast of colour. *Anthericum Liliastrium* has been very handsome this spring, and I think it is so handsome and showy as to deserve a place even in a small garden. *Cyclobothra alba* and *lutea* have both been lovely, and these also should not be omitted even in a small collection; and among other lovely things a mass of white *Fritillaria* has been very much admired. The purple and the white form of *Campanula nobilis* is very handsome just now, but it has a tendency to increase rather rapidly for a small garden. *Glossocomia clematidea* has bloomed freely with me, and the beautiful colouring inside its bells makes it a desirable plant. One charming little summer flowering bulb, *Anomatheca cruenta*, should certainly be grown, its red-rose colour making it very conspicuous in a rocky border; and *Campanula Hostii alba* and *isophylla alba* should also be grown wherever there is a bit of suitable rockwork. *Ixia*s are just coming into bloom, and the very cold spring weather does not appear to have done them any harm. Among other quaint plants is *Allium giganteum*, growing to a considerable height, and with its large globular head of a lovely lilac colour it makes quite a conspicuous object in a garden.

I have not mentioned the more ordinary bulbs, such as *Dodecatheon*, *Milla*, and others, but have rather endeavoured to call attention to those I think not so commonly grown. I find that some of the most fragile *Poppies*, if cut from the plant when the colour of the flower is just beginning to show, will open completely in water and will remain for many days in perfect beauty. A lovely salmon-coloured *Poppy*, kindly sent me from Munstead three years ago, is particularly amenable to this treatment, and its blooms being so fragile that when left on the plant they last but a very short time, it is pleasant to

have found this way of enjoying the beauty of its flowers.

I may send you notes later on some herbaceous plants, also of interest for small gardens.

H. STUART-WORTLEY (*Colonel*).

PEONIES AT TOOTING.

WHERE bold effects are required in cut-flower arrangements, there are few more useful flowers than Peonies, and they are also of much use amongst the larger herbaceous plants for garden decoration. They are probably flowers of the future, for as yet they have been by no means so largely grown as they deserve to be, especially early kinds. Mr. Barr is doing useful work in bringing the different kinds together, so that a visit to his grounds at Tooting in the time of Peonies and Irises is not of less interest than in the Daffodil season itself. Effective as the double kinds are, they hardly equal the single forms in beauty; but as they are, as it were, two distinct kinds of flower, there is but little room for comparison. There are but three kinds of double *P. officinalis*—rose, red, and a pale pink sort changing to white. Of single forms of *P. officinalis*, *P. o. Sabini*, with bright crimson globular flowers, is very effective; and *P. o. anemoneflora*, also of globular form, but filled with crimson and yellow stamens, is both distinct and beautiful. Of the Fennel-leaved *P. tenuifolia*, the double red kind is eclipsed in beauty by the single red typical form, and by the still better varieties, *anomala* and *hybrida*. There is also a pale rose form of *P. tenuifolia*, *P. arietina*, the type, is bright purplish rose; *P. a. Andersoni*, bright rose; *P. a. oxoniensis*, pale rose, turning to almost pure white; and *P. a. Baxteri*, large crimson-rose; these are all effective varieties. *P. lobata*, with lobed leaf and dwarf habit, has coral-pink blossoms, which are beautiful; the colour is not easy to define; in catalogues it is called cerise-salmon. The typical form of *P. peregrina* has large crimson blossoms changing to rose, and one of the finest varieties of it is *P. p. byzantina*. *P. p. compacta*, bright purple, is very dwarf and bushy in habit and free flowering. In the *P. decora* section there are some fine kinds. The type is very dwarf, bushy, and free flowering; the blossoms are pinkish crimson or magenta, smaller than those of the varieties *P. decora* Pallasi, or of *P. d. elatior*, and very pretty. The last named variety has pretty magenta-coloured flowers.

P. corallina, with its red stems, ovate leaves, and crimson blossoms, is effective, and its seed-pods are also very ornamental; they open and show the seeds, which are first red and then black. In *P. triternata* the foliage is also ovate, but more divided than that of *P. corallina*. The flowers are pale rose. *P. paradoxa fimbriata* has bright crimson semi-double flowers (except when especially mentioned as double or semi-double, all the Peonies described in these notes are single). *P. paradoxa*, *P. microcarpa* (crimson), *P. Russi* (rose) have all rather finely-cut foliage, and vary in height from 1½ feet to 2 feet. *P. humilis* is rather taller; it has glaucous foliage and crimson flowers turning to magenta. In *P. mollis*, the "downy Peony," the foliage is also finely cut, slightly downy beneath, and very glaucous. It is of very compact habit, 1½ feet high, and the flowers are deep purple. *P. Wittmanniana*, which has pale yellow flowers and large thick foliage, is very distinct; and the single-flowered forms of *P. albiflora* must not be omitted. *P. Browni*, a kind with very finely cut glaucous foliage and small brown flowers, is of special botanical interest, being a Californian species, almost all other Peonies being European or Asiatic. *P. Broteri* is also a species of much interest, being either a new introduction or an old plant re-introduced. Mr. Barr is flowering it for the first time this year, but it was only in bud when I was at Tooting; even without flowers, however, its red stems, dwarf habit, and distinct foliage mark it out as both pretty and uncommon.

The late flowering Chinese double *Pæonies*, varieties of *P. albiflora*, claim a high place even amongst the wealth of beautiful flowers to be found in gardens in June. Mr. W. Barr, who has carefully studied the culture of *Pæonies*, asserts that the Chinese kinds may be planted 5 inches or 6 inches deep, as they make shoots up the stem; therefore, deep planting increases the number of crowns. But for early kinds of *Pæonies*, deep planting should be avoided; the tops of the crowns should not be more than 2 inches or 3 inches below the surface.

C. M. OWEN.

THE SPRING SNOWFLAKE.

(*LEUCOJUM VERNUM*.)

THIS is, without doubt, the most charming of its family—a brave little flower, blooming in the middle of March, with pure white bells of solid

HERBACEOUS AND ALPINE PLANTS AT MANCHESTER.

NEVER certainly has so great a triumph been achieved by these classes of flowers as was achieved at the great Whitsuntide show at Manchester, and as *THE GARDEN* has taken so prominent a part in leading the taste of horticulturists in that direction, it seems only fitting that its columns should contain a pretty full account of the wonderful collections that were exhibited there—collections before which anything that we have seen in the metropolis must simply be regarded as hopelessly behindhand. We are here accustomed to see collections of cut flowers oftentimes inelegantly placed in all sorts of receptacles—sometimes a few dozens of plants in pots; but at Manchester the case was different; instead of one or two exhibitors there were a dozen, and while in London amateurs are conspicuous by their absence,

sternation was excited amongst many of the supporters of the show, who predicted failure; but Mr. Findlay knew what he was about, and I believe the universal verdict was that nothing could exceed in beauty and variety of form and colour the groups thus set up; and these enterprising firms must be congratulated on the success which attended their efforts and on the excellence of their exhibits. The smaller tent was mainly occupied with collections of herbaceous and alpine plants, contributed by Messrs. Stansfield, Jas. Dickson and Son, Paul and Son, and Mellor; while in classes for thirty herbaceous plants, thirty alpine, and twelve alpine in pots, Messrs. Joseph Broome, Tydesley, Gill, Wright, and Dickins contributed some wonderfully good collections, showing that amateurs in the north are quite to the front in their cultivation. I think that perhaps I shall best serve the interests of hardy gardening if I take the three collections which gained the



The Spring Snowflake (*Leucojum vernum*) in open border; about two-thirds life-size. Photographed March 20 at Munstead. Engraved for *THE GARDEN*.

substance and glossy dark green leaves. Each petal is prettily tipped with a distinct blotch, generally green, but in some cases nearly yellow. When left alone for a few years it increases much in vigour and beauty. The clump which is the subject of the present engraving has been untouched for about five years; in another year it will be the better for division. In another part of the same garden it pushes up boldly through dense carpets of silvery *Saxifrages*, its dark foliage showing with striking effect against the pale metallic groundwork. It is also beautiful for planting in Grass.

Forget-me-not.—I think I have sometimes seen a large form of the common Forget-me-not (*Myosotis palustris*). Will any of the readers of *THE GARDEN* kindly tell me if such a form exists, and if so, where can it be obtained?—J. S.

at Manchester they exhibit so largely, that after the prizes are awarded several are left out in the cold, and I say, without fear of contradiction, that no such collections of herbaceous plants have ever been exhibited as those of Messrs. Jas. Dickson and Sons, of Chester; while for variety and rarity, those of alpine plants set up by Messrs. Jas. Backhouse and Sons, of York (not for competition), were unquestionably the choicest that have ever been placed on an exhibition table.

The centre groups in the long exhibition tent has for some years been occupied by collections of stove and greenhouse plants arranged for effect; and when Mr. Bruce Findlay, with that appreciation of what is most likely to be successful, backed by the courage he always manifests, determined this year that these groups should consist of herbaceous plants, I believe that no little con-

highest awards in the nurserymen's classes—that which, although not for competition, was awarded the society's medal (Messrs. Backhouse and Son's, of York), the herbaceous group which gained the first prize, exhibited by Messrs. Dickson and Son, of Chester, and the first prize collection for alpine plants, exhibited by Messrs. Stansfield, of Sale.

Amongst the new and rare plants in Messrs. Backhouse's collection were *Acantholimon venustum*, with flowers of bright rose; *Aciphylla squarrosa*, somewhat like a small *Yucca* in foliage; *Androsace ciliata*, a beautiful species, with bright green rosettes and large crimson flowers; *Androsace Wulfeniana*, almost like a small mossy *Saxifrage*, with almost crimson flowers; *Campanula* G. F. Wilson, a hybrid between *C. pulla* and *C. turbinata*, and combining the good qualities of both parents; *Campanula Reineckiana*, with

blush purple flowers nearly as large as those of *C. turbinata*; *Chrysanthemum montanum* var. *Puy de Dome*, good robust-growing plant 1 foot to 2 feet high, flowers pure white; *Daphne Philippi*, a free-growing branching alpine species, leaves thick and leathery; *Edraianthus serpyllifolius*, a perfect gem—the plant has deep green foliage which is completely hidden by its beautiful neat bell-shaped flowers—this deservedly obtained a first-class certificate; *Gazania longiscapa*, a dwarf plant forming handsome tufts, bearing a profusion of brilliant yellow flowers inclining towards orange in the centre; *Gazania Pavonia major*, very bright and gay, with flowers 3 inches to 4 inches in diameter, brilliant orange-yellow, with a dark ring in the centre (these two *Gazania*s were also awarded first-class certificates); *Linaria anticaria*, tufted species, stems 4 inches to 6 inches high, flowers white with a flush of lilac, and an irregular dark brown or purple spot near the throat; *Saponaria cespitosa*, with clusters of showy pink flowers, almost like a strong form of *Silene acaulis*, very beautiful; *Saxifraga Wulfeniana*, of the oppositifolia group, with deep purplish crimson flowers; *Campanula Allioni* var. *atropurpurea*, very dark blue-purple, an improvement on the type; *Androsace lanuginosa* var. *oculata*, more compact than the type, and blooming, like it, during the summer months, flowers pale rosy lilac, with greenish yellow eye; *Saxifraga pyrenaica superba*, an improvement on *Saxifraga oppositifolia*, very fine and very beautiful; *Silene virginica*, a very beautiful plant with dazzling scarlet flowers on branched stems, 6 inches to 12 inches high, very striking. Others included *Pentstemon Scouleri*, a dwarf shrub, with flowers of a pale purplish blue; *Gaultheria nummulariifolia*, another Evergreen forming a mass of creeping dusky foliage with its flowers hidden away under the foliage; *Saxifraga lantoscana superba*, with its snow-white plumose panicles of flowers; and *Vicia pyrenaica*, with dwarf tangled tufts studded over with small crimson flowers. The above are all first-rate border flowers, and would doubtless make a choice collection.

Amongst older and better known alpine plants were *Arenaria balearica*, charmingly exhibited in a pan, with a large piece of sandstone standing upright in it, on which the plant was making its way; *Agave utahensis*, a true alpine Aloe; *Andromeda tetragona*, curiously Heath-like in its appearance; *Campanula Allioni*, *C. pulla*, *C. speciosa*, rosettes of long narrow leaves, with dense spikes of large purplish flowers; the pretty miniature *Coronilla minima*, *Cortusa Matthioli*, *Cytisus decumbens*, *Daphne Cneorum* and *D. Fioniana*; *Darlingtonia californica*, a curious hardy Pitcher plant, shown in excellent condition; *Delphinium tricolor*, with purplish blue flowers; the lovely *Dianthus alpinus*, in beautiful condition; *D. cruentus*, *D. fimbriatus*, and *D. fragrans*; *Dodecatheon integrifolium*, the most beautiful of the American Cowlips; *D. Meadia*, *Edraianthus Pumilio*, large bright purple blooms; *Erysimum pumilum*, the dwarf alpine Wallflower; *Funkia ovata aurea variegata*, *F. undulata* fol. aur. var.; a lovely pan of the exquisite *Gentiana verna*; *Geranium cinereum*, *Geum Fremonti*, bright yellow; *Hyacinthus amethystinus*, *Iberis corifolia* and *Iberis gibraltarica*, *Iris nudicaulis*, *I. spathulata*, *Lithospermum graminifolium*, *Lychnis alpina*, *Muhlenbeckia varians*, a pretty shrub with Adiantum-like foliage; *Myosotidium nobile*, the splendid New Zealand Forget-me-not (the plant, however, was not so fine as those shown by Mr. Loder at the Royal Horticultural Society); *Onosma tauricum*, *Paonia tenuifolia plena*, *Papaver alpinum album* and *miniatur*; *Ramondia pyrenaica*, a lovely alpine plant with violet-purple flowers; *Pyrola rotundifolia*, *Sarracenia purpurea*, fine, with its large curious flowers. Such were some of the most noteworthy plants of this beautiful collection, which deserved all the praise bestowed upon it, and truly all lovers of alpine plants must feel deeply indebted to Messrs. Backhouse for affording them a sight of a collection many plants in which they would not probably have otherwise seen.

Amongst the most notable plants exhibited in the collection of Messrs. Stansfield, which gained the first prize for thirty alpine plants, were fine pans of *Dianthus alpinus*, *Gentiana verna*, *Onosma tauricum*, *Ramondia pyrenaica*, *Saxifraga pyramidalis*, *Iberis gibraltarica* and *corifolia*, *Saponaria ocyroides splendens*, *Saxifraga Macnabiana*, *Sempervivum Laggeri*, and *Lithospermum prostratum*.

In one of the collections there was a plant of the white *Ramondia pyrenaica*, but it was not in a condition to enable one to judge of its beauty; in fact, we felt that the normal variety was more beautiful, but it will doubtless be seen better by-and-by. There were also some remarkably fine pans of *Sempervivum arachnoideum*, always attractive on account of the curious spider-web-like threads which cover it. Messrs. Paul and Son had also some excellent pans of plants, amongst which were *Silene virginica* and *Lithospermum graminifolium*.

Passing on to the magnificent groups (for they truly deserve that epithet) exhibited by Messrs. James Dickson and Sons, of Chester, the one being for an unlimited number, the other for fifty plants, it was remarkable what variety of form and colouring they presented, and how attractive they were to the general public. Amongst them were the following Lilies: *Szovitzianum*, *candidum*, *longiflorum* *Harrisii*, *tigrinum*, *incomparabile*, *speciosum*, *roseum*, *testaceum*, *giganteum*, *Browni*; there were also *Gladiolus* *The Bride*, *Ardens*, and *Blushing Bride*, *Hyacinthus candicans*, *Papaver nudicaule* and *P. pilosum*, *Tulipa persica*, *Anthericum Liliastrium*, *Spiraea Aruncus*, *S. japonica*, *S. palmata*, *Pyrethrum* *Mdme. Ballet* and others, *Phlox* *Mrs. Hunter* and *Mrs. James Ross*, *Campanula azurea*, *Van Houttei*, and *persicifolia* fl.-pl., *Dianthus magnificus*, *Delphinium Wilsoni*, *Belladonna*, and *Mrs. Mary Russell*, *Peonia sinensis* *Virginie*, *P. s. Paganini*, *odorata*, *Pottsi* fl.-pl., *Celsia cretica*, *Oenothera Youngi*, *Francoa ramosa*, *Carnation Gloire de Nancy* and the old crimson *Clove*, *Lupinus polyphyllus* *albus* and *azureus*. Then there were several German Irises, and all were arranged with good effect and excellent taste; there was nothing slovenly about them, neither were the plants drawn or unsightly; and altogether it was a grand triumph, not only for the eminent firm which produced them, but for the class of plants which showed such capabilities as few imagined them to possess. There were other excellent collections, as I have already said, but I have just indicated those which, from the position they gained, deserved fuller notice.

DELTA.

A FARMHOUSE GARDEN.

IN order to describe this garden properly I cannot do better than call it a front garden, for the house stands a considerable distance back from the public highway. Next the house is a fair sized lawn, with shrubby borders surrounding it on the east and west sides, and between the lawn and the public road are two wide flower borders divided by a walk which leads up to the residence. It is of the flowers and shrubs which occupy these borders that I wish particularly to write. In the first place I may mention that the flowering shrubs occupy the back of the borders, which are probably 16 feet or more in width, and the flowers are in front of them. At the time when I saw the place the following shrubs were in flower, viz., *Syringas*, *Laburnums*, *Rhododendrons*, and *Thorns*, none of which were so high as to dwarf to any serious extent the plants in front of them. Amongst these there were a few which struck me as being particularly characteristic of the whole place; these consisted of large bushes of *Sweet Brier*, *Dutch Honey-suckle*, bristling with flower-buds, and fine plants of *Southernwood*, *Woodruff*, and *Rosemary*. That sweet-smelling flowers were highly valued here I could clearly see, for in a shady corner the *Lily of the Valley* had found a suitable home; *Lilium candidum*, too, was sending up innumerable flower-spikes in several places along the borders. Sweet-smelling white *Pinks*, which had outgrown the

space allotted to them and overtopping some large boulders, formed a charming feature. Double yellow *Wallflowers* had just gone out of bloom, but scarlet and white *Brompton Stocks* were taking their place, and quite scented the air with refreshing fragrance; the white sweet-scented *Rocket* was also in grand condition, as were also the old *Clove Carnation* and the *Burning Bush* (*Dicamnus Fraxinella*). A few new and also some old-fashioned *Roses* seemed quite at home; the old sweet-smelling *Cabbage Rose* and the mossy white *Unique* appeared to find much favour, for I noticed that nothing else was allowed to overgrow them. Other conspicuous hardy plants in flower were yellow and purple *Irises*, crimson-flowered *Pæonies*, *Delphinium grandiflorum*, double *Pyrethrums*, and perennial *Lupines*, the latter towering up to a height of nearly 5 feet. Of other subjects to come into flower later in the season I saw *Sweet Williams*, *Canterbury Bells*, *Sweet Peas*, *Sundflowers*, and a few tender plants, such as *Dahlias*, *Calceolarias*, *Mignonette*, and some other annuals. I have, therefore, I think, said enough to show what a number of interesting flowers this farmhouse garden contained. For we may be sure that if there was such a wealth of flowers in early summer, there would be no dearth of them at any other season. Of this I saw abundant proof in the fading leaves of *Tulips*, *Hyacinths*, and other spring-blossoming plants, and that the autumn months were provided for I could see by rising clumps of *Chrysanthemums*, *Michaelmas Daisies*, and white-flowered *Anemones*. Truly, there is much to interest one both in farmhouse and cottage gardens in many parts of the country, containing, as they often do, rich stores of old-fashioned flowers that blossom in nearly every month in the year. J. C. C.

Adjusting the blades of lawn-mowers.—The lawn-mowers of to-day seem to be nearly perfect. They are light-running, durable, and cut the Grass evenly at the desired length. But an inexperienced person may in a year ruin a lawn-mower that with proper care would last five. The fatal mistake generally made is in screwing the revolving blades so low that they touch the horizontal blade. Of course, the machine cuts beautifully. The blades are sharpened by the contact, but wear away in a few days. Then the revolving blades are again lowered, and this is continued until they can be lowered no more and the machine needs repairs. Our experience is that when the essential parts of a mower need to be replaced, it is just as well to buy a new machine. The proper way is to see that the revolving blades of a new machine are so set that they cannot be lowered without touching. Then it may be used one day at least in every week during the entire season without re-adjustment. The next year the knives may need sharpening, which is best done by lowering the revolving blades, or, properly speaking, raising the horizontal blade until they touch slightly, being careful that the pressure shall be equal in every part. Of course, machines should be oiled frequently, and the bearings protected from sand and soil.—D.

SHORT NOTES.—FLOWER.

Daffodil Rip Van Winkle.—Seeing from time to time in the horticultural press adverse criticisms on this Daffodil, we give you our experience in regard to it. Last year we bought some direct from Mr. Hartland, and here, in the Channel Islands, we could find no fault with its colour. We think it quite a little gem; when in flower a small patch of it appeared to be quite a sheet of gold. We should think it would be excellent in light soils planted permanently just under the surface in Grass, where the blooms would not get soiled with earth splatters during rain.—HUBERT and MAUGER, *Guccis* &c.

Sweet Peas.—"The Sweet Pea is one of the very best, most useful, and most popular of hardy annuals;" so says "R. D.," and so say I. "R. D." evidently does not know—indeed, very few do know—that the Sweet Pea, unlike the edible Pea, is hardy, and will withstand a large amount of winter weather. My plan is to sow the seed in a trench (I sow all Peas in trenches) in the autumn against a row of wattle hurdles; this I did last September, and, in spite of the late severe winter, there is now a grand display of blossoms.—W. H. CULLINGFORD, *Phyllimore Gardens, Kensington*.

NOTES ON HARDY PLANTS.

Ranunculus parnassifolius.—Who can get perfect flowers from this Crowfoot? In other words, is it worth growing as a flowering plant? That it is distinct and interesting must be admitted. Moreover, if it can be cultivated so as to yield its delicately beautiful flowers in perfect form, it is well worth any care that may be bestowed on it. My complaint respecting it is this, that after growing it both in pots and in the open ground for four or five years, I have not yet seen a stem furnished with more than half-a-dozen flowers, and these of very imperfect form. The petals do not all expand together, but often one by one, and as the flowers are rather short-lived, the older petals frequently fall before the others open. This is all the more disappointing, because one sees so much as to be sure that a well-flowered plant of this *Ranunculus* would be a lovely object. Not only do the leaves much resemble those of the *Parnassia*, but the flowers, too, seen at a short distance off are remarkably similar to those of that plant. This Crowfoot is both easily grown and propagated; it thrives either in a moisture-holding loam or dampish peat, and though I have tried both sunny and partially shaded situations, and got better plants in the former, still in neither do the flowers prove satisfactory.

Lindelia spectabilis.—What a charming companion this is to the two allied yellow-flowered Borageworts, *Arnebia echioides*, and *Onosma tauricum*. The three form a set of first-class herbaceous plants somewhat similar in habit. The fine blue of the numerous flowers of the *Lindelia* can only be seen in perfection where the plant has been grown in full sunlight and in a rich border. When so placed it proves to be of great worth, being both interesting and showy. On a loose soil seedlings appear almost as freely as those of the Forget-me-not. Another effective Boragewort is

Lithospermum purpureo-cæruleum, but in order to make this floriferous I find one or two points needful in the way of management. These simply consist in trimming away the long or barren stems in early spring, or even in autumn if young plants are not wanted, for though these never produce flowers, they form strong plants quickly; when cut away the parent stool is both neater and more prolific as regards bloom. Nor should the plant be disturbed, or it may fail to flower for years. It is only when this creeping Gromwell is made to flower well that it becomes a pleasing plant for a border; then its singularly rich blue flowers, set on stems a foot high, are equal, if not superior, to those of the rare *L. graminifolium*. With me it seems happy both in full exposure and in partial shade in light land.

Slugs and hardy plants.—"I have never experienced such annoyance from the slug pest as I have done this spring," said an old gardener the other day, and I believe the same complaint is pretty general. Remedies are, therefore, in great request. Fully a dozen times has this old gardener's kitchen garden been dressed with lime, and still, though much reduced, the pest is anything but extinct. I have not lost my faith in white ashes made from greenwood and applied dry; quite the contrary. I can learn of nothing either so handy or so effective; they may be applied both to the surface and the foliage; no harm is done to the latter, and a smart shower of rain makes all again clean. Repeated applications will save any plant from slugs. It may also be useful to repeat a remedy which I have given in THE GARDEN already—one which applies more to young plants or seedlings in their transplanting stages than to older plants. If you desire to place these or any rare plant under conditions absolutely safe from slugs, set them in shallow wooden pans—if they may be so termed—hooped with iron, which should be allowed to rust; provided slugs are not introduced with the soil or plants, you may rely on it that none will crawl across the rusty metal. I have tried and watched the experiment now for three years, and I never saw a slug among the

plants in the pans, excepting in one instance, and that was where some Cheddar Pinks, otherwise planted, hung over and rested on the shallow tubs, and I therefore think the presumption is a fair one that the slugs made bridges of the Pinks, and thus reached the plants referred to.

Campanula Allioni.—On this lovely Whitsunday morning, sweet and fresh with sunshine and showers, many choice alpine plants are just opening their blossoms. Among the rest, and over which one is compelled to linger, is this inimitable Bellflower. After admiring it a short time one grows critical. Why do the points in the limb of the corolla remain so long hooked or tethered together? and how curiously the corresponding loop-holes are barred by long and stiff wool-like hairs. The temptation to break the knot by a touch with a pencil is irresistible; in an instant the bell assumes its perfect shape, and the blanching blue in the deep big cup, so charmingly toned down by the woolly besetments, forms a pleasing colour study. But something else is worthy of note; before the bells are perfectly open, the seed organs appear to have been quite developed and the pollen ripe—indeed, overripe. How could the pollen be raised from the anthers set in reality in the bottom of the cup? I say cup studiously, because the flowers of this Bellwort are always solitary and erect. Moreover, the style is long, nearly the length of the tube, which exceeds an inch. We know of other flowers which have their seed organs equally far asunder, but so far as I know there are few which ripen their pollen before the flower opens. In this case it remains partially open for some little while, but even then few insects, perhaps, would force their way through the strong hairs which bar the entrance. Have all these facts anything to do with the lack of seed and the consequent scarcity of the plant? It seems that the only chances of fertilisation would depend on insect agency, and yet the chances are narrowed by insect exclusion until the pollen has lost its vitality.

Primula propagation.—This is a pleasant occupation just now, for the cool and moist weather is most helpful as regards newly divided roots. Some time ago something was said in THE GARDEN about the way in which rootlets of such Himalayan species as *cashmeriana*, *denticulata*, and others could be made to form crowns or young plants, so that though I have to enumerate other and rarer *Primulas* which may be increased by a like process, there is nothing new in the idea. The kinds I refer to are *cricalensis*, *frondosa*, and *venusta*. With these I have experimented successfully, and doubtless there will be others that may, if needful, be similarly dealt with. Whilst on *Primulas* it may not be amiss to say a word or two on what appears to be the worst pest of all to the genus, viz.,

The Primula grub.—I give it this name because I do not meet with it to any appreciable extent at the roots of plants belonging to other genera, and because it abounds among all *Primulas*, and far too often kills the plants attacked. I do not know its name, but it is always half-rolled or C-shaped; it is half an inch or so in length and one-fourth that size in thickness. The colour is creamy white, with a small brown head. It lives on the thicker roots, and eats its way up to the crowns, which may often (on the leaves suddenly turning soft or brown) be found to be mere cavities; if the grubs are left alone they will begin to eat their way down again, this time attacking the parts not devoured in their ascent. I find them most numerous in such pots as have been filled with turfy loam, and least in pots in which sharp or splintered wood charcoal has been freely employed. I have long since come to believe that, many as our known enemies are, we have many lurking in the soil or boring in the stems and hearts of our plants yet to find out, and which may be responsible for losses attributed to other causes.

Pæonia tenuifolia.—This is at once one of the richest coloured and most graceful of *Pæonies*. It is a favourite with everybody; it could hardly

indeed be otherwise, seeing that it has finely-cut and beautiful foliage surmounted by big ruby-red shining cups half-filled with golden anthers. Of the two varieties, single and double, the former is infinitely the better; not only is the plant neater and dwarfer, but the lighter single blossoms seem to best associate with the graceful leaves. The heavier flower detracts from the greenery, and topples over on one side, and when cut is all but useless. The double kind is, I believe, the more scarce and costly, and many on that account are induced to imagine that it is the more desirable; a trial of both, however, will enable anyone to see that it is not so. Single stems of this *Pæony* having, of course, but one flower are very pleasing table decorations when placed in a jug or decanter.

Trientalis europæa.—This, I feel sure, is not grown nearly so largely as it should be. Dwarf as the plant is, its starry flowers are quite showy and the very pink of perfection. They look straight up at one, and last fresh and good for quite a fortnight. As I have said before, this wood-bottom gem can, in proper soil, be grown in full sun; indeed, I have grown it so these eight years, and, what is more, in little pots, so that the roots are quite near the hot surface in summer. Give it sandy peat and some half-decayed leaf-mould; into this press firmly a pinch of its stringy knobbed roots about the latter end of summer; keep them confined in a pot, even if you have to plunge the pot as well, and the plant will grow almost anywhere and make a compact tuft.

Saxifraga pallida.—This rare, minute, and distinct species has peculiar spoon-shaped, greyish green leaves, a little notched and very fleshy. They are also beset with long silky hairs. The solitary flower on my specimen has been open for five weeks and it is yet perfect. It is of a curious dusky brown colour and rather dumpy. The plant is perfectly hardy.

Saxifraga lantoscana.—This almost rivals *longifolia* as far as silvery, large-sized rosettes are concerned, and its flowers are truly grand; they are pure white, and borne in dense panicles. There are two or three forms, all good, but the one which sends out sideways its one-sided, plume-like clusters of blossom on reddish stems is the best. It enjoys a rich loam, but it is never more than a steady grower.

Sun Roses.—Though all *Helianthemums* may justly be said to be pretty, the numerous set of garden varieties might with advantage have many of the paler coloured ones left out, notwithstanding the fact that somebody has given them rather taking names. Four or six of the brightest and best as regards contrast of foliage, which varies much in hue, will produce a better effect than a larger collection, even if the same four or six bright ones were included. Few sorts, of good colour and distinct, should be the rule in selecting Sun Roses.

A pretty mixed flower group sometimes occurs by accident, as the one I am about to mention did. Owing to want of space, a bed was double cropped in the following manner: Rows of St. Bruno's Lily, 8 inches apart each way; between these were pricked the Iceland Poppy, and one side of the bed is permanently edged with *Gentianella*. All are now in flower together; need I say more as to what the effect is? True, the *Gentianella* is nearly over, but a big patch of *Lithospermum prostratum* close by does duty as a true blue. The white of the *Anthericum* predominates, among which the high colours (scarlet and yellow) of the Poppies look rich without gaudiness, and the fresh Grass of the Lily, with its graceful habit, enhances the effect. I do not think that such spare-rooted things as this Poppy is do much, if any, harm when thus mixed with other plants.

J. W.

Magnolia rot flowering (*M. F.*)—Your variety of *M. grandis* appears to be that known as *lanceolata*, which has narrower leaves than the typical form, and not rusty on the under surface. As a rule, it does not flower for fifteen or twenty years after being planted out. The Ex-

mouth variety (*exoniensis*) flowers the earliest of all the varieties, and when only a few feet high will produce a numerous crop of blossoms.

INDOOR GARDEN.

HYDRANGEA PANICULATA GRANDIFLORA.

THIS *Hydrangea* occupies a foremost place among flowering shrubs, as, apart from its great beauty, it blooms towards the end of summer—a time at which but few shrubs are to be found in flower. Besides its high ornamental qualities as an outdoor shrub, it is quite amenable to pot culture, and can then be employed for indoor decoration, where, under favourable conditions, it will last in beauty a long time. Numbers of this *Hydrangea* are now yearly imported from the Continent, along with such things as *Azalea mollis*, *Deutzias*, and *Lilacs*, all of which find their way in considerable numbers into Covent Garden Market during the season. To flower this *Hydrangea* in pots, if the plants have been grown in the open ground, they should be lifted carefully in the autumn, and potted in good open soil moderately enriched. After they have had a thorough watering they may either be set in a sheltered spot or placed in a cold frame. If the latter, the lights should remain on for a few days till root action recommences. If lifted early in autumn they will become established in their new quarters before winter. Straggling branches, if any, may be shortened in if required; indeed, the blooms are finer if the plants are pruned back to the stoutest buds than if untouched. This *Hydrangea* cannot be had in flower so early in the season as *Azaleas*, *Deutzias*, or *Lilacs*, as it is not amenable to hard forcing, but needs to be advanced in a genial temperature a little above that of an ordinary greenhouse. As the pots get filled with roots, water must be liberally given and occasional doses of liquid manure, for this *Hydrangea*, in common with its relative the ordinary sort, is a gross feeder, and if starved in any way both foliage and blooms suffer. The principal enemies to guard against when grown indoors are red spider and mildew, both of which give but little trouble if a free circulation of air and a liberal use of the syringe are maintained. This *Hydrangea* can be had in flower from the middle of May onwards, but if forced into bloom earlier than that, the plant suffers in consequence. Under glass the flowers are of a creamy white tint, without any of that rosy hue with which they become suffused when out in the open. As a hardy shrub, this *Hydrangea* is of greater value than for indoor culture, a bed of it being very beautiful late in summer and early in autumn; even the rains that we sometimes experience about that time have but little effect upon it. A cool moist soil is essential to its well-doing, and a liberal dressing of manure will improve both foliage and flowers. In the event of the plants becoming crowded, some of the more weakly shoots may be thinned out with advantage; and, if needed, the plants can be cut back to within three or four eyes of the old wood. This *Hydrangea* is better fitted for planting in clumps or masses than as single specimens, or in a mixed border, as when associated with other shrubs it is liable to be robbed of some of the nourishment which is so essential to its well-being. The typical form of *Hydrangea paniculata* is a much rarer shrub than its large-flowered variety, from which it differs in the growth being more vigorous, and in the habit being less rigid, while the foliage is of a deeper green. The sterile flowers, too, which form the most conspicuous feature in *Hydrangeas*, are fewer in number and borne in a denser cluster than in the variety called *grandiflora*. This *Hydrangea*, in common with all its

allies, strikes easily enough from cuttings treated according to either of the two following methods: First, where conveniences exist, a few good-sized plants may in the spring be taken into a gentle heat; they will start at once freely into growth, and just as the young shoots become slightly woody they should be taken off, formed into cuttings, and dibbled into pots of sandy soil. The one thing to bear in mind with regard to this mode of propagation is that the cuttings must be kept in a temperature at least equal to that in which they have been grown (a few degrees higher, if possible), and sheltered by a case or bell-glass till rooted. Plants in the open ground can be propagated by taking the shoots when in the condition just named, and keeping them close in an ordinary frame till rooted. As the cuttings shrivel readily, care must be taken that the frame in which they are placed is airtight, or nearly so, and careful attention must be given in the shape of shading and watering. As soon as rooted, they should be potted off, and if kept in pots during the winter and planted out in a well-chosen spot in spring, they will grow freely.

H. P.

WATERING WITH COLD WATER.

IN the last article which appeared in THE GARDEN on this subject it was stated that one of the largest and most successful of London market growers daily syringes his tender foliaged plants, such as *Gardenias* and *Roses*, with water taken from the outside, and that the plants succeeded admirably under such treatment. I have also stated that I have used cold water continually for tender plants; the tank containing it has often been frozen over in winter, yet the general health of the plants is quite satisfactory. Everyone conversant with the culture of plants in glasshouses knows that watering done in the ordinary way consumes a large amount of time, and that at certain seasons it is a difficult matter to give the necessary amount of water. This is especially the case with plants grown in pots, which, in very hot weather, cannot be kept sufficiently moist. It is evident that if the watering-pot can be replaced by the hose, much labour will be saved, and the work will in all probability be better done. One man will use more water with a hose than three could do in the ordinary way. This is becoming so well recognised among growers for profit that in many of the best managed market gardens near London the hose has, to a great extent, supplanted the watering-pot, and it is found that in this way the cost of production is much reduced, whilst the cultural results are more satisfactory.

I am acquainted with a market grower, whose specialty is *Pelargoniums*, and who, winter and summer, waters them by means of a hose with water direct from the neighbouring waterworks. Another who grows *Maiden-hair Ferns* and winter-blooming *Pelargoniums* better than most people waters almost the whole of his stock in this way, the requisite pressure being obtained by pumping the water into large casks, whence it is led to any portion of the glasshouses. These are facts which suffice to prove that it is not so needful to use water of the same temperature as that of the house as has been commonly supposed; and we are therefore justified in assuming that cold water applied to plants growing in a high temperature is not harmful. Everyone is acquainted with the delicate nature of the foliage of *Roses* when forced, and that it is peculiarly susceptible to chills or checks of any kind. *Roses* were, however, specially mentioned as being subjected to the cold-water treatment in Mr. Ladds' market garden.

The point to be determined is whether water taken from the outside can at all times of the year be used for watering plants under glass without injuring them. If this can be done, it is certain that a step forward will be gained, as in many large gardens where, under the present

system, all the water used has to pass through the spout of the watering-pot, the large amount of labour thus occasioned could be sensibly reduced. In the case of conservatories, where the plants attain large dimensions, they can scarcely be kept in good health without the means of thoroughly washing them now and then, and this can only be obtained by means of pressure from the outside.

J. C. B.

WINTER FLOWERING PLANTS.

POINSETTIAS.—Although these will endure a lower temperature than many people imagine, it is only in the early autumn that they can be subjected to it without injury. They would not endure it then were it not that during summer their growths get somewhat hardened by exposure. We grow our stock from cuttings struck in spring; they are kept in cold frames all summer, with the lights drawn off during the daytime, and only put on at night to protect them from sudden storms. As soon as cold, rainy weather sets in, at the end of August, we close the lights at night, and only remove them on very fine days. I do not consider it quite safe to leave *Poinsettias* in frames after the middle of September; they should then be taken to a light house or pit, where they can have the assistance of a little fire-heat to regulate the temperature. We endeavour to keep the house at about 60° at night and 70° by day. In such a temperature they keep gradually moving. If very large heads of bracts are required, the strongest plants must have from 5° to 7° more heat during the daytime throughout the month of November. *Poinsettias* require plenty of light and to be as near the glass as possible; and while the bracts are extending the roots should have regular supplies of liquid manure as often as they want water. Gentle syringing both night and morning is an essential part of their cultural details. Young plants struck in August with a view to get dwarf *Poinsettias* for special purposes must be kept in a fairly high temperature from the beginning; a day temperature of from 70° to 75°, and 10° less at night, will not be too much for them; and if the pots can stand on bottom heat, and at the same time not be too far from the glass, better plants will be made than if no such assistance were rendered.

GESNERAS.—These need more heat than an ordinary greenhouse affords, and they also require a moderately dry air. No water must be allowed to touch the leaves, which are often as handsome as the flowers themselves, and syringing would spoil them; a light position near the glass is indispensable, in order to keep them from being drawn. That beautiful variety with green leaves veined with dark streaks is perhaps the best for the production of flowers; but *exoniensis*, with bronzy red leaves, makes a fine pot plant. If the pots in which they are growing are set on other pots inverted, the leaves will then take a downward direction and nearly cover the pots. A temperature of from 55° to 60° suits them better than a higher one.

THE ZANZIBAR BALSAM (*Impatiens Sultanii*).—This Balsam may not flower quite so freely, perhaps, in winter as in summer, but when it gets large enough to occupy an 8-inch pot, it will never be without flowers if grown in a house that suits it. It is, as a rule, given too much heat and too much pot room; and it will not flower in a satisfactory manner with an excess of either. It requires a light house, a rather dry air, and a temperature of from 55° to 60°. Under this treatment it flowered with us all last winter, and what enhances its value is the fact that it is an excellent plant to endure the dry air of heated rooms; with us, after close confinement in rooms for five or six days, it comes out none the worse.

SALVIAS.—Where there are large conservatories to keep gay with flowers during winter, there is no more useful class of plants than these, *i.e.*, if they can have a fair amount of light and a dry moving atmosphere; but in dark, damp structures they are almost useless. By keeping the air of the

house fairly dry, and a little fire heat to make the thermometer rise to about 55°, they will continue to flower for several weeks. The best varieties for winter flowering are *S. Bruanti*, *S. splendens*, *S. Bethelli*, and *S. Hoveyi*; *S. Pitcheri* is a fine autumn flowering variety, and its long spikes of flowers are useful in a cut state. We have no other plant with so pleasing a tone of blue as this *Salvia* possesses.

SINGLE PRIMULAS do fairly well under ordinary greenhouse treatment, but they do better if a little fire heat is used about three times a week to somewhat dry the air of the house. In the case of the double varieties, a warm and dry house is indispensable to get them to flower in a satisfactory manner. They must have plenty of light and a moderate supply of fresh air, or they will get so weak that the flowers will come very small. Small plants ought not to be allowed to produce more than one lot of flowers; all others should be picked off as fast as they appear, or the plants will not be of much use another year.

WINTER-FLOWERING FLAX (*Linum trigynum*).—In ordinary summers this Flax may be successfully grown in a cold pit or frame if kept carefully watered, and the foliage free from red spider by means of unremitted syringing. It was under such conditions that we attempted to grow our stock of it last season. The continued brilliant sunshine and long drought combined were detected early in the summer conspiring to defeat our efforts, and would have succeeded had we allowed the plants to remain all the summer in the pit in which they were. In spite of careful shading and regular syringing, the spider increased, and I saw that the plants would soon have been divested of every leaf they possessed; so I had them removed to the north side of a high wall. A cool, shady north border did not suit the spider, as was evident by the altered condition of the leaves, for in a week or two they recovered their normal colour, clearly showing that the spider had disappeared; and when we took them to their winter quarters the plants had made satisfactory growth and were quite healthy—in fact, they were in better condition than when we had them in pits. But, although this Flax did so well in the open air during summer, and although it is commonly classed as a greenhouse plant, it does not flower during winter in a satisfactory manner when so treated. It requires a temperature intermediate between that of a stove and a greenhouse. In a temperature about 50° to 54° it kept in flower with us last winter from the end of November until the middle of March, and its golden blossoms were produced so freely that the plants were most effective. J. C. C.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JUNE 22.

BESIDES a large number of interesting plants new or rare, there was a great gathering of hardy flowers from a few of the largest nurseries where they are grown. *Pæonies* were exceptionally fine and very numerous, there being not only large collections from English nurseries, but from Haarlem, whence came a group of flowers, representing no fewer than two hundred varieties. There was also a competition for various classes of flowers—*Pelargoniums*, *Roses*, and *Gloxinias*; but, as a whole, the show could not be called a success, seeing that, with the exception of cut *Roses*, the whole of the exhibits were decidedly below mediocrity—a fact to be regretted, inasmuch as many of the provincial visitors leave the exhibition with a poor idea of floriculture about London, most people being under the impression that these shows are average representatives of London flower shows. Were it not for the miscellaneous exhibits, the show would have been poor indeed.

First-class certificates were awarded to the following plants:—

CATTLEYA MOSSIE ARNOLDI.—A splendid variety in the way of *Reineckiana*. The flower is large,

the sepals broad and pure white, while the large lip is adorned with mottlings of the richest crimson-magenta. It differs chiefly from *Reineck's* variety in the absence of yellow in the lip. Exhibited by Mr. C. H. Hill, Nottingham.

BEGONIA ARTHUR MALLET.—A new hybrid between *B. subpeltata*, with bronzy red leaves, and one of the varieties of *B. Rex*. The leaves, which are beautifully coloured, are of the same shape as those of *B. Rex*, and about 6 inches long. The ground colour of the leaf is a pale claret, and this is veined with a deeper tint. It is one of the most beautiful new ornamental-leaved plants we have seen for some time. Shown by M. Godefroy-Lebeuf, Argenteuil.

THUNIA VEITCHIANA.—A hybrid between the white *T. Marshalli* and the lilac-tinted *T. Bensoniæ*. The hybrid is intermediate, having flowers similar in form to those of *Marshalli* and paler in colour than *Bensoniæ*. It possesses all the elegance of growth which characterises the two parents. Exhibited by the raisers, Messrs. Veitch, Chelsea.

THUJOPSIS BOREALIS AUREA. A valuable addition to golden-tinted Conifers, although they number so many. Everyone knows how beautiful the original tree is, how graceful in growth, and how vigorous in almost any soil and situation. The golden variety differs in no way from the original, except in the golden-tinted shoots. These, however, are only tipped with yellow; the rest of the foliage is glaucous green in the original, which is known also as *Cupressus nutkanus*. Exhibited by the raiser, Mr. W. C. Slocock, Goldworthy Old Nursery, Woking.

DORONICUM PLANTAGINEUM DRAYTONENSE.—This fine variety of *Leopard's-bane* is known also by the names of *D. plantagineum excelsum* and *D. Harpur-Crewe*, and it is a pity that the committee certificated it under its third name. It may be recognised from the other *Doronicums* by its longer and narrower florets, while it is one of the latest in flowering. Shown by Messrs. Paul, Cheshunt.

PETUNIA EMPRESS.—A lovely double-flowered variety; the blossoms are large, very double, forming quite a rosette of a pleasing soft rose-pink colour. It is, moreover, a free flowerer and of good habit. Exhibited by Messrs. Hooper, of Covent Garden.

PÆONIA QUEEN VICTORIA, PRINCESS OF WALES, AND PRINCESS BEATRICE.—All beautiful new double varieties of the herbaceous *Pæonies*. The first has large flowers of a delicate blush tint in the way of *Madame Calot*; the second, the finest of all, has large spreading flowers of a blush pink; while the third has rose-pink outer petals enclosing a rosette of pale pink petals. All shown by Messrs. Kelway and Son, Langport.

ODONTOGLOSSUM VEXILLARIUM RADIATUM.—This variety was shown by Mr. Ballantine from Baron Schroeder's garden, The Dell, Egham, but the flowers had disappeared before we took our notes; therefore we are unable to describe the variety.

The other exhibits included several interesting plants, most notable among them being an extraordinary new *Streptocarpus*, from the Transvaal gold fields, upon which we have lately had a note. It is now named *S. Dunni*, after Mr. E. J. Dunn, who found it on the mountains of Spitzkop, and sent seeds to the Royal Gardens, Kew, whence the plants exhibited came. The leaves are enormous for a *Streptocarpus*, being over 2 feet long and over 1 foot across, and of a pale green colour. The flowers, produced in short spikes, are tubular and flesh-coloured. Another beautiful plant, the Ceylon Gentian (*Exacum macranthum*), was also exhibited from Kew Gardens. It has flowers about the size of a crown-piece and of the richest gentian-blue, which, in contrast with the bright yellow stamens, are extremely showy. These two plants from Kew attracted a good deal of attention, and we hope that it may become the custom to send a few of the most interesting new or rare plants from Kew to these meetings. There were a few noteworthy Orchids shown. Mr. Little, of Twickenham, sent a very fine variety of *Lælia purpurata*

remarkable for the broad, deep-coloured lips of the flowers. The plant was a finely-grown specimen, and bore a spike carrying seven flowers. The rare *Cymbidium chloranthum* was shown by Mr. J. O'Brien. It is a distinct-looking species, having an erect spike of smallish flowers with pea-green sepals and coloured lips. Dr. Duke, of Lewisham, sent a spotted form of *Odontoglossum vexillarium* which some may think pretty. It was named *guttatum*. The extremely handsome as well as rare *Oncidium chiriquense* was shown by Messrs. Sander, of St. Albans. It is a near neighbour of *O. coronarium* and *miniaturum*, having the same running growth and erect cylindrical spikes. The individual flowers remind one of a very fine form of *O. crispum*, but are brighter in colour. The rare *Zygopetalum obtusatum* was also shown from St. Albans. It is near *Z. Gautieri*, but not so beautiful. Mr. Wendland, of Hanover, sent a specimen of *Warscewiczella Wendlandi*, having flowers 3 inches across, with whitish sepals and handsome lips white with purple markings. M. Bleu, of Paris, sent a hybrid *Cypripedium* between *C. superbiens* and *javanicum*. It most nearly resembles the former species; indeed, it may be best described as a poor variety of *C. superbiens*. Mr. Douglas, Great Gearies, Ilford, was voted a cultural commendation for some fine blooms of the Mexican Mayflower (*Lælia majalis*), so difficult to grow and flower well. Some exceptionally fine pitchers of *Nepenthes Mastersiana* were shown by Sir Trevor Lawrence. They were quite a foot long and proportionately broad, and very highly coloured. A fine specimen of that lovely Fern, *Gymnogramma schizophylla gloriosa*, was shown from Mr. Whillard's garden at Streatham Hill. It was quite 4 feet across, and formed a large symmetrical mass of bright green and finely-cut fronds, recurved in a most elegant way. Mr. S. Ford showed from Mr. Hubbard's garden at Leonardslee, Horsham, a flowering specimen of *Protea cynaroides*, a singular looking plant from the Cape of Good Hope. Its flower-head resembles that of a Globe Artichoke; hence the specific name. Two interesting shrubs were shown by Mr. Anthony Waterer, from his nursery at Knap Hill, Woking. One was the Fringe tree (*Chionanthus virginica*), so rarely seen in flower. It is a low shrub, and at this season has its branches covered with crowds of small white flowers which resemble fringe. The other shrub was the true *Azalea occidentalis*, a Californian species, which flowers after the Ghent *Azaleas* are over. Its flowers are about the size of those figured a week or two since in THE GARDEN, and the colour is pale pink stained with yellow. Its foliage is pale green, and dies away in autumn to a deep crimson. Mr. R. Owen, of Maidenhead, showed a variety of the Corn Marigold (*Chrysanthemum segetum*), with flowers much above the usual size with broader florets and bright yellow. It is named *Cloth of Gold*. The same exhibitor showed a collection of cut *Pelargoniums*, including some of the finest sorts. An excellent white dwarf *Gloxinia* was shown by Mr. Beach, of Boro' Green, Sevenoaks. The plants were not more than 6 inches high, and bore dense clusters of pure white erect flowers. It is named *Gloxinia compacta*, an absurd name for a mere variety; why not *White Dwarf*, or even *Mrs. Beach*? A very fine collection of seedling *Verbenas* was again shown by the raiser, Mr. Stacey, of Dunmow; the collection numbered some two dozen trusses, and made an attractive display. Mr. R. Dean sent a pretty striped single *Petunia*, which if constant would be a valuable sort.

A large and very beautiful group of Orchids was shown by Mr. R. J. Measures, of Cambridge Lodge, Camberwell, who was appropriately awarded a silver-gilt medal. The group consisted for the most part of *Cattleyas*, such as *Mossie*, *Mendeli*, *Warneri*, of which there were some first-rate varieties; *Epidendrum vitellinum*, *Masdevallia Harryana* in variety, *Cypripedium*, *Dendrobiums*, such as *suavissimum*, just now in full season. The *Odontoglossums* included many beautiful forms of *O. vexillarium*, *crispum*, and *Pescatorei*, while among less common kinds were the pretty

Ionopsis paniculata and *Cattleya Aclandiae*. The group was admirably arranged with Ferns and other fine-foliaged plants. Mr. Measures also showed a group of British Orchids, including *Orchis maculata*, *Gymnadenia Conopsea*, *Cephalanthera ensifolia*, and *Habenaria chlorantha*. Major Lendy was awarded a bronze medal for a magnificent specimen of *Cattleya Mossiae*, about 4 feet across and profusely flowered, one of the finest plants we have ever seen of this Orchid. Mr. Hill, of Nottingham, sent a few choice *Cattleyas*, including the pure white *Wagneri* and a form of it with enormous flowers named *gigantea*. He also showed some plants of the choice *Reineckiana* besides the *Arnoldi* variety certificated.

Competitive Classes.

PELARGONIUMS.—In the class of large-flowered and fancy varieties of these popular greenhouse plants only one lot of 18 plants was staged, and, being Mr. Turner's, of Slough, were, of course, good, but being in 6-inch pots were of limited dimensions. If they were never shown larger, exhibitions would hardly suffer. All were well flowered and in capital condition. Of dark-flowered kinds, Florence, Martial, and Sister of Mercy were telling; Confessor, Illuminator, Veteran, Robena, Pluto, Mons. Demoulin, and Madame Albert Dears (this being white deepening off to red) were soft colours; Lady Isabel, mauve; Comtesse de Choiseul, white; and of good fancies, Delicatum, Irene, and Murillo. The zonals were of moderate quality, as only amateurs competed. Mr. Hill, gardener to Mr. H. Little, Twickenham, had some very good plants in his lot of nine specimens, but Mr. Chadwick's plants were small and indifferent. The best kinds in the first nine were J. Mellor, Atala, Lotis, Mrs. Gordon, and Royalty, singles; and M. C. Lowagie, Paul Charbonnier, and Emile de Girardin, doubles. In the class for 18 plants in 6-inch pots, Mr. Hill was the only competitor, having Hettie, Mrs. Patchett, Atala, and Rigoletto, scarlet; Olive Carr, pink; Prima Donna, white; Sophia Birkin and Gustave Morlet, salmon. Of doubles the best were Paul Bert and the Lord Mayor, pink; M. Crousse, flesh; Aglaia, deep red; Grand Cham, deep crimson; and Roi des Violettes, purple. All seemed to be admirable pot kinds. Mr. J. Morgan, gardener to Major Scott, Reigate, was the chief exhibitor of bunches of cut blooms of zonals, but no kind showed special merit or quality. Gloxinias, now among the most beautiful and decorative of summer pot plants, were represented by one inferior group, yet at nearly all provincial and suburban shows we see these beautiful plants shown so well.

ROSES.—The only exhibitors of Roses in pots were Messrs. Paul and Son, Cheshunt, and Mr. Rumsey, Waltham Cross. The former group included several fair standards and a number of dwarf plants moderately bloomed. The latter were all dwarfs in 8-inch pots and fairly well grown, but not yet at their best. Generally good known kinds were included, the Messrs. Paul having the fairy Roses such as Mignonette and the pretty Paquerette. Cut Roses were a better feature; although only three lots of twenty-four blooms were staged in the class, yet there was very good variety and quality; indeed, Mr. G. Prince's twenty-four, all Teas, were first-class, and could hardly be excelled. Messrs. Paul and Son's and Mr. Rumsey's lots included some rich-coloured Hybrid Perpetuals. Mr. Prince's Teas included Reine Marie Henriette, Souvenir d'un Ami, Prince of Wales, Madame Lambert, Homère, Bellefleur d'Anjou, Jules Finger, Catherine Mermet, Anna Olivier, Devoniensis, Souvenir d'Elise Vardon, Comtesse de Nadaillac, Maréchal Niel, Perle des Jardins, Francesca Kruger, Niphetos, and Innocenti Pirola, a collection which speaks for itself. In the other boxes were, of brighter colours, Paul Jamain, Avocat Duvier, Sénateur Vaisse, Grandeur of Cheshunt, Centifolia rosea and Madame Gabriel Luizet. Mr. Prince was the only exhibitor of cut Roses in the miscellaneous class, having boxes of that showy, though somewhat rough, Rose Lady Mary Fitzwilliam, Rubens, soft flesh; Anna Olivier, and Souvenir d'un Ami, all very

fine; and boxes of some forty-eight blooms in considerable variety, many of which have already been named, but none were more pleasing than Hon. Edith Giffard, almost pure white, solid, handsome form, and one of the most beautiful of its class we have seen; if not so pure as Niphetos, it is solid, and holds its admirable form to the last. Of other Roses well shown were Madame Chedame, clear straw-yellow, an admirable kind for bouquets; and the pretty reddish buff Ma Capucine.

BRITISH FLOWERS.—A very interesting competition for these, promoted by that enterprising botanist, Mr. Henshall, of Harpenden, and taken part in by boys of the Harpenden school, was found at the western end of the conservatory. As should be the case in all these wild flower competitions, all were shown in distinct bunches, and correctly named both botanically and commonly. Six prizes were awarded. Amongst the most striking things shown were Grasses in variety, scarlet Poppies, yellow Nymphaeas, Broom, Ranunculuses, Sainfoin, the Valerian, blue Cornflower, all presenting an admirable study.

MISCELLANEOUS GROUPS.—The exhibition was peculiarly rich in these, hardy flowers being in the ascendant; indeed, these were the great features of the meeting. Mr. T. Ware, as usual, filled a long stage with a wondrously varied group, including hardy *Cypripediums*, *Papaver nudicaule* in variety, *Delphiniums*, *Allium Murrayanum*, *Phlox ovata*, the purple *Campanula glomerata*, &c. Messrs. Barr showed *Ixias*, *Irises*, *Pyrethrums*, *Poppies*, and similar things in great variety. Messrs. Paul and Sons, Cheshunt, had so many hardy flowers, that they occupied no less than four tables, and comprised of pot things the pretty *Veronica rupestris*, *Phlox ovata*, *Liliums* in variety; also *Pyrethrums*, *Pæonies*, *Lupines*, *Doronicums*, a huge mass of mixed hardy flowers, and other things innumerable—a remarkable contribution. That effective climber, *Tropeolum polyphyllum*, fringed the whole length of one table—ample evidence of its free-growing qualities. *Disa grandiflora* was also well shown, and *Dictamnus Fraxinella* and *Centaureas* in variety were very effective. Mr. Krelage, of Haarlem, had some 200 *Pæony* blooms in great variety, but certainly lacking the body and rich hues found in our English-grown flowers. Messrs. Hooper and Co. sent from Twickenham a large quantity of cut blooms and numerous plants of their truly superb strain of *Gloxinias*, chiefly of the delicately traced, spotted and edged kinds, showing fine form, wondrous variety, and first-rate habit. A more beautiful strain can hardly be found.

A striking group, indeed, was the collection in baskets of samples of ornamental-foliaged trees, Brier Roses, *Liliums*, *Clematises*, &c., from Messrs. W. Paul and Sons, Waltham Cross. Of the former, *Quercus purpurea*, *Prunus Pissardi*, and *Corylus Avellana*, all dark purple, were most effective; and not less so was the strikingly yellow-leaved *Quercus Concordia*. Of the Austrian Brier, *Harrisoni* (yellow) and the old Stanwell Perpetual (pink), double Scotch (white), and others, were very beautiful.

PÆONIES.—The truly grand display of herbaceous *Pæonies* shown by Messrs. Kelway & Son, of Langport, shows that just what that firm has done for the *Gladulus*, so is it doing for what can only be described as the finest and grandest of all hardy herbaceous flowers. Without doubt, the motto of the firm is, "What is worth doing is worth doing well;" and although the soil and situation of Langport may be favourable to *Pæonies*, yet it is obvious that many others have the same advantages. Compared with Mr. Krelage's Dutch blooms—doubtless the best of that production—those of Messrs. Kelway were double or even in some cases treble in size, and singularly full, fresh, and rich. Of the few kinds enumerated below, selected because they combine great size with quality and variety of colour, it is worth saying that they are big enough, and larger cannot well be desired. To wish for larger blooms would be, perhaps, but to defeat the object in view, viz., to make *Pæonies* more popular than

even they are now, for monster blooms may become burlesques and provoke ridicule. That would be a misfortune. That the present grand flowers are not too big for *Pæonies*, we admit, but they are big enough for all purposes, and that should be recognised. The following amongst so many superb flowers seemed exceptionally fine and striking; Princess of Wales, pale flesh, grand double; Princess Henry of Battenburg, intense crimson, very full; Silenus, beautiful rich pink; Queen Victoria, large, flesh-tinted, very double; Beatrice Kelway, white-tinted pink; Lentatus, rosy red; Agenoria, a grand white; and Orobous, purplish red. Just as we have attractive single *Pyrethrums*, *Dahlias*, so have we single *Pæonies*, but it is certain that in this case they will never prove so effective a favourite as are the grand doubles. We look for body in a *Pæony* and expect to find it; hence singles are rather disappointing because loose, although when first expanded very beautiful. However, there are admirers of these singles no doubt, and the Messrs. Kelway grow numerous kinds, as was evidenced by their boxes of flowers. *Pyrethrums*, although so good and from this firm so admirably done, seemed quite outdone by the massive forms and rich hues of the *Pæonies*. A large collection of blooms of *Gaillardias* was a very attractive feature, as also were bunches of other perennials.

FRUITS, &c., SPECIAL PRIZES.—The competition for Messrs. Carter's Melon and Cucumber prizes was limited; only three lots of Cucumbers were staged, the best, Model, a very handsome sample, coming from Mr. Lockie, who was also first with a pair of Blenheim Orange Melons, the remaining pair, not a good sample, coming from Longford Castle. For Messrs. Sutton and Sons' prizes for a brace of Melons, Mr. Lockie was again first with Prince Imperial, green flesh, Hero of Lockinge being the next best kind. There were few exhibits before the fruit committee; a dish of huge Chinese Quinces, from South Australia, egg-shaped, but very hard in the flesh, good dishes of Stamfordian Tomato, samples of Carter's Knickerbocker Radish, with too much top, a half-decayed seedling Apple from Chard, and a handsome standard tree, well fruited, of Pingo de Mel Fig, from Messrs. Veitch and Sons, which was thought to be the same as Angelique.

A list of awards will be found in our advertising columns.

LATE NOTES.

Columbines (*Miss H.*).—The flowers so far are unusually large and bright in colour.

Diseased Almond leaves (*South*).—Your Almond leaves are attacked by a fungus, *Ascomyces deformans*, which is at present growing within the leaves. The only cure which I can suggest is picking off the leaves and burning them; this will probably diminish the amount of attack next year, even if it does not altogether stop its recurrence.—G. S. S.

Diseased Apple trees (*A. J. S.*).—Your trees are evidently in a bad light; but without inspection on the spot it is impossible to say in what way the disaster has occurred. We can discover neither insects nor fungi on the branches sent to us.

Names of plants.—*R. Y.*—*Oncidium pulvinatum*, *Maxillaria* (we do not recognise the species), *Stanhopes*, apparently *S. guttata*, *Odontoglossum vexillarium*, spotting not common.—*A. K.*—*Geranium armenum*.—*J. W. K.*—(Cannot name).—*G. Ainsworth*. *Oncidium crispum*, *Masdevallia Harryana*, very fine variety, but not Bull's Blood.—*D. M. Gray*.—1, *Polygonum Bistorta*; 2, *Veronica gentianoides*; 3, *Campanula glomerata speciosa*; 4, some species of *Geranium* (no flowers).—*C. Mangels*.—Shrub is *Andromeda axillaris*, *Saxifraga cristata* (white), *Thalictrum aquilegifolium*.—*W. D. H.*—1, *Pyrus Aucuparia*; 2, *Syringa Emodi*.—*F. W.*—*Syringa Emodi*, Himalayan Lilac. —*H. Scott*.—1, *Myosotis azorica*; 2, *Anthemis tinctoria*; 3, *Staphylea pinnata*; 4, *Pyrus Aria intermedia*.—*R. Chalmers*.—*Acerides crispum*, *Rhododendron fastuosum plenum*.—*H. D.*—*Lilium Szovitzianum*.—*J. W. E.*—White Pink, Napoleon III.; shrub, *Buddleia globosa*.—*E. F. C.*—1, *Euonymus europæus*; 2, *Ranunculus arvensis*; 3, Copper Austrian Brier. —*W. R.*—1, *Euonymus angustifolius*; 2 and 3, single varieties of Pink (*Dianthus plumarius*); 4, *Carex acuta*; 5, *Carex pendula*.—*P. L.*—We do not attempt to name sorts of Roses. This can only be done well by a specialist, or by someone possessing a large collection. —*W. B. H.*—A variety of *Tulipa Gesneriana*; cannot name the sort. —*R. Doreas*.—Probably you allude to *Dianella cerulca*, which most agrees with the description you give.

Name of fruit.—*O. C. Farrer*.—Apple, Northern Greening.

PROGRAMME OF THE LIVERPOOL SHOW.

THE provincial show of the Royal Horticultural Society will be held in the Botanic Gardens and Wavertree Park, Liverpool, from June 29 to July 5. Plants, fruits, flowers, vegetables, horticultural implements and appliances will be exhibited, for which, under various classes, the sum of £1200 will be awarded in prizes. These prizes are open to all competitors who reside in the United Kingdom, but no exhibitor can obtain more than one prize in any class. Valuable awards, ranging from £1 to £20, are offered for Orchids and other species of plants; also for cut flowers, fruits, and vegetables. Table decoration, bouquets, and grouped garden produce will greatly augment the attractiveness of the show, as well as offer substantial benefits to successful competitors. Eminent firms of seedsmen have offered prizes for various kinds of vegetables which are, severally, among their specialties; and a most novel and interesting exhibition will be that of horticulture on board ship, for which medals will be awarded according to merit. On Saturday, July 3, and Monday, July 5, there will be a cottagers' and artisans' show.

The exhibits of horticultural and botanical literature, science, and art will be divided into three sections:—

Section A.—Home and foreign literature of gardening, embracing instruction (elementary and advanced), models, diagrams, apparatus, &c.

Section B.—Technical art, such as surveying, plan and architectural drawing.

Section C.—Botanical and decorative art, such as photographs, and drawings in water colours and oil, of flowers, fruits, trees, and garden landscapes. An incentive to amateurs is offered in a competition for a hand-painted china or terra-cotta vase, tile, or plate, the subject being flowers, fruit, or foliage. The awards will be silver-gilt, silver, and bronze medals.

Applications for space for implements, garden structures, tools, and appliances have been numerous, including space for boilers entered for the boiler contest. All modes of heating, ornamenting, and ventilating conservatories, &c., meteorological instruments, wire-work, tenting, &c., will be prominently shown. Certificates will be awarded for any special novelty, approved of by the judges, that may be brought under their notice; also one or more gold medals for the most meritorious aggregate displays in any or all of the classes.

There will be a conference on the nomenclature of Orchids on Wednesday, June 30, in which some of the most eminent men of the day will participate. The whole exhibition will be one of great interest and value, not only to the general public, but also to scientists and practical gardeners; and persons intending to visit the International Exhibition of Navigation, Travelling, Commerce, and Manufacture, should make a point of doing so while the Royal Horticultural Society's show is in operation.

The main entrance to the show will be at the junction of Wavertree and Exhibition Roads, while another has been provided for at a point in the Exhibition Road opposite to the main entrance of the Shippieries, so as to enable visitors to pass freely from one exhibition to the other. With the exception of the space occupied by one large tent, which will be filled with Roses, and one or two smaller ones, the whole of the Botanic Gardens, including the lawns, will be available to visitors as a promenade.

The prices of admission to the show will be 5s. on June 29; 2s. 6d. on June 30; and 1s. on July 1, 2, 3, and 5. The show will be open to Fellows of the Society at 12 noon on June 29, and to the public at 1 p.m., closing at 7 p.m. On other days the hours of opening and closing will be 10 a.m. and 7 p.m. respectively, except on Saturday, July 3, when the hour of closing will be extended to 8 p.m.

Rosediseased (*R. V.*)—The disease is the familiar Orange fungus of gardeners, *Colosporium pingue* of botanists. Various washes have been published as remedies, but as the fungus grows inside the plant and bursts from the inside outwards, it is difficult to see how any wash can be effective. It is different with white mildew, which grows on the surface. With Orange fungus the better plan is to watch for it in its early stages of growth, and hand pick and burn.—W. G. S.

WOODS & FORESTS.

OAK BARK.

I AM afraid that, generally speaking, the prices this season for Oak bark are lower than last year, when they were so low that in some cases the margin of profit, after all expenses were deducted, was very small indeed, and scarcely worth all the worry and anxiety which a bark-wood entails. Here, in Yorkshire, we only finished stripping on June 5, so there is a considerable amount yet to cart to the stacks. On the whole the sap was good, but the continuous wet weather at the beginning of the season damaged the bark very much—in fact, instead of the first-stripped bark being the best, it is the worst, and the bark we have peeled during the last three weeks has the brightest colour, and will weigh the heaviest. Several tons of bark were immersed in water on May 14, owing to a beek overflowing, but fortunately it was only for an hour or two, or the bark would have been rendered useless. Of course, we shifted it at once to other ranges, where it soon dried. It is our practice to stack the bark either at a large barn we have for that purpose, and which is close to the station, or at the nearest farmhouse where there may be a suitable shed in which to chop it. Sometimes we make a stack in the wood and erect a rough cabin. But I prefer to have it at our permanent barn when possible, where the men can chop in stormy weather; and as there is plenty of space, they can continue chopping for several days if the tanner delays returning the bags, and a single horse and wagon can remove it to the station when required.

The custom of selling the bark in its rough state on the ranges in the plantations and neither stacking nor chopping it seems to be gaining ground, but I do not care for it for two reasons: you get a less price proportionately for the bark, because the tanner has to take the risk of the bark being spoiled by wet weather when it is nearly ready to lead, and he will take care to leave a good margin to cover it; and secondly, because I hold it is the duty as well as to the advantage of every landowner to give as much employment as he can to the tenantry on his estate when he can get the work done as cheap as by anyone else. Now, I presume the tanner must have the Oak bark chopped before it can be ground, and I am confident that the chopping can be done as well and as cheaply by the woodmen at home as by the tanner. Suppose it costs 8s. per ton to chop and bag the bark, what a difference it makes to a small village when 150 tons of bark (as in our case) are chopped by the workpeople!

Now, as to the prices of bark this season. A friend in Northamptonshire informs me that a large parcel has been sold for £3 per ton of 21 cwt., and another lot in an adjoining county has made £3 7s. 6d. net per ton, the purchaser in both instances buying it from off the ranges in the woods and paying the railway carriage, but the vendor carting it to the nearest station. The last-named price, £3 7s. 6d., is considered equal to about £4 2s. 6d. per ton chopped. At the Lincolnshire Bark Auction Sales held on the 20th May at Stamford, when 300 tons of excellent bark belonging to various proprietors were offered, prices ran from £3 5s. to £3 12s. 6d. per ton (of 20 cwt.), delivered in the rough by the vendor at the nearest railway station.

In this neighbourhood I have only heard so far of one sale, and the price offered was £3 3s. net per ton, unchopped, delivered at a tan-yard on the estate. That is a very low figure, quite £1 per ton below last year's prices.

I have had an offer of £3 17s. 6d. per ton for 50 tons of our best bark, less 2½ per cent. discount, chopped and put on the rail at our station. This I have not accepted, but I am asking £4 per ton. The cost of transit by rail and carting from the station to the tan-yard, in this instance, will be 9s. 2½. per ton, thus making the bark to cost the tanner at his yard £4 6s. 8½. per ton; this is from 6s. 6d. to 15s. per ton less than last year. Another tanner to whom I have offered 60 tons says he has bought this season's bark at a reduction of 10s. and 12s. per ton on last year's prices for the same class of bark and from the same people.

Looking at the state of trade all round, bark-sellers need not be surprised if they have to accept lower prices than those of last year. W. B. H.

NOTES.

Lasting qualities of wood.—In 1824 a village church with which I am well acquainted was freshly roofed. The existing roof-beams were of English Oak, and had been doing duty for 364 years. This now brings the time to considerably over four centuries, and in its present form, that of a seat in a farm kitchen, this Oak appears to be as sound as on the first day of its use. There are few things which could show such a record as this. Where would iron and steel be after four centuries of use? Whilst on the subject of the durability of woods, just a word about the Acacia. This, I find, is still held in considerable esteem by many on account of its lasting properties when buried in the soil. When a tree has been the subject of great interest, and the enthusiasm about it has died away, popular opinion generally goes to the other extreme, and it is condemned as being of little, or no good at all. In some respects the Acacia is a very useful tree, and I believe that the impression as to its durability is well grounded. In mixed plantations, here and there a tree of it would well repay planting. I know a place where there are a few trees of this Acacia, and they are kept expressly for posts. It is a wood which, though hard, works with a fair degree of freedom. There are a few coach-builders who seem to value it, as whenever possible they buy it up for spokes.

Sycamore for exposed sites.—The hills where I have lately seen the Sycamore flourishing overlook the valley of the Severn, but at a considerable distance from it, and some 600 feet or 700 feet above the sea level. The soil and subsoil is of the same nature as that upon which the Beech grows. On the surface stones are very abundant, and underneath the beds of stone are tolerably solid. In some cases, however, they are intermixed with rubble and smaller detached stones. I have had the opportunity of noting the progress of both deciduous and evergreen trees on these sites, but at the present time for foliage the Sycamore is much the best, and in the equally important matter of growth it seems to do as well as any. I do not wish to be understood as saying that such places are the best which could be selected for growing the Sycamore, as there is no doubt that in lower situations and on better soil it would make more rapid headway and reach larger dimensions; but I should not for a moment hesitate to employ it extensively for shade, shelter, or ornament under similar circumstances to those I have above detailed. The difference in the habits of trees when grown in isolated positions, or in plantations in company with others, is well illustrated in the Sycamore. In the cases to which I have been referring it is mostly isolated, or growing in single lines round the margins of fields or by the roadside. With a given number of trees, a much larger amount of shade can be obtained in this way than by closer planting, as a greater development of leaf surface naturally follows. The tree assumes a more rounded form; does not grow so high, but larger in the bole. In plantations it becomes very tall and slender. I do not remember having seen data as to the actual variation in measurement between trees grown under conditions similar in all respects, excepting those of planting closely or isolated. It is certain that there would be a greater number of branches in the latter case, but it would be interesting to know the actual difference

in cubical contents. There is always a difficulty in this method of comparison, but if a number of trees were taken, a sufficiently reliable result ought to accrue.

The Lime—This is a tree which does not generally thrive in such high situations as some other species, but it seems to do well on comparatively stony soils. On hillsides where the subsoil is rocky I have seen it attain a large size. I have recently been noticing some very fine trees of the common European species in situations of this nature; in fact, I do not recollect having seen more remarkable trees. It is a tree which is more planted in some districts than in others, but I think it is scarcely favoured as it deserves to be. As a timber tree it has considerable value—at least, a higher than the average of our common trees—and its ornamental character is beyond debate. This must have been recognised long ago, for it is mostly in the neighbourhood of the ornamental grounds that it is seen. For street planting in provincial towns and cities it seems to be coming into use. In these places it is essential to select a tree which becomes effective at an early age. This the Lime certainly does. Beyond these limits, however, there seems no reason why the Lime should not be more commonly seen. It cannot be regarded as being fastidious as to soils. It will certainly grow on as wide a range as the Poplars. One of the largest Limes I know and a fine white Poplar stand side by side. One does not like the idea of pollarding trees, but still it cannot be denied that trees which, from one cause or another, have lost their leading shoots often become highly ornamental. The large Lime to which I have just referred is grown in this way, as the main bole does not extend beyond a height of some 15 feet. Above this the head spreads in all directions, but now it is so densely covered with leaves, that it is difficult to see the branches without a very close inspection.

Ivy on walls.—Where stone walls are used as fences, their monotony can often be broken by allow-

ing Ivy to grow upon them at intervals. I do not now refer to regularly clothing them with this plant, which is frequently enough done in the neighbourhood of residences, but to the clumps which here and there spring up by the roadside and in the field. There are perhaps few who would care sufficiently for the effect to plant a few roots alongside such walls, but it is really worth the trouble. When it has grown to the height of the wall it generally develops into a bush, and goes a long way towards supplying the place of the hedges in partially removing the glare of the bare stone wall. As well as this, with dry stone walls Ivy has the advantage of holding the stones in position, and consequently preserves the whole erection. I remember the case, a few months ago, of a very old house which was pulled down. It was roofed with stone tiles, and entirely covered with Ivy. The agent told me at the time that the removal of this roof was a work of great difficulty, as the Ivy had gained such a firm hold upon the tiles, that it was almost impossible to dislodge them. In connection with the subject of Ivy, a small tree of a suitable species can be made a very pretty object when springing from an old stone wall. It was only the other day, in going through a gentleman's place, that I was much struck with the appearance of a young Mountain Ash growing out of the Ivy which had enveloped a rude stone arch. Such a thing, of course, is not uncommon, but just in this position, in passing from the ornamental grounds to the kitchen garden, it was especially appropriate.

D. J. YEO.

Trees for exposed ground.—*Pinus Pumilio* or *P. Pinaster* are the most suitable for planting on poor soil and on wind-exposed places, to which may be added *P. montana*, also well adapted for forming covert and shelter. The plants used should be stout and stocky, one year transplanted, and from 6 in. to 8 in. high, and may be inserted at a distance of about 4 feet apart, using an equal number of each kind, and mixing them in a regular manner as the work proceeds. The ground should be prepared by turning

up the sod on the most exposed side of the pit without breaking it down, by which means a small bulwark will be formed to break the blast and afford shelter to the young plants. Dig a spadeful or two of fresh clean soil, and place in the hole where the sod was removed to afford sufficient depth to cover the roots of the plants. If Bracken roots are on the place they should be rooted out, as they are decidedly prejudicial to the growth of young trees, so that the places where the trees are to be planted should not only be well cleaned from such, but it will also be necessary to look over the plantation every summer until such time as the trees are thoroughly established, and cut back any roots or foliage that may be encroaching upon the former. The places where the surface of the ground is covered with a dense mass of turf may be prepared in a similar manner, and when planting the trees leave the surface of the ground around the plants level (not sloping) in order to intercept water flowing from a high to a lower level after rain. Spring or autumn is the time for planting, and when the plants arrive from the nursery do not allow the roots to get dry; loosen out the bundles and cover them with dry, friable soil, convenient to the hill to be planted.—J. B. W.

Grubbing & sawing trees.—I have no doubt that "Yorkshireman" would be glad if I would send him a customer who would give him something for his tree roots and stub or grub them up. If he will compare his quotation with what I actually said, he will see where he has erred. I offered to send a customer who would give him something for the trees, *i.e.*, as they stand, and bear the cost of grubbing and removal as well. If the expense of grubbing was anything near what "Yorkshireman" assumes, the trees would obviously be worth nothing as they stand. If wages ran from 18s. to 20s. per week, which is not unreasonable, there must be a queer lot of workmen in Yorkshire if they could not fell more than a couple of 20-foot trees per man in a week.—D. J. YEO, *Lyncham, Wilts.*





